TANZANIA FOOD SYSTEMS RESILIENCE PROGRAM (TFSRP) PForR

TECHNICAL ASSESSMENT

April 2023

Acronyms

AFE	Eastern and Southern Africa
ACBP	Africa Climate Business Plan
AFSLD	African Food Security Leadership Dialogue
ASA	Tanzania Agricultural Seed Agency
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASDP II	Second Agriculture Sector Program
AU	African Union
AUC	African Union Commission
CAADP	Comprehensive Africa Agriculture Development Program
CAADP-BR	Comprehensive Africa Agriculture Development Program Biannual Review
CPF	Country Program Framework
CSA	Climate Smart Agriculture
COVID-19	Coronavirus-19
DADP	District Agriculture Development Plans
DALFO	District Agricultural Livestock and Fisheries Offices
ESSA	Environmental Social Systems Assessment
FCV	fragility, conflict, and violence
FAO	Food and Agriculture Organization
FSRP	Food Security Resilience Program
GASFP	Global Agriculture and Food Security Program
GDP	Gross Domestic Product
GHG	Green House Gases
GoT	Government of Tanzania
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
JSC	Joint Steering Committee
LGA	Local Government Authority
LMIC	Low- and Middle-Income Country
MAINL	Ministry of Agriculture, Irrigation, Natural Resources, and Livestock
MIIT	Ministry of Investment, Industry, and Trade
MPA	Multiphase Programmatic Approach
MoFP	Ministry of Finance and Planning
MSMEs	Micro-, Small, and Medium-sized Enterprises
NRM	natural resource management
OMM	Operations Maintenance and Management
PAD	Program Appraisal Document
PforR	Program for Results
PDO	Program Development Objective
PIT	Project Implementation Team
PS PO-RALG	President's Office in charge of Regional Administration and Local Governments
PS	Permanent Secretary
RA	Results Area
RISE	Resilient, Inclusive, Sustainable, and Efficient Infrastructure

SCD	Strategic Country Diagnosis
TARI	Tanzania Agricultural Research Institute
TDV	Tanzania Development Vision 2025
TOSCI	Tanzania Official Seed Certification Institute
TOC	Theory of Change
TFSRP	Tanzania Food Security and Resilience Program
VA	Verification Agency
WBG	World Bank Group
WRS	Warehouse Receipt System
ZARI	Zanzibar Agriculture Research Institute
ZSGRP	Zanzibar Strategy for Growth and Reduction of Poverty III

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I. PROGRAM DESCRIPTION

A. NATIONAL DEVELOPMENT STRATEGY

1. **The United Republic of Tanzania is a union between Tanzania Mainland and Zanzibar.** According to the 2022 Population Census, it was 61.7 million, including 1.9 million for Zanzibar[1]. The population is young, with a median age of 18 years, and growing at about 3 percent annually, placing Tanzania among the countries with the fastest population growth rates globally.

2. **Despite achieving the Lower Middle-Income Country (LMIC) status in June 2018, poverty remains a key challenge in Tanzania, with the Corona Virus pandemic and other shocks jeopardizing progress**. In 2018, an estimated 25.9 million Tanzanians lived below the international extreme poverty line of US$ 1.90 per day (2011 purchasing-power-parity terms). While strong macro fundamentals allowed Tanzania to emerge from the pandemic in relatively good shape, its recovery has been relatively moderate due to strong headwinds created by the war in Ukraine and recent draughts. Economic growth remains positive at 2 percent before rising to 4.6 percent in 2021, well above the SSA average of negative 2 percent. However, no reduction in the poverty rate is anticipated in 2022. The poverty rate for mainland Tanzania is projected to remain at 27.0 percent in 2022, about one percentage point above pre-pandemic levels. The number of people living in poverty will increase by about 450,000[2].

3. **Poverty reduction remains the main priority for the Government articulated in the Tanzania Development Vision 2025 (TDV).** The TDV 2025 goal to transform Tanzania into a semi-industrialized, middle-income country by 2025 is currently implemented through the Third National Five-Year Development Plan (FYDP III, 2021/22-2025/26), with the theme "Realizing Competitiveness and Industrialization for Human. The FYDPIII aims to promote inclusive growth by (i) completing major infrastructure flagship projects; (ii) deepening industrialization and service provision; (iii) streamlining business regulation; (iv) promoting trade and private investment; and (v) building human capital through targeted social spending. Similarly, Zanzibar's Development Vision 2050 (ZDV50)[3] is centered on human development and economic growth and is built around four pillars: economic transformation, human capital and social services, infrastructural linkages, governance, and resilience.

4. **Parallel targets are set in national strategies to reduce food insecurity, malnutrition, and job creation to reduce poverty further. The** plan targets growth in labor-intensive sectors such as agriculture, manufacturing, and services to absorb the growing youth labor force. Eight million jobs are expected to be created annually. Application of science, technology, and innovation and investing in research and development are pillars for improving productivity and efficiency. Improving targeted productive capacities for the youth, women, and disadvantaged groups are identified as one strategy for accelerating broad-based inclusive economic growth.

5. **Building resilience and preparedness for possible shocks is important for Tanzania's strong and sustainable economic growth.** Tanzania is among the most vulnerable countries to the impacts of climate change. It is prone to risks from extreme weather events, such as increased seasonal variation in rainfall and temperature, as well as frequent and prolonged droughts and floods. Droughts frequently occur in Tanzania, with devastating impacts on the economy, agricultural output, and hydropower

[1] Results of the 2022 Population and Housing Census, See https://sensa.nbs.go.tz/
[2] Tanzania Economic Update 2023: Clean Water, Bright Future: The Transformative Impact of Investing in WASH
[3] Zanzibar Development Vision 2050

generation, undermining efforts to alleviate poverty and food insecurity. Rapid urbanization can also exacerbate the effects of climate change in densely populated areas.

4. **In the wake of the continued crisis reducing fiscal space, increasing public resource allocation and utilization efficiency is paramount.** As Tanzania recovers from the Covid-19 pandemic, strives to withstand the effects of surges in energy and fertilizers prices, addresses the impact of the prolonged drought in 2021/22, which will affect food production, and needs to complete its flagship projects, available public spending may tighten, prompting the government to allocate resources more carefully to ensure the best possible returns. The achievement of Tanzania's Development Vision 2025 will increasingly depend on improving the efficiency and effectiveness of public spending and mobilizing private investments. Private investment is core to maintaining a sustainable and manageable public debt while pursuing Vision 2025. World Bank (2021) estimates that annual private investment growth would need to increase from an average of 8 percent in 2018-2019 to a minimum of 14 percent to reach the country's objectives.

B. AGRICULTURE SECTOR PROGRAM AND THE PforR

6. **The Government of Tanzania, like other countries in the region, recognizes the agri-food sector as one of its core sources of inclusive economic growth and rural poverty reduction**. Agriculture accounts for about 26.9 percent of GDP, 30 percent of exports, 65 percent of inputs to the industrial sector, 61 percent of the workforce, and 90-95 percent of the food requirements for the country. Its stable supply has been instrumental in maintaining low inflation. In Zanzibar, the sector contributed 21.2 percent of the GDP in 2019 and employed 70 percent of the population in 2020.

7. **Tanzania's mainland strategic document for addressing food insecurity and building resilience is the Second Agriculture Sector Development Program (ASDP II, 2018-2027)** 4. Its objective is to "transform the agricultural sector (crops, livestock, and fisheries) towards higher productivity, commercialization level, and smallholder farmer income for improved livelihood, food security, and nutrition." ASDP II aims to ensure sustainable food availability, food accessibility, and proper food utilization to be achieved through food production, stock management, trade and markets, and adaptive measures against the negative effects of disasters. ASDP II also targets food insecurity and malnutrition through specific activities such as production monitoring and early warning systems, national food reserves, postharvest management for reduced food loss, and nutrition campaigns. The strategic priorities of Zanzibar's Agriculture Sector Development Program (ZASDP 2019-2028) are aligned with ASDP II. Rain dependence being a core constraint to food production in Tanzania and Zanzibar, both programs have an ambitious vision for irrigation development. They are detailed in the National Irrigation Master Plan (NIMP) (2018 to 2035) for Mainland and the Zanzibar Irrigation Master Plan (ZIMP).

C. THE PforR PROGRAM BOUNDARIES

8. **The proposed operation will support a subset of Result Areas within the ASDP II program.** All the areas to be supported by the PforR are linked to existing budget lines. A summary of the proposed program areas can be found in Table 1.

[4] https://www.kilimo.go.tz/index.php/en/programmes/view/agricultural-sector-development-programme-phase-ii-asdp-ii

Table 1 - Comparison of ASDP II and PforR objectives and boundaries

		Government programs – ASDP II	The PforR	
Objectives		Transform the agricultural sector (crops, livestock & fisheries) towards higher productivity, commercialization level, and smallholder farmer income for improved livelihood, food, and nutrition security.	To increase productivity, commercialization, and climate resilience of agri-food value chains by building efficient and inclusive (strategic) delivery systems.	
Duration		2018-2028	2023-2028	
Geographic coverage		Nationwide	Nationwide	
Overall Financing		US$ 4,230 million**	US$ 300 million	
Priorities / sub-priorities		Included in PforR	Result Areas	
1	Sustainable Water and Land Use Management			
1.1	Land use planning and watershed management		No	
1.2	Irrigation infrastructure development		No	
1.3	Irrigation scheme management & operation		Yes	2
1.4	Water sources development for livestock & fisheries		No	
1.5	Promote Climate-smart agriculture (CSA) technologies and practices		Yes	1
2	Enhanced agricultural productivity and profitability			
2.1	Strengthen Agricultural extension, training, and info services		Yes*	1
2.2	Improve access to inputs and health services		Yes*	2
2.3	Research and development		Yes*	1
2.4	Strengthen and promote agricultural mechanization		No	
2.5	Improve food and nutrition security		Yes	2
3	Commercialization and value addition			
3.1	Develop market access for all priority commodities.		No	
3.2	Develop market access for fisheries and livestock products.		No	
3.3	Development of processing and value addition		Yes*	2
4	Sector enablers, coordination, and M&E			
4.1	Improve policy & regulatory framework and business environment		Yes	3
4.2	Strengthen organizational and technical capacities of farmer organizations		Yes	2
4.3	Promote and strengthen gender inclusiveness		Yes	3
4.4	Improve and strengthen coordination between ASLMs.		Yes	3
4.5-8	Improved capacity in system management, data collection, M&E		Yes	3
4.9	Improvement of ICT for Agricultural Information Services and Systems		Yes	3
4.10	Provide microfinance services		No	

*crops only

9. **The proposed PforR operation will encompass three mutually reinforcing result areas,** which all support building resilience and competitiveness of the agri-food sector and enhancing the efficiency, effectiveness, and impact of the MoA's public investments and related policy and institutional arrangements/systems. Result Area 1 will improve service delivery in research, seeds, and extension services through Information and Communications Technology (ICT) development to improve productivity, increase resilience and reduce food insecurity. Result area 2 will reinforce the delivery of resilient rural infrastructure, specifically irrigation and postharvest storage, to promote crop and

vegetable value chain commercialization and stable and diversified food supply. Result area 3 will strengthen the institutions that enable agri-food public services to be delivered to support the needed transformation of the agri-food sector at scale

10. **The scope of the Program includes recurrent and operating costs, goods, civil works, and services**. In accordance with the World Bank's Policy and Directive on PforR Financing, it excludes high-risk and high-value activities, defined as those that (a) are judged to be likely to have significant adverse impacts, which are sensitive, diverse, or unprecedented on the environment and affect the population; and (b) involve procurement of goods, works, and services under high-value contracts.

D. Multiphase Programmatic Approach

11. **The Food Systems Resilience Program for Eastern and Southern Africa (MPA, P178566) was approved by the Board on June 21, 2022,** with an overall financing envelope of US$2.3 billion and four recipients under Phase 1: Ethiopia (US$600 million equivalent), Madagascar (US$158.1 million equivalent), IGAD (US$25 million equivalent) and CCARDESA (US$5 million). Effectiveness has been declared for Madagascar (August 16, 2022), CCARDESA (September 16, 2022), and IGAD (September 22, 2022). Ethiopia became effective on November 28, 2022. Phase 2 for Tanzania (PforR, US$200 million equivalent) and phase 3 for Comoros, Malawi, and the Africa Union Commission (IPF, US$375 million) are expected to be submitted for proposal later this fiscal year. However, lessons from first phase and the FSRP West Africa (P P178566) have been applied to the design of this PforR. These include integrating the use of regional indicators and ensuring strong alignment strategic agendas promoted by the African Union Commission and Regional Economic Communities **The PforR is well aligned with the FRSP MPA**. Table 2 summarizes the alignment of the MPA with the TFSRP Program.

Table 2 - Alignment between the MPA and the PforR Program

TFSRP Results Areas	RA1 - Strengthening Delivery Systems in research, extension, and seed	RA2 - More resilient agricultural infrastructure	RA 3 – Strengthening fiscal performance to enable the delivery of the priority investment areas
MPA Components			
1. Responding to a Deteriorating Food Security Situation			DLI8
2. (Re-)Building Resilient Agricultural Production Capacity			
2.1: Developing National or Regional Agricultural Information Systems	DLI2		
2.2 Developing and Delivering Resilience-Enhancing Technologies and Services	DLI 1, DLI 2, DLI 3		DLI 6
3. Supporting the Sustainable Development of Natural Resources for Resilient Agricultural Landscapes			

3.1: Identification and Validation of Interventions at the Local or Watershed Level			
3.2: Investments in Sustainable Natural Resources Management		DLI4	
4. Getting to Market			
4.1: Strengthening Agrifood Value Chains	DLI 2		
4.2: Upgrading Agrifood Marketing Infrastructure	DLI 3	DLI 5	
5. Promoting a Greater Focus on Food Systems Resilience in National and Regional Policymaking			
5.1: Making Food Systems Resilience a Priority in Public Policies and Spending			DLI 6, DLI 7
5.2: Building Institutional Capacity to Implement Resilience-Focused Policies	DLI 1, DLI 2, DLI 3		
5.3: Supporting Regional Organizations to Build Food Systems Resilience Transnationally	DLI 1		
6. Contingency Emergency Response Component (CERC)			
7. Program Management			

II. DESCRIPTION AND ASSESSMENT OF PROGRAM STRATEGIC RELEVANCE AND SOUNDNESS

A. STRATEGIC RELEVANCE

12. **The Government of Tanzania, like other countries in the region, recognizes the agri-food sector as one of its core sources of inclusive economic growth and rural poverty reduction**. Agriculture accounts for about 26.9 percent of GDP, 30 percent of exports, 65 percent of inputs to the industrial sector, 61 percent of the workforce, and 90-95 percent of the food requirements for the country. Its stable supply has maintained the country's low inflation rates.

13. **Tanzania is among the most vulnerable countries to the impacts of climate change.** It is prone to risks from extreme weather events, such as increased seasonal variation in rainfall and temperature, as well as frequent and prolonged droughts and floods. Droughts frequently occur in Tanzania, with devastating impacts on the economy, agricultural output, and hydropower generation, undermining efforts to alleviate poverty and food insecurity. Rapid urbanization can also exacerbate the effects of climate change in densely populated areas.

14. **In the wake of the continued crisis reducing fiscal space, increasing public resource allocation and utilization efficiency is paramount.** As Tanzania recovers from the Covid-19 pandemic, strives to

withstand the effects of surges in energy and fertilizers prices, addresses the impact of the prolonged drought in 2021/22, which will affect food production, and needs to complete its flagship projects, available public spending may tighten, prompting the Government to allocate resources more carefully to ensure the best possible returns. The achievement of Tanzania's Development Vision 2025 will increasingly depend on improving the efficiency and effectiveness of public spending and mobilizing private investments.

15. **The current macroeconomic situation calls for investments in growth-creating activities and increased efficiency of public spending.** Achieving 'Tanzania's Vision 2025 will depend on creating 8 million jobs and sustaining improvements in social indicators[2], requiring growth in labor-intensive sectors such as agriculture, particularly agro-processing. Yet the fiscal deficit expanded to 4.2 percent of GDP in 2020/21, above the 2.7 percent national target, driven by increased spending on service delivery and the implementation of capital projects. The deficit was largely funded by increased domestic borrowing, with the cost of debt service now consuming nearly 40 percent of domestic revenue. Tanzania's risk of external debt distress thus increased from low to moderate (TEIMF-World Bank Debt Sustainability Analysis September 2021). On the positive side, the Tanzanian shilling (TZS) remained relatively stable, and inflation was among the lowest and least volatile in the EAC in 2021 (4.1 percent in November). This macroeconomic situation calls for efficient and well-targeted public spending and increasing levels of private funding.

16. Despite progress over the last decades, an estimated 28.6 million Tanzanians still lived below the international extreme poverty line of US$ 1.90 per day in 2019 (2011 purchasing-power-parity terms, World Bank 2021[5]). In Zanzibar poverty rate fell from 34.9 percent in 2009 to 25.7 percent in 2019, translating to a 9.2 percentage point drop in 10 years. Tanzania has the fourth largest population of poor people in Sub-Saharan Africa and the worst poverty rate among new LMICs (27.0 percent in 2021, TEU 2022). Four-fifths of the poor live in rural areas[6] (TEU 2022). With 61 percent of the workforce engaged in agriculture, strengthening the sector's performance and resilience (particularly to weather shocks) remains a top priority. As the agricultural growth rate is projected to rise to 4.6 percent in 2022 (from 3.1 in 2020), the rural poverty rate is expected to drop to 28.9 percent in 2022 (from 30 percent in 2021).

17. Malnutrition and household spending on food are persistently high. Currently, 32 percent of children under five years old are stunted, and 10 percent of the total population is either moderately or severely food insecure. Food production is on an upward trend. Tanzania's mainland now produces about 18 million tons of food against a 13 million tons food demand per year. Yet, among households in the lower income quintiles, spending on food staples still consumes more than 30 percent of total household spending[2].

18. **Tanzania has a robust policy framework to guide public expenditure in the agri-food sector.** The GoT's TDV 2025 and the third Five-Year Development Plan recognize the centrality of agriculture to reach national objectives and set ambitious goals for transforming the sector.

19. **The development goals envisioned in these frameworks are articulated in the sector strategies and policies and implemented through the Second Agriculture Sector Program (ASDP II)7.** Launched in 2018, ASDP II is a ten-year program that guides investments in the agriculture sector. Its objective is to "transform the agricultural sector (crops, livestock, and fisheries) towards higher productivity,

[5] https://databankfiles.worldbank.org/data/download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/AM2020/Global_POVEQ_TZA.pdf

[6] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099850002282226344/p174894034150b0080a42e081bd547a37b8

[7] The United Republic of Tanzania (2017), Agricultural Sector Development Programme Phase II (ASDP II).

commercialization level, and smallholder farmer income for improved livelihood, food security, and nutrition." ASDP II aims to ensure sustainable food availability, food accessibility, and proper food utilization to be achieved through food production, value addition and stock management, trade and markets, and adaptive measures against the negative effects of disasters. ASDP II also targets food insecurity and malnutrition through specific activities such as production monitoring and early warning systems, national food reserves, post-harvest management for reduced food loss, and nutrition campaigns. The strategic priorities of Zanzibar's Agriculture Sector Development Program (ZASDP 2019-2028) are aligned with ASDP II. Rain dependence being a core constraint to food production in Tanzania and Zanzibar, both programs have an ambitious vision for irrigation development. They are detailed in the National Irrigation Master Plan (NIMP) (2018 to 2035) for Mainland and the Zanzibar Irrigation Master Plan (ZIMP).

20. **Government is committed to strategic public investment in the agri-food sector**. Since 2017/18 and until 2021, agriculture has been averaging 2.25 percent of its national budget and about 0.5 percent of its GDP. The tight agricultural budget left little fiscal space for development expenditures and has hampered the implementation of ASDP II, slowing down the agricultural transformation needed to materialize TDV 2025 and deteriorating key aspects of public service delivery (see text box 1). Acknowledging the need for additional resources, the Government increased budget commitments to the Ministry of Agriculture by 13 percent in 2021/22 and 2022/23 by 155 percent. Beyond levels, predictable budgets enable agencies to create viable medium to longer-term plans and engage more effectively in the resilience agenda. For example, researchers can establish greenhouses to explore new plant breeds; extension agencies can establish a multi-seasonal learning curriculum and invest in models that enable greater social inclusion; irrigation agencies can develop, apply, monitor, and adjust models for improving operations and maintaining irrigation schemes. Furthermore, the GoT has demonstrated an openness to reworking fertilizer subsidy programs to maximize their effectiveness and impact.

Box 1: Impact of Tanzania's low and volatile agriculture sector budget

Irrigation: Irrigated areas cropped by farmers went down from a low 3 percent to 2 percent of all farmed areas between 2008 and 2020. Irrigation systems remain rudimentary, with extremely low efficiency (over half of it is hand water buckets), and lack maintenance, monitoring, rehabilitation, and modernization. Zanzibar has 325,000 ha of arable land, with only 800 ha under irrigation out of the cultivated 139,000 ha.

Knowledge Services: Between 2008 and 2020 access to extension services collapsed from 67 to 7 percent, with women being the most affected.

Research: Funding for agricultural research shrank to rank among the four lowest in Africa. Despite its importance, public varietal development is crucially underfunded, as witnessed by the drop in public variety released since 2020. (World Bank, PER 2022).

Competitiveness: The competitiveness of Tanzania's agri-food value chains is constrained by underdeveloped markets, market infrastructure, farm-level value addition, and poor rural infrastructure, including rural roads, telecommunications, and electricity (Global Center on Adaptation 2021).

21. **Private sector investment remains a challenge**. Private sector investment remains constrained by limited access to long-term capital, low-capacity levels, and business skills. However, agriculture GDP growth picked up during the period of recent policy reforms. Interestingly, the upturn in growth overlaps

the period of policy reforms and reallocations of the public sector budget to agriculture. This indicates that Tanzanian agriculture's growth rate is responsive to policy reforms.

22. **Further steps to strengthen the private sector's engagement could accelerate progress toward increased productivity and resilience**. Immediate reform areas include reducing the distortive effects of subsidies and identifying commercially focused private-public partnerships in key areas (for example, the seed sector and post-harvest storage). Harmonization of policies at the regional level will also facilitate intra-regional trade. Reducing or eliminating distortive trade measures and reducing the cost of on-farm fixed capital formation would help increase efficiency. Improving access to rural finance could also foster private farm and cooperative innovation. Protecting innovation also implies counterfeit fighting inputs; this requires the development of government laboratories, strengthening Tanzania Official Seed Certification Institute (TOSCI)'s role in seed quality control, and scaling up its current initiatives against fake seeds.

23. **Climate change adaptation and mitigation are urgent and crucial for Tanzania and require significant scale-up of investments in climate-smart agriculture research, training, and extension.** Ambitious climate change adaptation plans for the agri-food sector exist but have not been implemented due to insufficient public financing (World Bank-FAO 202210). Consequently, adaptation to climate change has barely progressed since 2014, as well as sustainable intensification. Yet the cost of climate inaction in agriculture in Tanzania is estimated to be at least US$ 1.41 billion by 2040. On the mitigation side, agriculture per se contributed to 38 percent of the country's GHG emissions in 2019. Yet as the growth of Tanzania's national agricultural output (+58 percent in real terms between 2007/8 and 2016/17) is almost entirely due to expansion of the cultivated area (+ 57 percent between 2008 and 2020) over forests, Land Use Change and Forestry (LUCF) – overwhelmingly due to agricultural land conversion – amount to 46 percent (Climate Watch, 2022). The sector thus produces 84 percent of the country's emissions. Large potential for climate change adaptation and mitigation exists through significant upscaling of investments in innovation (including seeds and micro-irrigation), sustainable intensification of existing farm areas, improving operations and maintenance in existing public irrigation schemes, reducing land conversion, and dissemination of CSA practices such as agroforestry and efficient water-uses[8].

24. **Under ASDP II, irrigation is the main driver of the sector's modernization**. The Government's commitment to irrigation was emphasized in the President's budget address in 2021 and 2022. In 2022/23, the budget allocation for irrigation was increased by 777 percent to US$ 157 million from the 2021/22 allocation. As a result, the area under irrigation will significantly expand. However, half of the public irrigation infrastructure is dysfunctional (2020 Agriculture Sample Census data). Two recent World Bank ASAs[9] indicated that the irrigation sector could best contribute to agricultural development goals by optimizing the use and sustainability of irrigation assets. Enabling community driven Operations, Management, and Maintenance (OMM) would enable farmers to support the sustainable use and maintenance of infrastructure, which will increase the efficiency of water management, increase food productivity and support an increase in the use of climate-smart technologies and overall resilience (including more stable food supply).

[8] CIAT and World Bank. 2017. Climate-Smart Agriculture in Tanzania. CSA Country Profiles for Africa Series. Washington, D.C: International Center for Tropical Agriculture (CIAT); World Bank.

[9] World Bank, 2022, *Resilient, Inclusive, Sustainable and Efficient (RISE) Irrigated Agriculture in Tanzania: An analysis of sector challenges and opportunities for accelerated growth* and *Tanzania Assessment of Governance and Institutions of Service Delivery in Irrigation Sector*.

25. **There is a significant and persistent gender gap in agricultural growth and poverty reduction**. The gender gap in agricultural productivity is estimated at 20-30 percent, and a full 97 percent of the gap is explained by women's diminished access to male family labor. In contrast, the remaining percent reflects lower agricultural implements and pesticide access. In 2017, 44 percent of men had a mobile money account versus just 33 percent of women. About 25 percent of men are sole landowners versus just 8 percent of women. Tanzania's rates of landownership are below the average for Sub-Saharan Africa due mainly to low rates among women.

26. **Tanzania is not maximizing its potential and regional partnerships as a food exporter but has set ambitious targets to improve**. Agriculture exports have steadily decreased from US$ 2.9 billion in 2014 to US$ 1.7 billion in 2019 (-8 percent per annum). According to the Observatory of Economic Complexity (2021), vegetable products (coconuts, Brazil nuts, cashews, raw tobacco, sesame, coffee, etc.) and dried legumes and foodstuffs are, respectively, the second and third largest (in value) categories of products exported by Tanzania in 2019. Vietnam, China, India, and Kenya are the main destinations. Tanzania is undergoing a switch in its export strategy, with cash crop exports being progressively replaced by food crop exports to seize the opportunity from the growing food market in the Region. Under the Agenda 1030 initiative, Tanzania targets to increase its food crops exports from US$ 500 Million in 2022 to US$ 3 billion in 2030. Specifically, exports of maize, rice, soy, and cashew nuts are projected to double from US$ 500 million to US$ 1 billion within those seven years. Realizing its commercialization potential would require Tanzania to rebuild regional trade partnerships, further engage in regional trade facilitation dialog and invest in innovation, value addition, storage, feeder roads, and transport hubs.

27. **Recent shocks have underscored the need to invest in strengthening the resilience of Tanzania's food system to contribute to that of the Region**. The Russia-Ukraine conflict, combined with the impacts of COVID-19, has caused higher fuel, fertilizer, and food prices. Increases in the cost of edible oils and wheat will affect all households but severely hit the poorest. Recent estimates show that the combined food, fuel, and fertilizer shocks will lead to an additional 1.2 million people falling below the poverty line. The fertilizer shock is most detrimental for poorer rural households, which rely more heavily on agriculture for their income and spend a larger share of their income on food. It also trickles down to other countries in the Region, Tanzania being with Kenya the two largest sources of fertilizer for the Region (except for Sudan and Ethiopia). The analysis shows that reduced fertilizer availability and use in response to higher prices will make real GDP fall by 1.3 percent. Ukraine and COVID-19 may be considered unique shocks; however, the growing implications of climate change indicate that future shocks are likely to be more frequent and severe.

28. **Finally, Tanzania is well-placed to be a key player in the growing momentum to address food systems resilience at the regional level**. The country is a key player in regional initiatives, including establishing a regional center of excellence for rice mandated to support regional research and dissemination of rice technologies and practices across AFE, coordinated by the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). In 2019, the African Food Security Leadership Dialogue (AFSLD) was convened in Kigali, bringing together African leaders and development partners and raising the ambition for joint action to solve the Region's food security challenges. Key priorities identified by the AFSLD include food systems' adaptation to climate change, leveraging science and digital technology, and strengthened collaboration among development partners. It emphasized the need to implement existing agricultural and food security commitments, including the African Union (AU) Agenda 2063 and the Malabo Declaration. The AUC monitors progress toward delivering the Malabo Declaration every two years. Tanzania is one of only five countries consistently delivering on the Malabo Declaration commitments. This underlines Tanzania's regional role as a leader

in transforming the agri-food sector and a source for understanding the processes, policies, and technologies that can help inform governments in the Region.

29. **The PforR is strategically relevant.** The Program's focus and objectives are addressing the challenges of climate change, increasing inclusive access to technologies and knowledge, enabling increased regional integration, and improving resilience through the efficient and effective use of public resources.

B. TECHNICAL SOUNDNESS

31. **The Program is focused on mutually reinforcing solutions to building resilience, improving the response to climate change, addressing food and nutrition security, and creating an inclusive food system for the future**. The design draws on lessons generated within the country, regional and global experience. The Program is centered around maximizing public investment's efficiency, effectiveness, and impact. Results Areas are concentrated on providing predictable budgets, maximizing the use of digital solutions, introducing performance-based contracts, strengthening the management and execution of budgets, and enhancing public investment in risk management. There is a strong international consensus that these areas will improve productivity and build resilience. A summary of the program's thematic areas and the bottlenecks identified by the assessment are as follows:

Improving Investment into Research Systems.

32. **Unpredictable, fragmented, and volatile financing of Agriculture Research has been a challenge for the past decade**. As a result, public funding for agricultural research shrank to rank among the four lowest in Africa. Public varietal development is crucially underfunded, as witnessed by the drop in public variety released since 2020. (World Bank, PER 2022). A predictable budget allocation would allow research institutions to refurbish essential infrastructure (greenhouses), invest in new technology, and strengthen systems for human capital development (including attracting young women into agri-food sciences). Research has indicated that one dollar invested in agricultural research generated, on average, over the past three decades in mid to low-income countries, a stream of future benefits equivalent to US$ 10 (in net present value terms)[10].

33. **The program will provide TARI with a predictable budget.** Specifically, over the next five years would allow Tanzania's research agencies to significantly increase their contributions to delivering ASDP II by improving productivity, building the resilience of the food system, and responding to the challenges of climate change. Predictable financing would allow investment in refurbishing key infrastructure (seed and soil testing labs, molecular labs, greenhouses), developing new varieties and other technologies, and the building skills development required to accelerate the development of technology and knowledge. This increase in financing for agricultural research in Tanzania would strengthen the region's approach to resilience and food security through improved partnerships and knowledge exchange.

Expanding the Use of Digital technologies.

34. **Global experience shows that expanding the use of digital solution raises on-farm productivity and climate resilience** through increased resource use efficiency (e.g., water, energy, fertilizers, and pesticides), e.g., through precision agriculture. E-government can improve the transparency and efficiency of public services by digitizing land tenure mapping, registration, public support distribution, weather forecasting, and digitalized extension services. E-extension services can help overcome the constraints of

[10] Alston, J. M., Pardey, P. G., Rao, X. "Rekindling the Slow Magic of Agricultural R&D." Issues in Science and Technology (May 3, 2021).

traditional extension and provide cost-effective ways of reaching more farmers at lower costs and promoting the inclusion of marginalized rural producers in markets. Investment in this area is particularly relevant to Tanzania as extension services are constrained by (i) a low number of extensionists, (ii) a lack of specialized training, and (iii) inadequate resourcing. Digital technologies can be used as a complement to field advisory visits rather than a complete substitute. Messages could be customized based on farmer characteristics, such as education or financial circumstances. Integrated e-platforms directly link producers to consumers, shorten agricultural value chains, provide access to new markets, improve price transparency, and offer new business opportunities for both small agricultural producers and small and medium enterprises. Additionally, various ICT technologies can improve value chain transparency and traceability, delivering safer and better quality agri-food products to local and export markets.

35. **The National strategies recognize the importance of ICT technologies for creating new momentum for increasing efficiency, equity, and environmental sustainability in agri-food systems**. ASDP II underlines the importance of modern ICTs to facilitate greater dissemination of information on agricultural practices. Like ASDP, there is a focus on e-extension services, which is expanded to e-learning, market information, and developing innovative ICT-based approaches to financial advisory services. Specifically, the ASDP II aims to (1) consolidate the government's current agricultural data centers into one state-of-the-art facility; (2) provide improved ICT infrastructure and standardized security services to external suppliers of e-services such as e-wallet; (3) enhance intercommunication between integrated solutions; (4) support data collection, processing, and cataloging; (4) equipping of agricultural advisors/extension in selected areas with ICT tools (low-cost tablets for advisors, smartphones for lead farmers) and methodologies to enable enhanced access to technical and economic information and relevant information sharing networks. As part of this process, the MoA seeks to accelerate farmers' access to climate-smart technologies and weather-related messages, including early warning systems and predictive models for pest and disease outbreaks.

36. **The program aims at improving the efficiency and access to information for increasing climate resilience and productivity** by (1) completing the national registration of 7 million farmers, (2) merging the register with other databases to provide platforms that can provide real-time food price and market data; plant health data (such as pest and disease outbreaks and management), soil data mapping, hydromet data (based on real-time weather, water, early warning for droughts and floods, and climate information), geospatial data (from European Space Agency combined with on-ground surveys) and agricultural production and food supply data and (3) providing training to 7,000 extension workers to increase understanding of how data-driven technologies can support farmers in identifying and applying climate-smart technologies. Specific activities will include developing a roadmap for digital agriculture, creating and applying digital platforms, establishing links to credible data sources, including the private sector's initiatives, such as marketplaces, weather, and pest management, and developing apps suitable for youth and women. The roadmap will also focus on increasing digital literacy levels in rural areas and ensuring the trust, privacy, and protection of consumers and businesses.

Seed Access to improve quality seed.

37. **Limited access to quality improved seed varieties adapted to climate change, in sufficient quantities and at the right time and conditions accessible to small farmers is one of the main challenges for improving agricultural productivity in Tanzania**. The limited access to improved seeds is attributed i) to insufficient financial resources for the seed sector, ii) Low irrigation capacity at seed farms is a major constraint, recently aggravated by climate change with prolonged drought conditions[11], iii) operational

[11] Out of the 16/17 public seed farms, only one seed farm (Kilangali) is equipped with irrigation infrastructure (400 ha out of 600ha

constraints including: the availability of improved breeder seed for multiplication, lack of mechanization, processing and storage facilities, standard packaging materials, and logistics infrastructure iv) insufficient numbers of inspectors and laboratory analysts, v) and effective management of piracy risks. In addition, there is low farmer's awareness and demand for improved seed discourage private sector investment in the seed production business.

38. The program will incentivize scaling up certified seed production in the country, which will be allowed by improved linkages within the value chain and increased public-private partnerships and improved research-extension nexus

Improving the Sustainability of Investment into Irrigation.

39. The development of water-efficient irrigation is a key bottleneck of agricultural growth in Tanzania. Under ASDP II, irrigation is identified as the main sector driver for modernization. Current OMM arrangements are identified by the NIRC to be inadequate for effective irrigation service provision and the institutional status quo and associated technical approaches for scheme OMM are identified to be key contributors to the weak financial and technical sustainability observed on public schemes. As a result, the existing public irrigation infrastructure resource is not only in decline but making a significantly smaller agricultural and economic contribution than is possible with better irrigation service provision.

40. **National Irrigation Act (NIA) provides for a range of public, farmer organization or corporate entities to undertake OMM**. In practice however, the OMM role is assigned or assumed by Irrigator Organizations (IOs) or institutionally ill-suited agricultural cooperatives. These volunteer-based organizations are supported by the District Irrigation Department at LGAs with the NIRC providing organizational development, annual planning support, and finances for infrastructure emergency repairs and rehabilitation. The operational capability of the Irrigator Organizations (IOs) and the District Irrigation Departments was identified in a detailed diagnostic in 2022 (supported by the World Bank) as a critical weak point and the NIRC is intent on a new strategic direction enabled by the current legal framework. The *NIRC* aims to assume responsibility of *bulk service provision,* where the complexity or size of the hydraulic works and infrastructure is beyond the reasonable capability of the IOs. Responsibilities for the *less complicated and smaller scheme elements* would then fall to the *IO*. In this context, a DLI to establish and implement performance-based contracts between NIC and IO's and train all involved parties to undertake a clear demarcation of their OMM responsibilities in relation to different elements of the irrigation schemes, is essential. This will increase reliability of the irrigation water service, reduce farm risk, and ensure operational integrity of existing and new high-value irrigation infrastructure in the long term.

41. **The Program will introduce Performance-based Operations, Management, and Maintenance (OMM) contracts**. These contracts will enable farmers to support the sustainable use and maintenance of infrastructure, increasing water management efficiency, food productivity, and overall resilience (including a more stable food supply).

Improving Access to and Sustainability of Post-Harvest Infrastructure.

42. While Tanzania has invested in warehousing infrastructure and established a functioning Warehouse Receipt System, the majority (close to 60 - 70 percent) of publicly owned warehouses are not operating due to ownership and governance challenges. Many of these investments have not achieved the intended outcomes. The core capacity gap in value chains is not the physical hardware of warehouse storage capacity but the critical software for establishing effective market linkages to create production incentives for smallholder farmers. Various challenges limit farmers' use of public warehouses. The main challenges related to governance and software part of the system, like lack of price signaling and demand-pull, rather than physical warehouse capacity.

43. **The Program will support the efficient management of public warehouse facilities.** These facilities contribute to increasing food supply, first step processing (and thus value addition), and reducing food losses (which currently stand at 30 – 40 percent for cereals and as high as 60 percent for horticulture crops) and lead to an overall improvement in value chain commercialization and a more resilient food system. The Program will focus on: i) establishing new by-laws that improve the governance of warehouses and ii) rolling out new practices for the management and operation of public warehouses, including greater participation of the private sector through leasing arrangements.

Improved agricultural budget monitoring and predictability.

44. **Budget predictability is expected to be weak. Over 2017/18-2021/22, insufficient fund releases (low outturn) affected budget predictability and compromised the budget's credibility (World Bank and FAO, 2022).** With only 33 percent of the budget development budget executed, the difference was attributed to unrealistic government budget allocations. Budget revisions have also been common in Tanzania to reallocate funds within sectors over the past years. The original budget might not have focused on the major priorities, hence a need for reallocation to ensure that priority sectors receive adequate funds. This mismatch between budgeted and actual amounts released makes it difficult to plan effectively and implement policy reforms.

45. **Delays in fund releases remain a concern, with significant portions of development funds for MDAs usually released in the final month of the fiscal year**. This is a serious problem in agriculture, given the seasonal nature of agricultural activities.

46. **The program will support improved performance by the through**: i) improved budget outturn, measured by timely release of monthly approved cash plans and end-of-year budget outturn; ii) strengthening budget data collection and analyses to monitor budget management closely, iii) identifying and promoting at national and regional levels best practices, and iv) mentoring and supporting poor-performing authorities. This DLI will provide the incentive for the Ministry of Finance and Planning (MoFP) to honor the allocation approved for the agricultural agencies (MoA, NIC, TARI, etc.) and totally for the sector; each agency's cash flow plan reflects the calendar needs of the sector; and the challenges faced by the investment component.

Maximizing Soil Health.

47. Land degradation and low soil fertility affect Tanzania's agricultural productivity and resilience, accounting for an estimated "hidden" cost of 13.7% of the country's GDP. Land degradation has been ranked as the top environmental problem for Tanzania for more than 60 years, with soil erosion affecting about 61% of the land area. The annual cost of land degradation due to land use and land cover change over 2001–2009 was estimated at USD 2.3 billion, or about 13.7% of GDP. The costs of action against land degradation are estimated at 3.8 times lower than the costs of inaction over a 30-year horizon. A developing body of evidence confirms these findings at local levels in Tanzania.

48. **Improvements in soil health are key to boosting agricultural productivity**. Better-managed soils show an improved structure with increased organic matter, biodiversity, plant-available water, and nutrient availability. Integrated soil fertility management has increased yields up to three or four times over current farmer practices in SSA. A study in Tanzania on maize and pigeon pea crops found that its adoption boosted smallholder farmers' purchasing power by 32%. At the same time, evidence supports that agroforestry technologies increase crop yields and overall system productivity in smallholder farming systems. In addition, healthier soils reduce the impacts of the year-to-year or season-to-season weather variability on productivity.

49. **The program will incentivize the scaling-up and acceleration of the soil quality testing and mapping that MoA has already initiated and pave the way for future carbon financing**. It would start by supporting the Government in developing a country-wide agricultural soil map based on soil samples and modeling. A second step would involve translating soil knowledge into agronomic advice for farmers (including digital services) to improve their soil health (particularly organic carbon content), depending on their crop choices.

50. In summary, the proposed Program is technically sound, and the design considers the respective mandates of the key entities involved in its execution. The Program is adequately structured with clear linkages between Program activities and the results. It focuses on key challenges facing the food system. The design of the Program draws on global best practices.

C. INSTITUTIONAL ARRANGEMENTS FOR THE PforR

51. The implementation of TFSRP is guided by the Government institutional arrangements organized for sector dialogue, strategic leadership, and program implementation at national and LGA levels. The sector leader will be the Ministry of Agriculture (MoA) in the Mainland.

52. **Joint Steering Committee:** The Program will have a Joint Steering Committee (JSC) bringing together the Permanent Secretaries of MoA and President's Office-Regional Administration and Local Government (PO-RALG) in Mainland, and MAINL and President's Office (Regional Administration) for Zanzibar. The JSC will provide oversight for Program implementation. It will meet quarterly, and its leadership will alternate between Mainland and Zanzibar. When the Joint Steering Committee (JSC) is held, the Permanent Secretary of MoA will Chair the JSC.

53. **Mandate:** The mandate of JSC will be to review and assess the progress and performance of TFSRP and approve fund releases, specifically: (i) approve the annual PforR work plan and budget for the following year, (ii) approve bi-annual fund release requests, (iii) approve annual reports, (iv) review progress in achieving Disbursement Linked Indicators (DLIs), (v) interrogate and endorse reports substantiating and validating the performance assessment including the Independent Verification Reports, (vi) approve annual work plan and budgets for the PforR technical assistance program, (vi) approve Program Operation Manual (POM) and its amendments. The JSC will also review lessons derived from Program implementation and advise on any significant changes in budgets or implementation plans.

54. **Membership**: Members of JSC will include the Permanent Secretary of the Ministry of Finance and Planning (PS MoFP), the Permanent Secretary of the President's Office in charge of Regional Administration and Local Governments (PS PO-RALG), the Permanent Secretary of the Ministry of Investment, Industry, and Trade (PS MIIT), and the Permanent Secretary of the Prime Minister's Office. The Director of Policy and Planning of the MoA will be the Secretary of the JSC, and the Director of Policy and Planning of PO-RALG will be Co-Secretary.

55. **Implementation oversight:** A National Project Implementation Team (PIT) will be established in MoA Mainland, led by its Director of Policy and Planning, assisted by senior management from Tanzania Agricultural Research Institute (TARI), Tanzania Agricultural Seed Agency (ASA), the Tanzania Official Seed Certification Institute (TOSCI), the National Irrigation Commission (NIRC) and PO-RALG, and comprise of specialists in financial management (accountant), procurement, safeguards (one environmental and one social with Gender-Based Violence knowledge), monitoring and evaluation, inclusion and diversity. The PIT will also comprise of one technical staff from the Directorate of Agriculture Mechanization and Value Addition (DAMVA), one from Directorate of Management Information Systems (DMIS) responsible for ICT and two technical staff from Directorate of Crop Development (DCD) and Directorate of Training and Research (DTR) responsible for extension and training. The PIT will be responsible for the management

and coordination of the TFSRP PforR. The PIT will convene DLI working groups from relevant departments/institution of MoA: TARI (RA1:DLI1), DCD/DRT (RA1:DLI2 and RA3:DLI8), ASA/TOSCI (RA1:DLI3), NIRC (RA2:DLI4), DAMVA (RA2:DLI5), PO-RALG (RA3:DLI7), and Local Government Authorities to ensure program planning and implementation as needed. Day-to-day responsibilities for implementing various project activities will remain with the relevant departments of the MoA in the Mainland (DPP, DCD, DMI, DAMVA, DRT, TARI, ASA, TOSCI, and NIRC).

56. The Directors of Policy Planning in Mainland and Zanzibar will ensure the coordinated delivery of financial and technical progress reports for both sides. The PIT will also facilitate the JSC meetings and work closely with development partners and technical assistance consultants.

57. At the local level, project implementation will be guided by Local Government Authorities (LGAs) working through the District Agricultural Livestock and Fisheries Offices (DALFO). Each district will be responsible for procurement, contract administration, supervision of project activities, and reporting on progress for activities under its jurisdiction, as required in District Development Plans (DADP). At the Irrigation Scheme level, irrigator organizations (IOs) will oversee rehabilitation works and mobilization of community resources, including labor, under the supervision of the District Irrigation Officer.

D. DISBURSEMENT ARRANGEMENTS

58. **Disbursement of the Bank credit proceeds would be made at the Borrower's request upon achievement of Disbursement-Linked Indicators (DLIs**). Disbursements for scalable DLIs will be proportional to the progress toward achieving the targeted DLI value. Disbursements under non-scalable DLIs will relate to whether the actions are achieved. For results not achieved or partially achieved, the allocated amount outstanding would be carried over to subsequent years by the due date in a given year. The specific amounts to be disbursed against achieved and verified results are determined in accordance with the formulas provided in Annex 3.

59. **MoA will be responsible for verifying (See Annex 2 for Verification Protocols) the achievements of the DLIs under its purview**, through an independent third-party Verification Agency (VA), based on the agreed verification protocols. The World Bank will review and provide feedback on the VA TORs; the selected VA must be acceptable to the Bank.

60. **Verification protocols**. The progress toward achieving the Program's objectives will be verified per verification protocols and associated detailed guidance notes and criteria (see annexes). The verification will be done to the extent possible through country systems and by the third-party VA where applicable. The verification will be carried out at least annually in accordance with the protocols agreed with the World Bank. The verification of achievement of DLIs will be supported by the responsible departments or institutions TARI (RA1:DLI1), DCD/DRT (RA1:DLI2 and RA3:DLI8), ASA/TOSCI (RA1:DLI3), NIRC (RA2:DLI4), DAMVA (RA2:DLI5), and PO-RALG (RA3:DLI7), who will compile and make available the documentation required for verification. Based on its validation, the Permanent Secretary in the Ministry of Agriculture will notify the World Bank of DLI achievement, supported by the relevant evidence and documentation.

61. **Disbursement requests.** The Permanent Secretary in the Ministry of Agriculture will collect the reports from each implementing department/agency in the PforR and respective independent verifications and periodically submit a consolidated report to MoFP. The MoFP will submit to the World Bank the relevant evidence of the total or partial achievement of DLIs. After analyzing that evidence, the World Bank will communicate to the MoFP and the MoA the results of its analysis regarding the fulfillment of DLIs and the corresponding level of disbursement for each DLI. On that basis, the MoFP will prepare

disbursement applications and submit them to the Bank. A copy of the World Bank's official communications confirming DLI achievements will be attached to the disbursement requests.

III. DESCRIPTION AND ASSESSMENT OF PROGRAM EXPENDITURE FRAMEWORK

62. **The Expenditure Framework Assessment (EFA) was conducted based on information provided by** the MoA, the MoFP, IMF, Tanzania Agricultural Public Expenditure Review 2022, and a literature review in comparable countries. The EFA included the following dimensions: (i) fiscal sustainability and resource predictability; (ii) budget allocation and execution; and (iii) incentives for efficient service delivery and value for money. Data for the past budget comes from the MoFP's Budget Books. Projections for 2022/23-2024/25 come from the MoA's Mid-Term Expenditure Frameworks (MTEFs). Projections for 2025/26-2027/28 are based on their assumptions, which reflect the government's current strategy for the sector.

63. **The duration of the PforR is from World Bank FY 2023/24 to FY 2027/28. The expenditure framework of the PforR (IPF component included) will be a total of US$ 2,093 million**[12] (TZS 5,148 billion) for the 2023/24-2027/28 period, of which the Government will finance 85.6 percent and IDA loan 14.4 percent (Table 3). The Government will fund US$ 1,793 million (TZS 4,336 billion), whereas the IDA loan will fund US$ 280 million (TZS 766 billion). In addition, the IDA loan will fund US$ 20 million for an IPF component for Zanzibar and technical assistance. IDA financing amounts to US$ 300 million over FY 2023/24 - FY 2027/28. Table 4 details the split between national and regional IDA.

64. **In terms of expenditures outlays**, about 42 percent, or US$ 879 million, will support improving service delivery in research, extension, and seeds; 46 percent (US$ 956 million) will strengthen resilient rural infrastructure, and 11 percent (US$ 238 million) will strengthen institutional performance (the remaining 1 percent supports the IPF component). Table 5 provides the detail.

Table 3 - Overall Program Financing

Source	Amount (US$ million)	Share of Total
Government budget	1,793	85.6%
IDA	300	14.4%
Of which IDA National	*150*	*7.2%*
Of which IDA Regional	*150*	*7.2%*
Total Program Financing	2,093	100%

Table 4 - IDA Program Financing Table Per Result Areas

	Amount (million US$)	Share of total IDA PforR Financing
Result Area 1: Strengthening Delivery Systems in research, extension, and seed	**95.0**	33.9%
Of which national IDA	23.8	25%
Of which regional IDA	71.2	75%
Result Area 2: More resilient agricultural infrastructure	**112.0**	40.0%

[12] TZS/USD conversion rate comes from IMF World Economic Outlook database (retrieved Dec. 13, 2022).

Of which national IDA	56.0	50%
Of which regional IDA	56.0	50%
RA 3: Strengthening fiscal performance to enable the delivery of the priority investment areas	**73.0**	26.1%
Of which national IDA	44.2	60%
Of which regional IDA	28.8	40%
Total (Overall IDA funding of DLIs)	**280.0**	
IPF component	**20.0**	
Of which national IDA	20.0	100%
Total National IDA	**150.0**	**50%**
Total Regional IDA	**150.0**	**50%**

Table 5 - Program Expenditure Framework by Result Areas

	2018/19-2022/23			2023/24-2027/28		
	Amount (billion TZS)	**Amount (million US$)**	**Share**	**Amount (billion TZS)**	**Amount (million US$)**	**Share**
Program Total with IPF	**1,529**	**666**	**100%**	**5,148**	**2,093**	**100%**
Result Area 1: Improved service delivery in research, extension, and seeds	844	368	55%	2,129	879	42.0%
Result Area 2: More resilient infrastructure	542	236	35%	2,360	956	45.7%
Result Area 3: Strengthening institutional performance	143	62	9%	571	238	11.3%
IPF component					20	1.0%

65. **The expenditure framework presents an adequate basis for this PforR**. The budget appears adequate. Fiscal sustainability issues were not identified as a core concern associated with the expenditures. However, the program implementation's efficiency is low and will require strengthening.

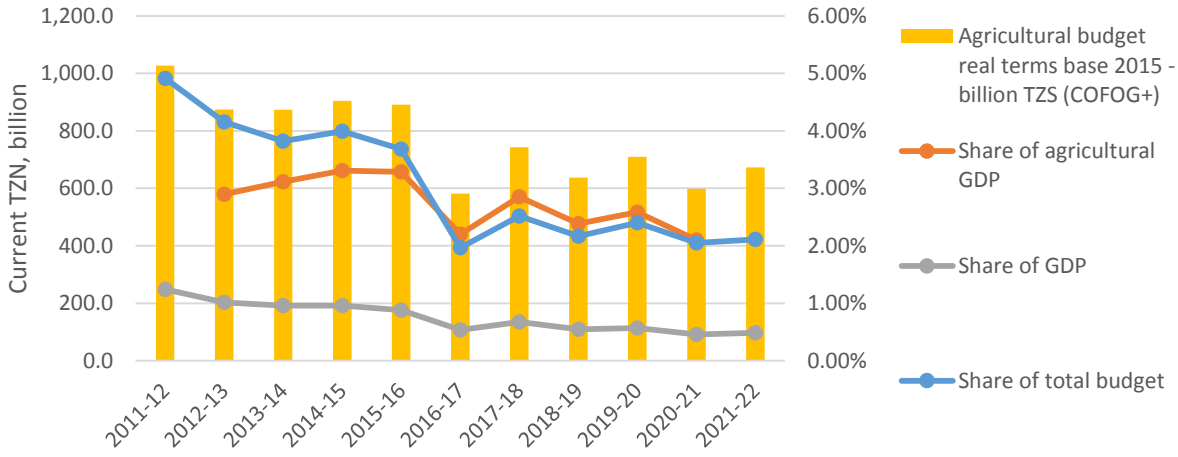
A. BUDGET STRUCTURE AND CLASSIFICATION

66. **The Government program expenditure framework is based on the Program boundaries**. Reflecting the selected boundaries, ASDP II expenditures related to livestock and fisheries, land use planning and watershed management, irrigation development, agricultural mechanization, market access and microfinance have been excluded. ASDP II does not have dedicated budget lines, and its structure

does not directly align with the agriculture budget framework. However, existing budget lines have been identified for all TFSRP activities. The agencies included in the expenditure framework are the Ministry of Agriculture (vote 43), the National Irrigation Commission (vote 5), the Tanzania Cooperative Development Commission (vote 24), and transfers to LGAs related to agriculture. The expenditure framework also includes sub-vote 056.2003 related to ASDP II agriculture sector coordination by the President's Office - Regional Administration and Local Government Authorities (PO-RALG).

67. **While the ASDP II budget was very low and volatile, hampering its implementation, 2022/23 marked a turning point in national strategy, with investment in the sector being geared up**. As a share of GDP, Tanzania's budget for the whole agriculture sector (including forestry fisheries and livestock) sharply declined between 2011/12 and 2016/17, stabilizing until 2021/22 at a low 0.5 percent of GDP (Figure 1)(World and FAO 2022). After a fast decrease in the decade's first half, the decline slowed over the second half: the budget for the agriculture sector represented 1.24 percent of GDP in 2011/12, 0.54 percent in 2016/17, and 0.46 percent in 2020/21. The tight agricultural budget left little fiscal space for development expenditures. It hampered the implementation of ASDP II, slowing the agricultural transformation and deteriorating key aspects of public service delivery. Acknowledging the need for additional resources, the government increased budget commitments to the Ministry of Agriculture (vote 43) by 13 percent in 2021/22 and by 155 percent in 2022/23.

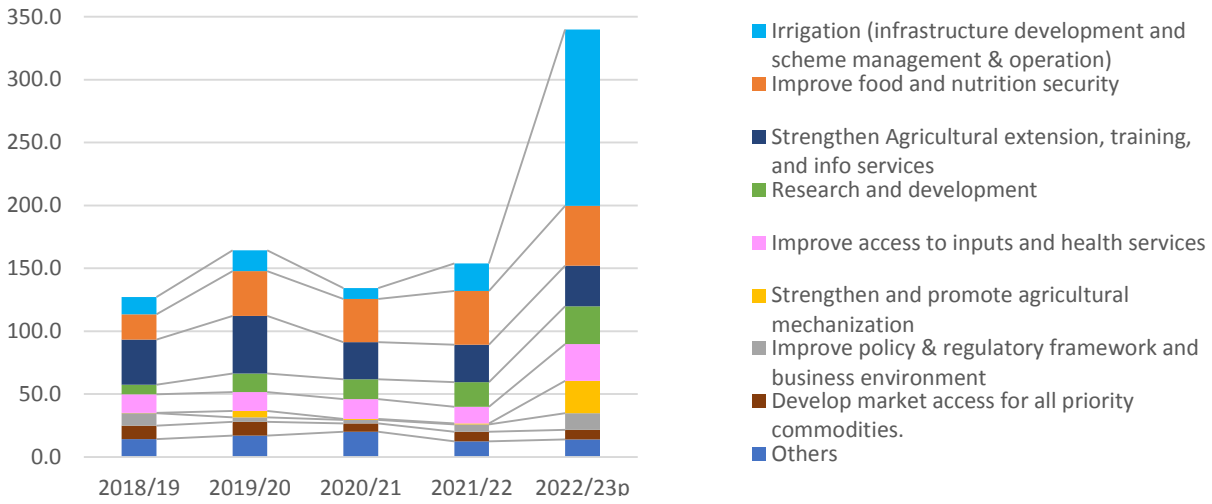
Figure 1 – Agricultural budget (including livestock, fishery, and forestry) in nominal and real terms (left axis) and shares of GDP, agricultural GDP, and national budget (right axis) from FY 2011/12 to FY 2021-22



Source: World Bank and FAO (2022) based on FAO (2018) for FY2011/12-2016/17 and own data. GDP and ag. GDP: Bank of Tanzania 2010-2020; IMF estimates for 2021-2022. National budget: Budget Books and MoFP.

68. **The Government program expenditure framework is relatively focused on public good provision, despite the reintroduction in 2022/23 of distortive input subsidies (on foreign financing)**. Over 2018/2019-2022/23, the Government program mostly targeted food crisis management tools (24.8 percent), irrigation (20.8 percent), extension services (17.6 percent), research services) 8.9 percent) and seed development and multiplication (8.9 percent), among others. However, the 2022 Agricultural Public Expenditure Review shows that the levels of public funding were too low for service delivery to materialize.

Figure 2 - Government program budgeted expenditure over 2017/18-2022/23



Source: Budget Books, reclassified as per ASDP II activities

69. **Over 2017/18-2021/22, three-quarters of the agriculture budget was allocated at the central level, contrary to Tanzania's "decentralization-by-devolution" policy**. Local Government Authorities (LGAs) play a critical role in delivering agriculture services, including extension services, and were supposed to receive 75 percent of the sector allocation budget to support service provision. However, LGAs' development expenditure collapsed over the period (World Bank and FAO 2022).

70. Here after, the public expenditures considered as those limited to the PforR boundaries. Budget lines pertaining to irrigation development, market access and mechanization are thus excluded. Figures 3, 4, and Table 6 detail the projected outlays of the program expenditure framework in 2023/24-2027/28 and compare it with that of the Government over 2018/19-2022/23. Budget projections are based on MTEFS until 2024/25. They do not include on-budget foreign financing, and as such, do not include fertilizer subsidies which are supported by AfdB (TZS 150 billion or about $ 65 million on 2022/23). The reallocation of DLI's disbursements is based on a set of assumptions that build on (i) GoT's key priorities as detailed in ASDPU II; (ii) MoA's priorities as per technical assessment; (iii) international guidelines and best practices (CAADP framework; Khartoum target for Research and Development; Pernechele et al. 2021; 2022 Agricultural Public Expenditure Review).

Figure 3 - Government program expenditure framework and its distribution over 2018/19-2022/23 and 2023/24-2027/28 as per ASDP II's classification of activities (USD million)

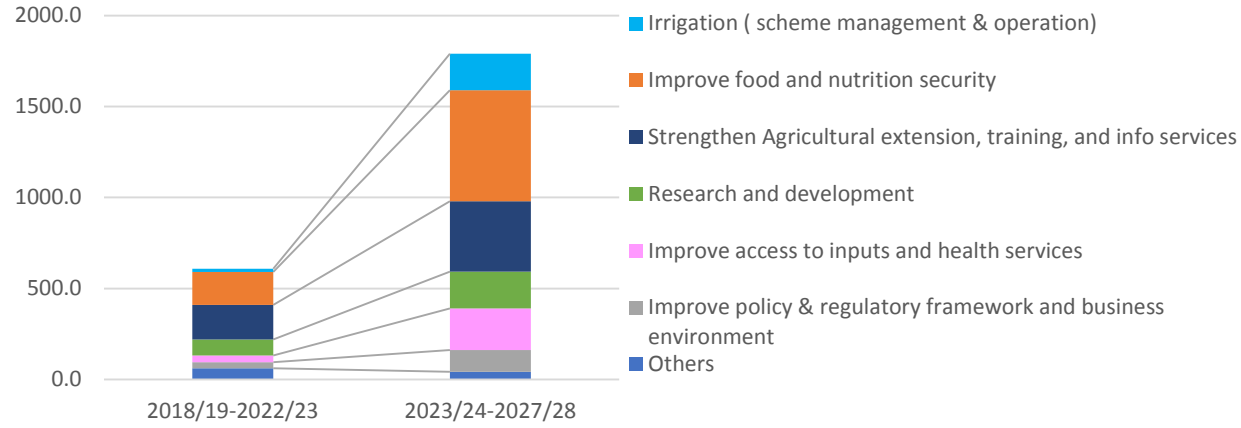


Figure 4 - Detailed Government program expenditure framework as per result area

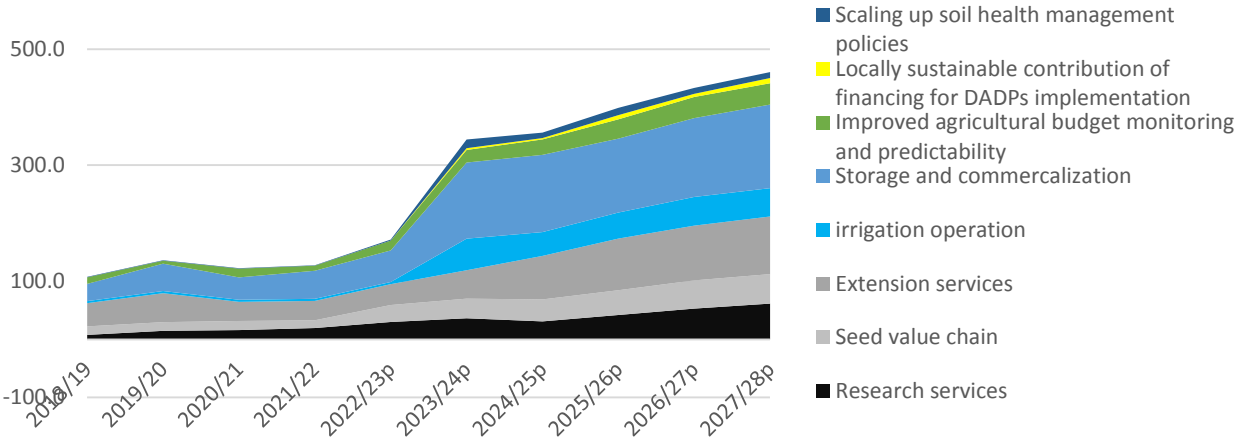


Table 6 - Expected distribution of budget over 2018/19-2022/23 and 2023/24-2027/28

PforR Result Areas	**Mainland Program 2018/19-2022/23**			**TFSRP PforR 2023/24-2027/28**		
	TZS billion	USD million	Share	TZS billion	USD million	Share
RA 1: Improved service delivery in research, extension, and seeds	**844**	**368**	**55%**	**2129**	**879**	**42.0%**
Research services	202	88	13%	579	239	11%
Seed value chain	202	88	13%	532	221	11%
Extension services	440	192	29%	1018	419	20%
RA 2: More resilient infrastructure	**542**	**236**	**35%**	**2360**	**956**	**45.7%**
Irrigation operation	42	18	3%	704	271	13%
Storage and commercialization	500	218	33%	1655	685	33%

RA 3: Strengthening institutional performance	**143**	**62**	**9%**	**571**	**238**	**11.4%**
Improved agricultural budget monitoring and predictability	131	57	9%	410	170	8%
Locally sustainable contribution of financing for DADPs implementation	0	0	0%	0	0	0%
Scaling up soil health management policies	12	5	1%	161	68	3%
IPF Component				46	20	1%
Total	**1529**	**666**	**100%**	**5106**	**2093**	**100%**

71. **Agencies in charge of the Program are technical departments and separate agencies under the MoA and LGAs**. Table 7 details the Program budget allocation per implementing agency. The MoA Department of Policy and Planning will be the main implementing agency budget-wise. 69 percent of the budget will be recurrent expenditures, encompassing operational costs, wages and salaries, and subsidies. Wages and salaries make up an important share of the Program budget due to the large capacity and system-building components of the Program.

Table 7 - Budget allocation and economic classification of the Program budget over 2023/24-2027/28

Agency	**Main economic classification** Recurrent (subsidies / operational costs / wages and salaries) /Development	**Activity**	**Amount (TZS billion)**
056 – PO-RALG / 056.2003 - Sector Coordination Division	Recurrent (wages and salaries)	4486 - Agricultural Sector Development Programme (ASDP)	2
005 - National Irrigation Commission	Recurrent (wages and salaries)	Irrigation operation and maintenance	243
043 - Ministry of agriculture	Recurrent (all)	Agricultural policies; extension services	1,125
	Development	Policies, food reserve, subsidies, risk management tools, ICT, coordination	637
including TARI	Recurrent (wages and salaries)	Agricultural Research	94
	Development	Agricultural research infrastructure development	141
including ASA	Recurrent (operational costs / wages and salaries)	Seed development, production, dissemination	131
	Development	Seed production infrastructure	87

024 - The Tanzania Cooperative Development Commission	Recurrent (operational costs / wages and salaries)	Cooperatives	33
total Recurrent			*1,435*
total Capital			*637*
Total			***2,073***

B. PROGRAM'S FINANCIAL SUSTAINABILITY AND FUNDING PREDICTABILITY

1) Source of financing

72. **The total PforR financing over the 2023/24-2027/28 period (including the IPF component) is expected to be US$ 2,093 million (TZS 5,148 billion), which the Government of Tanzania will finance at 85.6 percent and an IDA credit at 14.4 percent**. Aggregate public spending on the Government program over fiscal years 2018/19 to 2022/23 averaged US$ 133 million p.a., and according to MTEFs, is expected to average US$ 359 million p.a. over 2023/24-2027/28. The IDA credit will fund US$ 280 million, or about US$ 56$ million per year, assuming equal disbursements, plus US$ 20 million for the IPF component for Zanzibar and technical assistance.

73. **Potential co-financing**. Two additional donors, International Fund for Agriculture and the Norwegian Agency for Development Cooperation have expressed interest in supporting the PforR. The conclusion of FY 24 will likely confirm these finances. Additional financing processes will be executed once commitments have been finalized.

74. **Donors partly support the Government's large increase in ASDP II financing on activities that are excluded from the PforR (irrigation expansion and fertilizer subsidies**). In particular, on-budget support is provided by the Kuwait Fund[13] to construct the Luiche irrigation scheme. Foreign financing represents 4% of development expenditures for irrigation in 2022/23, 71% in 2023/24, and 4% in 2024/25. Similarly, a loan from the African Development bank supports reintroducing fertilizer subsidies, which amount to US$ 65.1 million in 2022/23. According to the MTEFs of the Ministry of Agriculture (i.e., vote 43, which does not figure fertilizer subsidies and is independent of vote 3 of the Irrigation commission), planned development expenditures are expected to come from foreign financing at 30.8 percent in 2022/23, 46.2 percent in 2023/24 and 40.3 percent in 2024/25.

2) Adequacy and Sustainability

75. **The budget for the upcoming period appears adequate to support the desired activities to reach the proposed PDO.** The government's commitment to investing in agriculture to gear up the sector growth is strong, as witnessed by the 2021/22 and 2022/23 large budget increases and 2022/23-2024/25 Mid Term Expenditure Frameworks of the MoA and the Irrigation Commission. In addition, several strategic documents attest to and detail this commitment, such as Budget's speeches and the recently launched Agenda 1030 initiative. Under the latter, Tanzania aims to push the growth of its agriculture

[13] https://www.africa-press.net/tanzania/community/33-9bn-kuwait-loan-to-facilitate-irrigation

sector up to 10 percent by 2030. For instance, the country targets to increase its food crops exports from US$ 500 Million in 2022 to US$ 3 billion in 2030.

76. **Nonetheless, sector dependence on donor funding remains high and indicates a lack of fiscal sustainability as there is uncertainty about the duration and timing of donor funding commitments.** Financial sustainability has increased since 2017/18, but agriculture funding remains dependent on donors. According to MTEFs, development partners are expected to support 39.1 percent of the agricultural budget over 2022/23-2024/25. In addition, foreign "off-budget" expenditures over 2017/18-2019/20 were estimated (World bank and FAO 2022) to weigh about half of public agricultural funding. Donors have tended to take an increasingly longer-term view of support, but there are still time limits on donor funding commitments. The timing of donor funding is sometimes less predictable, leading to periods of funding gaps that can add to the uncertainty. As an example, several plans (Climate Smart Agriculture Plan, Irrigation Master Plan) had counted in part on donor funding that did not materialize, to the detriment of the implementation of some planned activities. Finally, on the research side, high dependence on foreign financing has increased resource unpredictability and hampered the capacity to have a coherent, government-driven national research strategy.

3) Budget Predictability

77. **Budget predictability is expected to be weak.** Over 2017/18-2021/22, insufficient fund releases (low outturn) affected budget predictability and compromised the budget's credibility (World Bank and FAO, 2022). With only 33 percent of the budget development budget executed, the difference was attributed to unrealistic government budget allocations. Budget revisions have also been common in Tanzania to reallocate funds within sectors over the past years. The original budget might not have focused on the major priorities, hence a need for reallocation to ensure that priority sectors receive adequate funds. This mismatch between budgeted and actual amounts released makes it difficult to plan effectively and implement policy reforms.

78. **Delays in fund releases remain a concern, with significant portions of development funds for MDAs usually released in the final month of the fiscal year**. This is a serious problem in agriculture, given the seasonal nature of agricultural activities.

79. **Several reforms were introduced to improve overall budget credibility, including a new Treasury Single Account**. This includes an amendment to the Public Finance Act, the Local Government Finance Act, and the Bank of Tanzania Act to establish a Treasury Single Account (TSA) for collecting and paying public funds. This reform aims to speed fund disbursements to spending units and reduce commercial bank accounts' use for government transactions. This comes on top of recent progress in speeding the disbursement of government funds to spending units electronically connected to the Bank of Tanzania. All Crop Board's fees and levies are now deposited into the Paymaster General account starting from 2018/19 since all Crop Boards are fully dependent on government subventions.

80. **Budget predictability is thus an area that will require strengthening during PforR implementation.** Recent progress provides a solid ground for faster improvements over the upcoming years.

C. EXPENDITURE PERFORMANCE

81. **The overall expenditures on the program were low over 2017/18-2021/22, but it targeted public goods and had high value for money** (World Bank and FAO, 2022). Tanzania moved away from general agriculture input subsidies in 2017/18 until it reintroduced fertilizer subsidies in 2022/23. It also moved

away from other market distortive policies such as agricultural export bans. Over 2027/18-2021/22, only 5 percent of budgetary transfers directly supported producers.

82. **However, the tight budget allocation for ASDP II left little fiscal space for development expenditures and led to insufficient support for critical public services needed to catalyze agriculture transformation**. Whereas the budget essentially targeted public goods over the past five years, it was beneath the critical levels needed for them to materialize. Two-thirds of central-level agricultural expenditures were recurrent, not supporting growth. For instance, tight capital expenditures limited the delivery of extension services over 2017/18-2019/20 (World Bank and FAO 2022). The extension budget represented 18 percent of the agricultural budget, but almost two-thirds of the allocation was absorbed by personal emoluments, with this share increasing over time.

83. **As a result, agricultural public service delivery deteriorated over the past decade in Tanzania, except for access to improved seed.** According to the National Sample Census of Agriculture, irrigated areas cropped by farmers went down from a low 3 percent to 2 percent of all farmed areas between 2008 and 2020. Meanwhile, access to extension services collapsed from 67 to 7 percent over the period, with women being the most affected. Funding for agricultural research shrank to rank among the four lowest in Africa, bringing the knowledge system to collapse. Adaptation to climate change has not progressed, and ambitious and relevant policy plans remain largely unimplemented. On the bright side, the number of farms that use improved seeds more than doubled between 2008 and 2020, driven by strong public institutions and a dynamic private sector that benefited from an improved regulatory environment. 2022/23 marked a turning point with significant budget increases for agricultural services such as irrigation.

84. **In addition, low outturns and execution rates compromise the credibility of the budgeting and planning process and prevent needed policy implementation.** The declared overall budget outturn for the sector was 57 percent from 2017 to 2020. However, agriculture budget execution is on an upward trend from 52 percent in 2016/17 to 83 percent in 2019/20, which remained below the overall budget execution level. At the LGA level, insufficient agricultural allocations resulted in full budget execution.

85. **However, the remaining public investments in seed systems, irrigation, and extension services have yielded high returns, calling for increased funding. Yet large efficiency gains could also be realized** (World Bank and FAO, 2022). While public services declined due to a lack of funding and inefficiencies, the remaining demonstrated high value for public money. High benefit-to-cost values of public good investments have been found: one dollar invested in extension services, seed systems, and irrigation has yielded benefits of respectively US$ 9, US$ 17, and US$ 16. These ratios are in the range of past SSA results, with the estimated returns of public spending being 22–55 percent for research, 8–49 for extension, and 11–22 percent for irrigation (Goyal and Nash, 2017). Still, large efficiency gains could be achieved in extension services, where the number of extension officers appears disconnected from service accession, and in irrigation, where the World Bank and FAO (2022) and the Tanzania Resilient, Inclusive, Sustainable and Efficient (RISE) Irrigation ASA (2022) observe a widening gap between the area equipped for irrigation and the one used.

86. **Increasing expenditures to resilience-building public good investments and enhancing their efficiency and effectiveness through policy and institutional systems improvement could bring major food security and poverty reduction gains in Tanzania and the AFE region.** There is a strong international consensus on the benefits of such investments. Research has indicated that one dollar invested in agricultural research generated, on average, over the past three decades in mid to low-income countries,

a stream of future benefits equivalent to US$ 10 (in net present value terms)[14]. Returns on irrigation in Sub-Saharan Africa range from 17 percent on large-scale schemes to 43 percent for small-scale schemes. On average, one dollar spent on high-impact nutrition interventions can generate US$ 18 worth of economic return.[15]

87. **Further investments in climate change adaptation and mitigation, supported by related institutional and policy enhancement, appear crucial for agriculture to yield its promises**. WB-FAO 2022 estimates at US$ 1.41 billion the cost of climate change inaction in agriculture in Tanzania by 2040. Based on the adaptation trajectories of key crops (maize, rice, cassava, beans, sorghum, and banana), this figure is very conservative, as it does not account for extreme events (or negative effects on the livestock sector). And yet, the yearly cost of public investments in climate change adaptation would be largely offset, with an average yearly gain of US$ 47.6 million. In addition, climate change resilience underpins the performance of other public investments, such as irrigation and improved seeds.

D. IMPLICATIONS FOR THE PforR

88. **The analysis of the expenditure framework highlights several key points central for the Program to be successfully implemented:**

a. Several weaknesses must be addressed during Program implementation: (1) budget predictability and (2) budget outturn rates.
b. Increasing the efficiency and effectiveness of public spending for key services (such as irrigation and extension services) is central in the context of scarce fiscal space.
c. The level of funding for some services, in particular research and climate change adaptation, was insufficient for the services to materialize.
d. Increasing the sustainability and predictability of local agricultural financing is central to improving the delivery of extension services.

IV. DESCRIPTION AND ASSESSMENT OF PROGRAM RESULTS FRAMEWORK

89. **The MPA Program Development Objective (PrDO) is expected to remain unchanged.** The PrDO is to increase the resilience of food systems and preparedness for food insecurity in participating countries.

90. **The Program Development Objective of TFSRP is to support food system resilience by strengthening agricultural service delivery, adopting climate-resilient technologies, and fiscal performance in the agricultural sector.** Success toward the achievement of the PDO will be measured by indicators as follows[16]:

- Improved resilience enhancing production capacity: number of farmers adopting resilience-

[14] Alston, J. M., Pardey, P. G., Rao, X.. “Rekindling the Slow Magic of Agricultural R&D.” Issues in Science and Technology (May 3, 2021).
[15] You, L. et al. "What is the irrigation potential for Africa? A combined biophysical and socioeconomic approach." Food Policy 36.6 (2011): 770-782.
[16] Find Result Framework in Annex 1

enhancing technologies and practices, of which female farmers (share)

- Sustainable use of natural resources: Total irrigation area utilized under performance-based OMM contractual arrangement (ha)
- Outreach: Number of farmer beneficiaries reached with climate-smart assets and services; of which women (%); of which youth (%)
- Marketing and ability to leverage regional trade opportunities: Tanzania's CAADP- BR score on "Intra-African Trade in Agriculture Commodities and services.

A. THEORY OF CHANGE

91. **Towards Food System Resilience.** The Theory of Change (ToC) puts improvements to "food system resilience" at the center of the program's PDO outcome. Food system resilience is considered the capacity of food systems to deliver desired outcomes of a well-functioning food system in the face of shocks and stressors (see box 2). Generally, desired food system outcomes are (i) the production of sufficient, safe, and healthy food for a growing national and regional population, (ii) the equitable distribution of costs and profits, and (iii) being adaptable to climate change and using land and natural resources sustainably. The desired capacities within food systems to deliver the desired outcome are manifold, and the Program can only address some of the most critical ones. These are tackled in the ToC informed by priorities identified as part of the ASDPII and the MAP.

Box 2: Food System Resilience - Concepts and Definitions

A **Food system** is the sum of actors and interactions along the food value chain—from input supply and production of crops, livestock etc. to transportation, processing, retailing, wholesaling, and preparation of foods to consumption and disposal. A food system also encompasses the wider food environment, including the enabling policy environments, from markets and trade to policies and innovation.

The **main challenge for food systems** at all geographical levels is to increase the supply of safe and healthy food in an inclusive and sustainable way. This is reflected in the **desired outcomes of a well-functioning food system**, which include: (i) the production of sufficient, safe and healthy food for our growing world population, (ii) the equitable distribution of costs and profits, (iii) being adaptable to climate change and using land and natural resources sustainably.

Food system resilience can then be considered as the capacity of food systems to deliver desired outcomes in the face of shocks and stressors.

Shocks and stressors

The ability of our food system to deliver desired outcomes directly depends on its capacity to deal with natural and man-made disturbances: shocks and stressors. Shocks refer to a sudden event that impacts on the functions of a system and its components, as seen for example with COVID-19 and locust plagues. A stressor can be defined as a long-term trend that undermines the functioning and increases the vulnerability of a system. The most acute stressor threatening the current global food system is climate change, which in turn leads to a variety of shocks, such as extreme weather events or crop diseases.

Source: Bart de Steenhuijsen Piters et. al. (2021), Food system resilience, Towards a joint understanding and implications for policy, Wageningen Economic Research, Policy paper, Wagening University, Netherlands.

92. **To build resilience within Tanzania's food system, key institutions will have to introduce new ways of working,** for example, improving budget predictability and management, increasing investment into innovation, maximizing the impact of public investment into infrastructure, and accelerating access

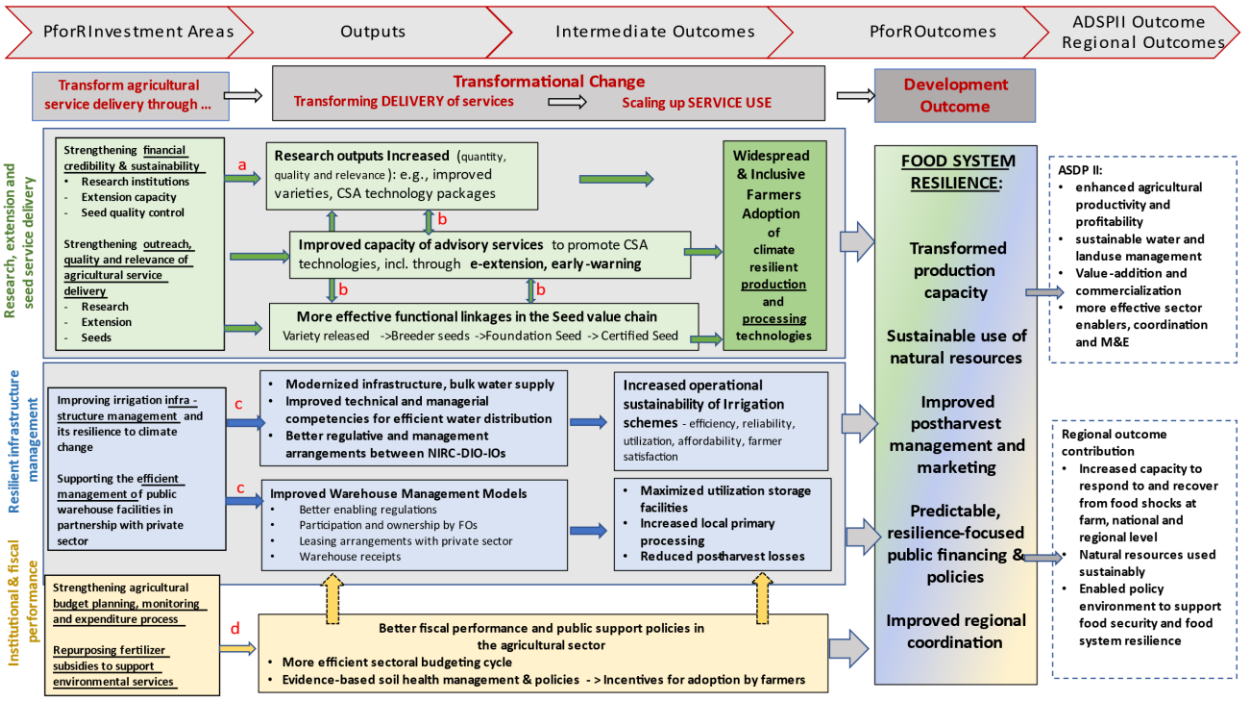
to advisory outreach. Investing in the areas will enable institutions to (i) anticipate, prevent, and manage the effects of shocks and (ii) enable key actors to adapt to changing climate in the long term.

93. **The Program's ToC lays out three mutually reinforcing results chains supporting food system resilience: better performing agricultural service delivery, effective management of irrigation and warehouse infrastructure, and institutional strengthening for better fiscal performance in the sector.** The program takes an approach towards enhancing national food system resilience by scaling up climate-smart and inclusive agricultural production capacity to be driven by (i) the transformation of service delivery in research, extension, and seeds, (ii) a more resilient irrigation and warehouse infrastructure management, and (iii) through improving the fiscal performance of MoA and its agencies (see Figure 5).

94. **Tangible resilience-building results along the three results chains** include better production capacity based on the continuous release, increased production and wide adoption of improved (e.g., heat/drought-tolerant) priority seed varieties, efficient on-farm water use to buffer against drought, changing land management and production practices to conserve soil and build up soil quality and nutrient reserves, diversification of supply chains, reduced post-harvest losses through better storage and primary processing facilities and management practices, and an effective leveraging of regional markets and trade.

95. **Critical assumptions** underlying the ToC that have a significant influence on the expected impact of the Program related to; (i) the willingness and ability of the Government (i.e., MoFP and MoA) to meet their financial commitments to MoA agencies and local Government and to apply good fiscal management practices, (ii) the ability of MoA to facilitate programmatic and strategic inter-agency collaboration and coordination, (iii) successful sensitization and incentivization of Irrigation Organizations and Cooperatives to engage in trusted public-private partnerships.

Figure 5 - Theory of Change



Assumptions
a: willingness and ability of the government (i.e., MoF and MoA) to meet their financing commitments to line agencies and local government
b: well facilitated inter-agency programmatic and strategic collaboration and coordination
c: successful sensitization and incentivization of IO and cooperatives to engage in mutually trusted public-private partnerships
d: government is committed to apply good fiscal management practices

96. **The Program's DLIs are designed to improve food security and resilience of farming systems by making key national and local government services more accessible, timely, predictable, and relevant** (Table 8)**.** For instance, enhancing the management of budgets allows extension workers to plan and execute farmer field schools and demonstration trials on time, have access to operation and maintenance of motorcycles for reaching farmers, etc. Improved monitoring will provide greater accountability and management of public funds. The lessons generated through the delivery of these DLIs will be highly relevant to building resilience regionally and across nations. The Government of Tanzania could share these lessons through the Comprehensive Africa Agriculture Development Program (CAADP) and Region Economic Community (REC)-driven processes.

97. **A summary of the Results Chains and Areas is as follows:**

B. RESULT AREA 1: Improving service delivery in research, extension, and seeds

98. **This Results Area aims to improve research, extension, and seed service delivery**. To sustainably increase productivity and foster climate change resilience, Tanzania needs to accelerate its agro-food system modernization and adopt innovations tailored to address the challenges that will undermine resilience. Innovation, including in information systems, can strongly benefit from regional partnerships. It will only generate impact when disseminated, adopted, and adapted. Strengthening human capital thus goes hand in hand with innovation. Result Area 1 will focus on providing investment into building the capacity of research and extension agencies to develop, adapt and disseminate climate-smart technologies and practices tailored to local agro-ecosystems needs and will enable farmers to increase productivity, enhance resilience, and reduce GHG emissions from agricultural practices. It will also support the development of early warning systems, building on regional experience. Regional partnerships, technology transfers, and experience sharing will play a significant role in RA 1.

99. **This Component will support the delivery of the following results:** (1) Predictable public funding to agricultural research and development; (2) Improve the efficiency of and equitable access to agricultural information and knowledge; (3) improve functional linkages in the seed value chain.

100. **The expected outcomes from this result area** will ensure all crop farmers have increased access to technology, inputs (seeds), and knowledge that can help to increase production (using climate-smart agriculture). Furthermore, expanding access to information related to upcoming shocks will enable farmers and extension workers to better prepare and respond to these.

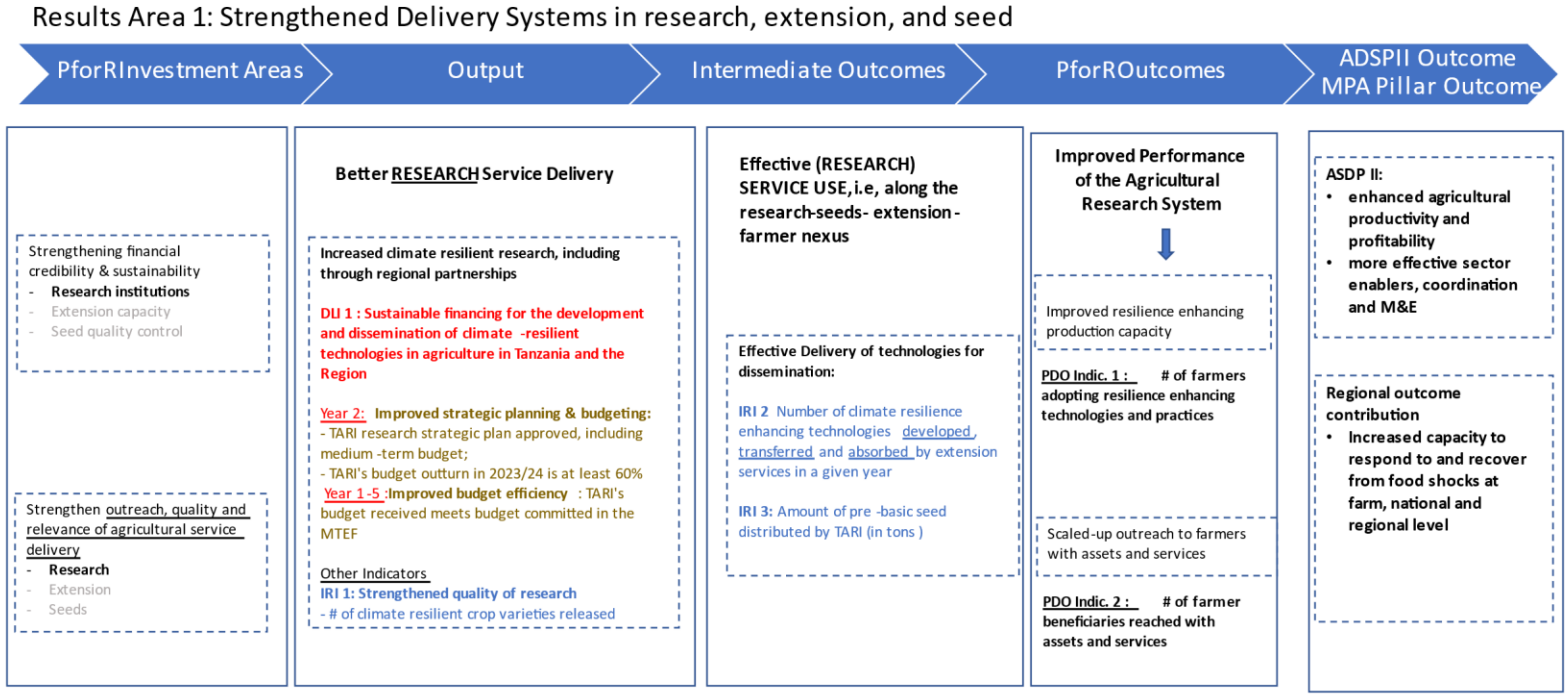
101. **The indicators for results in this area are**:

- *Human resource capacity development support:* number of persons receiving capacity development support (person); of which, number of women.
- *Improved research services: a)* TARI research strategic plan reviewed and approved, including medium-term budget; b) Ratio of TARI's budget received to budget committed in the strategic plan (in %); c) number of climate resilient crop varieties released; d) number of technologies developed, transferred to and absorbed by extension services, of which gender-sensitive technologies
- *Improved extension service delivery*: a) E-agriculture guidelines for deploying ICT solutions for agricultural development approved; b) a number of extension staff trained on climate-smart

practices and e-agriculture solutions; c) a number of farmers reached with e-extension services; d) share of farmers accessing e-agriculture platform that is satisfied with the advice received (%), of which % females and youth.

- *Improved functional linkages in the seed value chain*: a) amount of foundation seed distributed (in tons); and b) volume of certified seeds produced by ASA (in tons).

Figure 6 - Result chain for Result Area 1



DLI 1: Sustainable financing for developing and disseminating resilient climate technologies for Tanzania and the Region

102. Delivering ASDP II requires improving productivity, building resilience, and responding to the challenges of climate change, for which Tanzania's Agriculture Research Institutions play a critical role. Nationally driven research can adapt and respond to country-specific challenges. In addition, national centers of excellence can be linked to regional and international knowledge systems, creating an ecosystem of knowledge and solutions. This DLI will support i) the development of a five-year strategy for TARI (including the strategic direction for climate-resilient and gender-sensitive research and the approach for engaging and financing national and regional partnerships within each of the results areas), ii) a predictable budget for research institutions allowing institutions to invest in refurbishing key infrastructure (greenhouses), developing new technologies, and building skills (including creating opportunities for young female scientists) required to accelerate the development of technology and knowledge. This DLI would increase the dissemination of technologies and knowledge nationally and regionally.

DLI 2: Extension outreach strengthened through ICT solutions for promoting climate-smart practices

103. Under ASDP II, the MoA has prioritized the cost-effective expansion of agriculture extension services as a strategic priority. As part of this process, the MoA seeks to accelerate farmers' access to climate-smart technologies and weather-related messages, including early warning systems and predictive models for pest and disease outbreaks. Under this DLI, the newly established farmer register would be combined with other data platforms (e.g., weather forecasting, pest and disease identification and monitoring, market pricing, and access to finance), which would allow the Ministry, Local Government Authorities (LGAs), private sector, and farmers to identify and to better prepare for shocks. Developing approaches to exchange information on these data platforms could also play a critical role in strengthening the Region's resilience to shocks. In parallel, the DLI would support the training of selected LGA extension staff in using data-driven solutions and help deliver climate-smart solutions to farmers. The successful delivery of this DLI will create information and knowledge ecosystems inside Tanzania and across the Region.

DLI 3: Improved functional linkages in the Seed value chain

104. Limited access to certified improved seeds, including those adapted to climate change (e.g., drought and heat-resilient) or with high nutritional benefits (ex., vegetables), is one of the main challenges to improving agricultural productivity and food security in Tanzania. Over the past five years, the country has built the institutional infrastructure and regulatory system to develop good-quality seeds. However, a lack of public financial support in key areas has created bottlenecks in the seed production system. At the same time, the nascent private sector still faces entry barriers such as high investment costs. This DLI will incentivize scaling up certified seed production in the country by strengthening linkages across key actors along the value chain, which will be achieved through financing: (i) small-scale water-efficient irrigation schemes on ASA seed farms; (ii) capacity building for both public and private seed production and marketing actors, capitalizing on regional best practices; (iii) increased public-private partnerships for seed multiplication; and (iv) scaling-up TOSCI interventions to ensure seed quality verification and reinforcement.

C. RESULT AREA 2: Developing resilient rural infrastructure

105. **TFSRP will support significant performance improvement in managing key irrigation and storage facilities**. For irrigation, this will be achieved through introducing and scaling up Performance-based Operations, Management, and Maintenance (OMM) contracts. These contracts will enable farmers to

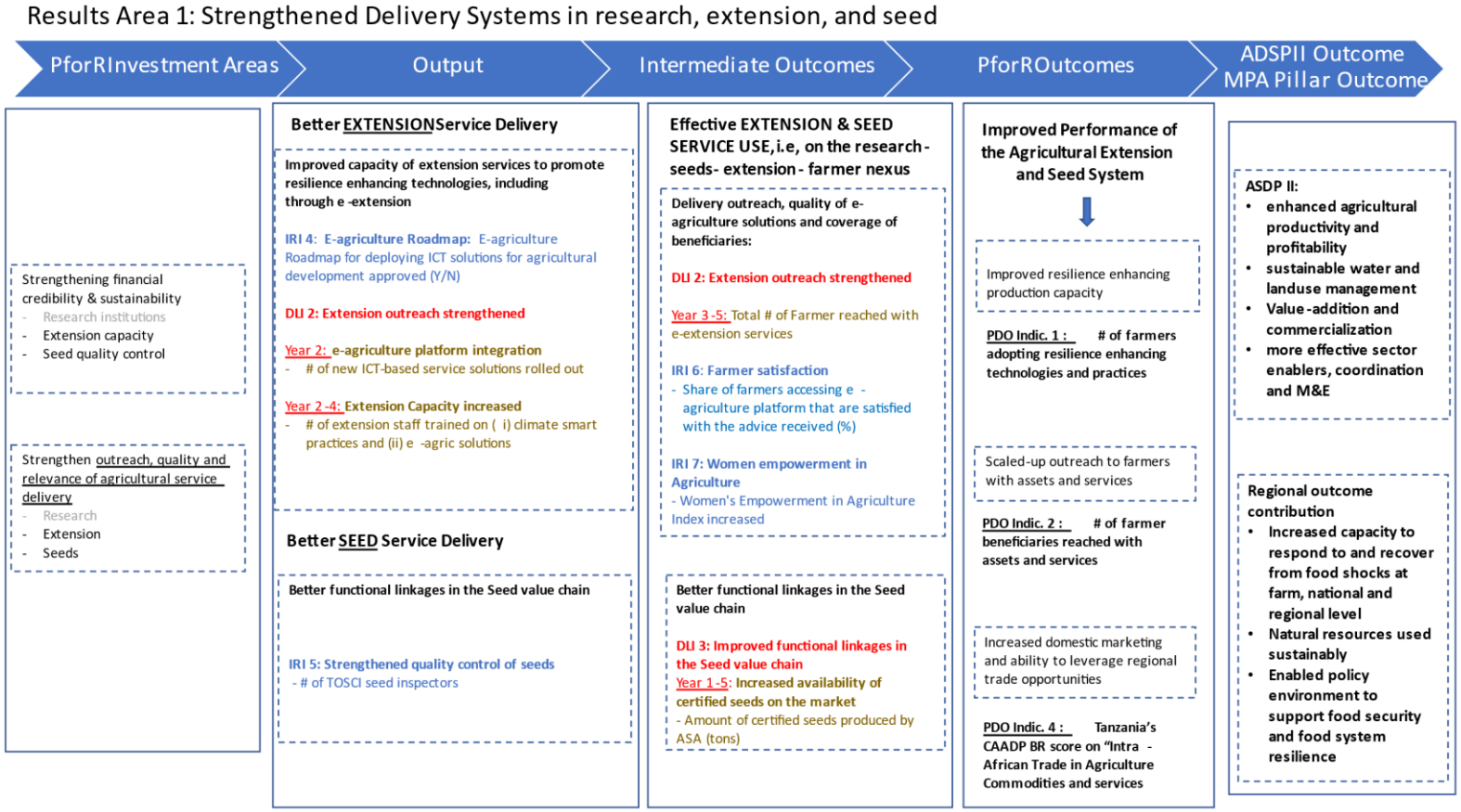
support the sustainable use and maintenance of infrastructure, increasing water management efficiency, food productivity, and overall resilience (including a more stable food supply). In addition, the Program will support the efficient management of public warehouse facilities by i) establishing new by-laws that improve the governance of warehouses and ii) rolling out new practices for the management and operation of public warehouses, including greater participation of the private sector through leasing arrangements. This activity will increase food supply, first step processing (and thus value addition), and reduce food losses.

106. **The indicators for results in this area** are:

- *Improved performance of Irrigation schemes*: a) the number of performance-based OMM contracts signed; b) Area (ha) operated under performance-based OMM contracts; c) Share of farmers satisfied (% women) with water accessibility as per agreed times.
- *Improved management of warehouse facilities*: a) Number of warehouses leased by the private sector or operated by cooperatives in compliance with guidelines (for new management model); b) Total annual turnover of commodities stored in warehouses managed using new management model (in tons).

107. **The expected outcomes** will include an improvement in the operational sustainability of irrigation systems, an overall increase in the performance of irrigation contracts, an increased volume of crops passing through Government warehouses, a decrease in the volume of postharvest losses, and an overall improvement in value chain commercialization which will lead to greater food availability and more resilient food system.

Figure 7 - Result Chain for Result Area 2



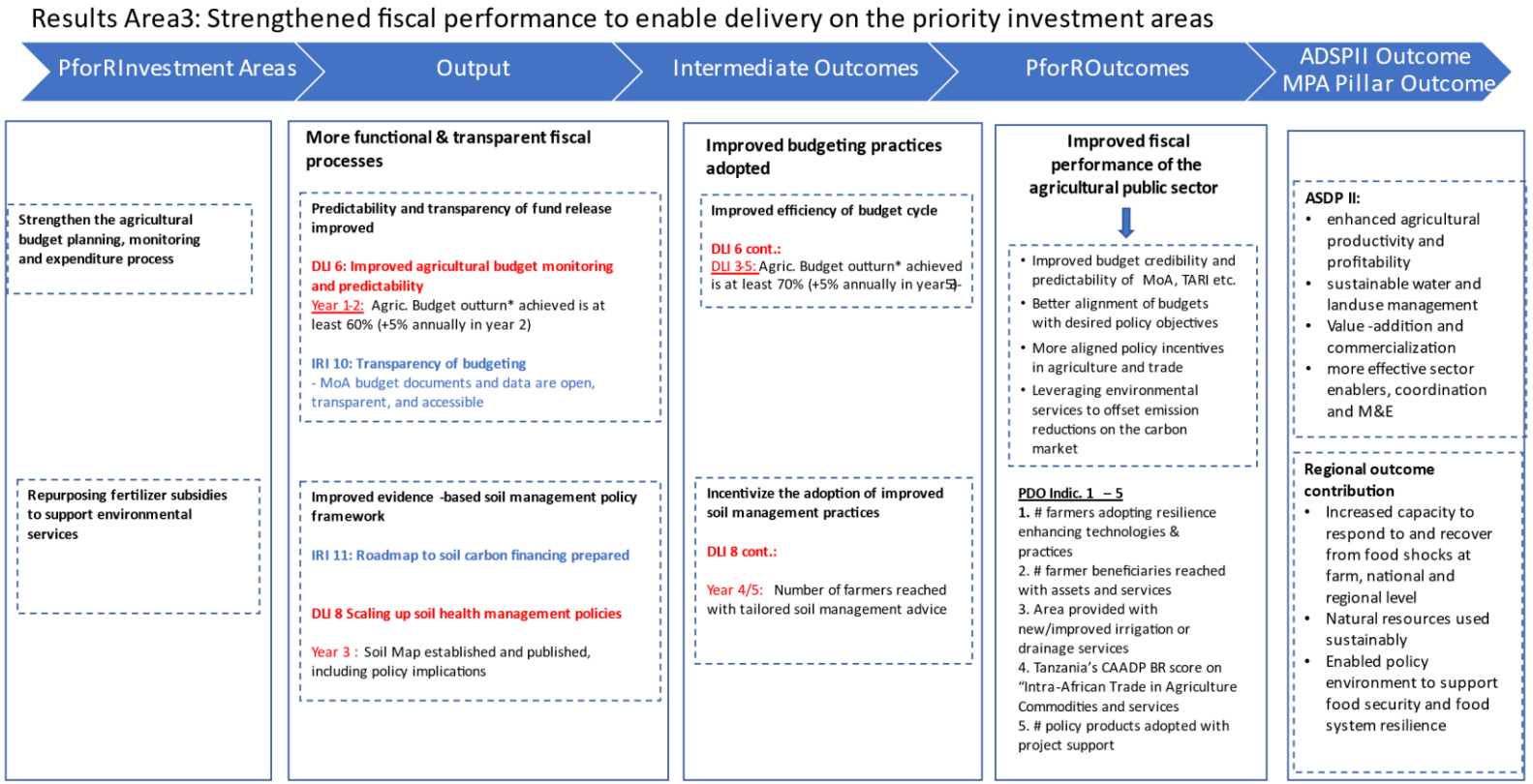
DLI 4: Performance-based Operations, Management, and Maintenance (OMM) contract introduced and implemented

108. ASDP II highlights the need for expanded investments in irrigation. The Government has responded by increasing budget allocations for the National Irrigation Commission (NIRC) by nearly eight times from FY21-22 (US$20 million) to FY22-23 (US$157 million), with the support of foreign funding. A further doubling of the budget is anticipated for FY 23-24. The key objective for the Government is to establish systems that ensure all irrigation systems are used as effectively and efficiently as possible. This DLI will incentivize the establishment of performance-based contracts that clarify and strengthens roles and responsibilities among stakeholders involved in irrigation OMM. The goal is to move away from the prevailing ad-hoc OMM modalities, which leaves the infrastructure poorly maintained and operated, towards more systematic and explicit irrigation service provision on the scheme. Increasing the irrigation management's reliability will increase the farm system's resilience and ensure the infrastructure's operational integrity in the long term. The DLI would apply to both existing and new schemes. The successful implementation of this DLI would create an institutional model for irrigation management that could be applied in countries across the East Africa region.

DLI 5: Effective management of public warehouse facilities

109. ASDP II highlights the strategic importance of addressing challenges affecting access to markets and post-harvest management (particularly value addition) to ensure food security and profitability for farmers. One of the critical conditions for agriculture to be profitable and thrive is functional marketing systems, including well-managed warehousing infrastructure. Tanzania has established a functioning Warehouse Receipt System (WRS). However, most (approximately 70 percent) of publicly owned warehouses are not operating due to ownership and governance challenges. Efficient management of public warehouse facilities will increase the volume of crops passing through Government warehouses, improve value chain commercialization, and contribute to climate-smart agriculture by reducing post-harvest losses, which currently stand at 30 – 40 percent for cereals and as high as 60 percent for horticulture crops. This DLI will incentivize introducing a hybrid warehouse management model that will adapt to local conditions, using a private sector operation model and the WRS, where applicable, in the existing warehouse. The models will be drawn from successful private warehouse operational models with a defined incentive framework acceptable to farmers and value addition and processing embedded in the agreements. Specific attention will be given to working closely with organizations that support women farmers. The Government will pilot and roll out successful models based on lessons learned. Delivering this DLI will increase the volume and quality of food available for export, impacting food security and resilience across the Region.

Figure 8 - Result Chain for Result Area 3



Budget outturn: defined as the percentage of funds released by the Ministry of Finance to the MoA over funds that have been committed (approved budgets).

*CAADP BR: score composed of : (i) increase the value of trade in agricultural commodities and services in Africa, (ii) to create an enabling environment for intra-African trade in agricultural commodities and services – 2021: 4.21 out of 5 (Target 5)

D. RESULT AREA 3: Strengthening institutional performance

110. **In Tanzania's context, improved budget and fiscal performance in the agricultural sector can have an impact at scale to strengthen food security and resilience of farming systems by improving the delivery of key agricultural services by national and local governments**. Services such as extension services, research, irrigation, storage, mechanization, etc., must be accessible, timely, predictable, and relevant. Predictable, sufficient, and timely funding is a cornerstone to do so. For instance, enhancing the management of budgets allows extension workers to plan and execute farmer field schools and demonstration trials, have access to operation and maintenance of motorcycles for reaching farmers, etc. Improved monitoring will provide greater accountability and management of public funds. To support the improvement of budget management activities, the Program will include (i) close monitoring of budget management indicators, (ii) identifying and promoting best practices, (iii) mentoring and supporting poor performing authorities, (iv) providing technical assistance, etc.

111. **The indicators for results in this area are**:

- *Improved Budget Efficiency*: Percentage of change in a budget outturn of MoA and its line agencies.
- *Locally sustainable financing contribution for District Agriculture Development Plans (DADPs) implementation*: number of LGAs that reinvest at least 20% of their revenue into financing District Agricultural Development Plans (DADP) implementation.
- *Developing alternative public support to respond to shocks*: a) a number of districts where alternative support delivery system for crisis response is piloted; b) Policy toolbox to answer to shocks published (and recommended to ASDP III design process).
- *Products supporting policy improvements*: Number of policy products completed with project support related to agriculture, natural resource management, and food/nutrition security.

DLI 6: Improved agricultural budget monitoring and predictability

112. In Tanzania, over 2018/19-2021/22, the tight budget allocation for ASDP II left little fiscal space for development expenditures. It led to insufficient support for critical public services needed to catalyze agriculture transformation. As a result, agricultural public service delivery critically deteriorated over the past decade in Tanzania (ex., research, extension services, irrigation). Yet increasing budget allocation will only boost service delivery if it effectively translates into additional timely and relevant investments. Scaling-up budget predictability and budget outturn are needed for agricultural plans and policies to materialize and deliver planned outcomes. In addition, improved monitoring will provide greater accountability and management of public funds. To support the improvement of budget management activities, this DLI will support the following: i) improved budget outturn, measured by timely release of monthly approved cash plans and end-of-year budget outturn; ii) strengthening budget data collection and analyses to monitor budget management closely, iii) identifying and promoting at national and regional levels best practices, and iv) mentoring and supporting poor-performing authorities. This DLI will incentivize MoFP to honor the allocation approved for the agency (MoA, NIC, TARI, etc.) and totally for the sector; each agency's cash flow plan reflects the calendar needs of the sector; and the challenges faced by the investment component.

DLI 7: Locally sustainable financing contribution for District Agriculture Development Plans (DADPs) implementation

113. LGAs raise revenues by taxing agriculture. Budget guidelines from the Ministry of Finance and Planning (MoFP) recommend that at least 20% of LGA's revenues be reinvested in the agriculture sector through the District Agricultural Development Plans (DADPs). Reinvesting locally generated revenues into DADPs creates positive enforcing cycles of investment in inclusive, sustainable, and resilient agricultural production approaches, including better infrastructure planning, strategies to enable the greater inclusion of women, and engagement with the private sector. However, the majority of LGAs do not adhere to the guidance. This DLI is designed to incentivize the expanded application of the MoFP guidelines, which is core for resilience building. Indeed, LGAs being responsible for extension services, this DLI will foster larger, more predictable, and more stable funding for this key service, which currently suffers from a chronic lack of capital investments and funding of its operating costs (ex., fuel for motorcycles).

DLI 8: Maximizing Soil Health

114. **Summary**. In a context of tight fiscal space, the quality of public funds use is critical. As it had done in 2009 in response to the sharp rise in global grain and fertilizer prices, Tanzania reintroduced in 2022/23 fertilizer subsidies to buffer farmers from rocketing up global fertilizer prices in the aftermath of the post-Covid-19 effects and the ongoing war between Ukraine and Russia. However, fertilizer subsidies have been shown to score poorly on these objectives in Tanzania in the past decade and in other countries in the Region (ex., Zambia and Malawi). One of the key lessons learned is that crop productivity will not increase significantly with fertilizer subsidies if soil fertility issues are not addressed through agronomic practices that improve soil organic matter. This implies that there is a need for more holistic approach in productivity enhancement, including a focus on soil management.

115. This DLI will incentivize the exploration and piloting of alternative policy tools that would best fit the country's specific context to buffer its farmers from future production and market shocks. The aim is to lessen the impacts of weather, economic or pests and disease shocks on rural households' income and on local and national food supply with policy interventions that strive to be cost-efficient without hampering the long-term competitiveness of the sector. Alternatives to be explored could include the holistic approaches to soil management, the development of social safety nets and the use of emergency funds. Tanzania's experience with alternative policy tools to build resilience would inform the regional dialog on repurposing agricultural policies to boost the agriculture sector.

V. PROGRAM ECONOMIC EVALUATION

116. The economic assessment of TFSRP includes: (i) the rational for public sector financing, (ii) the World Bank value added and (iii) a quantitative assessment of TFSRP's economic impact**.**

117. **Rationale for Public sector financing.** There is a strong rationale for public intervention as proposed by the Program because TFSRP will supply public goods (food security and nutrition; development and dissemination of agricultural research; climate change adaptation; climate change mitigation; soil health) and improve the performance of the Government's action in core public sector functions. The Program will scale up agricultural public service delivery and increase value-for-money of public spending in agriculture.

118. **World Bank Value Added.** The World Bank's value added to support TFSRP is grounded on (i) its knowledge in supporting Tanzania's agricultural sector both with financial operations and knowledge

products; (ii) its experience in supporting the GoT's transformational programs with the PforR tool in other sectors; (iii) its regional outreach, TFSRP being part of the second phase of the *Food Systems Resilience Program for Eastern and Southern Africa - (P178566), a Multiphase Programmatic Approach (MPA)*; (iv) its convening power, critical to raise additional funds that will ensure TFSRP's success.

119. **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.

A. Rationale for public sector financing

120. There is a strong rationale for public intervention as proposed by the Program because TFSRP will supply public goods and improve the performance of the Government's action in core public sector functions.

121. **The Program is expected to support the provision of public goods** by the agriculture sector. By definition, everyone can benefit from public goods, and nobody can be excluded from their access. Typically, the market underprovided these goods in the absence of an effective legal regime. TFSRP will support the delivery of five types of public goods:

(i) **Food security and nutrition**: The Theory of Change of TFSRP puts improvements to "food system resilience" at the center of the program's PDO outcome. The Program aims at scaling up the supply (increased levels of production), stability of supply (resilience building, storage, irrigation), and diversity (through seeds, irrigation, soil management) of food production for improved food security and nutrition, including in poorer areas (ex. Zanzibar);

(ii) **development and dissemination of agricultural research**: agricultural innovation is a public good that has been under-provisioned over the past decade in Tanzania due to insufficient financing, and TFSRP will scale up both at the lab (research) and field (extension services) levels to foster productivity and resilience of the sector;

(iii) **climate change adaptation**: climate adaptation is a multi-level public good with domestic, transboundary, and global dimensions (Khan and Munira 2021; Banda 2018). TFSRP will contribute to the provision of this public good by developing and disseminating related technologies (including climate-smart seeds) and ICT solutions, improving the water efficiency of irrigation and reducing production variability due to weather shocks thanks to healthier soils. In addition, building resilience to climate change will reduce the risk to households of falling back into poverty due to climate-related shocks and contribute to economic stability by reducing the impact of extreme weather.

(iv) **Climate change mitigation**: TFSRP will support the development of e-advisory systems that will facilitate effective access to climate change mitigation knowledge and technologies. It will pioneer energy-efficient warehouse facilities and reduce post-harvest losses and associated GHG emissions thanks to improved management of public warehouse facilities. It will also incentivize carbon sequestration in agricultural soils and pave the way for future access to carbon financing.

(v) **Soil health:** TFSRP will improve the sustainable management of agricultural soil, a key non-renewable resource currently under high rate of degradation in Tanzania and considered as a top environmental concern in the country. The current hidden costs of soil degradation warrant more targeted public investments to ensure that private sector entities are able to adopt sustainable land management practices for long term benefits. Finally, benefits to improved soil health usually require several cropping seasons to materialize, calling for public intervention to offset the transition costs and risk associated with changing farming system for better soil management.

122. **In addition, TFSRP will scale up agricultural public service delivery and increase value-for-money of public spending in agriculture.** Scaling-up budget predictability and budget outturn are needed for agricultural plans and policies to materialize and deliver planned outcomes. In addition, improved monitoring will provide greater accountability and management of public funds. Improved budget and fiscal performance in the agricultural sector will have an impact at scale to strengthen food security and resilience of farming systems by improving the delivery of key agricultural services by national and local governments, while putting in place processes to expand the role of the private sector in service provision. The accessibility, timeliness, efficiency and relevance of extension services, research, irrigation and storage will be improved. Predictable, sufficient, and timely funding is a cornerstone to do so. Improved service delivery is expected to generate benefits beyond Tanzania by improving regional food security, accelerating the sharing of knowledge and increasing exports.

B. World Bank value added

123. The World Bank's value added to support TFSRP is grounded on (i) its knowledge in supporting Tanzania's agricultural sector, (ii) its experience in supporting government's transformational programs with the PforR tool; (ii) its regional outreach, (iii) its convening power.

124. **Over the past ten years, the World Bank has provided significant support to Tanzania's agricultural sector both via knowledge products and through financial operations**. The World Bank already supported several IPF projects implemented by the Ministry of Agriculture, such as the Accelerated Food Security Project (AFSP), the Southern Agriculture Corridor of Tanzania (SAGCOT) and the Expanding Rice Productivity Project (ERPP). It allowed the Organization to develop knowledge in working both at the central level and at LGA level (ex. Kilosa, Kilolo and Mbalali LGAs for the implementation on ERPP). This experience has created a solid basis for taking the World Bank's engagement to a more transformative level using PforR. In addition, over the past five years, the World Bank has developed in partnership with the Government of Tanzania and other development partners knowledge products which provide deep understanding of the agriculture sector to ensure the relevance of TFSRP. They include a series of *policy notes to support ASDP II - Closing the Potential-Performance Divide in Tanzanian Agriculture* (WB 2018), *Tanzania Agriculture Public Expenditure Review* (FAO and WB, 2022), *Resilient, Inclusive, Sustainable and Efficient (RISE) Irrigated Agriculture in Tanzania: An analysis of sector challenges and opportunities for accelerated growth* (WB 2022), and *Tanzania Assessment of Governance and Institutions of Service Delivery in Irrigation Sector* (WB 2022).

125. **The World Bank has experience in supporting the Government's transformational agenda by implementing several PforR Programs**. These focused on Water, Education and Energy sectors. TFSRP will be the first Agriculture PforR Program and will build on the knowledge acquired in these other sectors to ensure a sound and efficient implementation of the Program.

126. **The World Bank's value added in supporting TFSRP also lays in its regional outreach and collaboration.** TFSRP is part of the second phase of the *Food Systems Resilience Program for Eastern and*

Southern Africa - (P178566), a Multiphase Programmatic Approach (MPA), approved by the World Bank's Executive Directors on June 21, 2022. The objective of the program is to increase the resilience of food systems and preparedness for food insecurity in participating countries. Phase 1 of the MPA covered Ethiopia, Madagascar, IGAD and CCARDESA. Tanzania is phase 2 of the MPA. A phase 3 is expected to include Comoros, Malawi, Mozambique and the Africa Union Commission. The World Bank will thus bring to the operation design and implementation the knowledge on best practices identified in the Region, and will foster dialog and cooperation at this level. One example of such regional outreach capacity is on addressing climate change resilience. Under its *Reinforcing Resilience* thematic pillar, the World Bank's Africa Regional Integration Strategy seeks to enhance resilience to shocks (including the drought- related risks that the Program seeks to address) and promote effective management of challenges that cut across boundaries.

127. **Finally, the World Bank has the critical convening power to raise additional funds that will ensure TFSRP's success.** A proposal for Global Agriculture Food Security Program (GASFP) Funding has been submitted (decision to be made in March, 2023). Two additional donors, the International Fund for Agriculture and the Norwegian Agency for Development Cooperation, have expressed interest in supporting the PforR. The conclusion of FY 24 will likely confirm these finances.

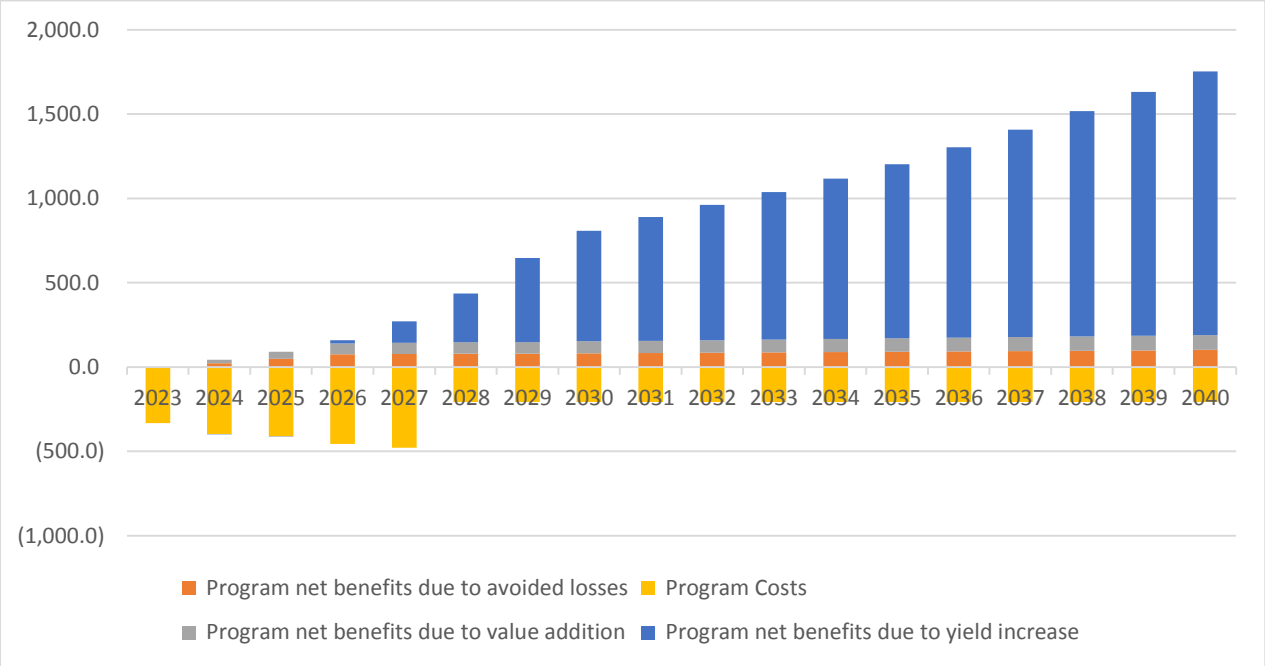
C. Economic Assessment.

128. A cost benefit model accounting is used to assess the *ex-ante* efficiency of the Program over the 2023-2040 period. Over 19 years (2023-2040), 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.

129. ***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).

130. ***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. Figure 9 summarizes costs and benefits modelled in this economic analysis.

Figure 9 - Summary of the Program costs and benefits (current million USD)



Source: authors

131. ***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.

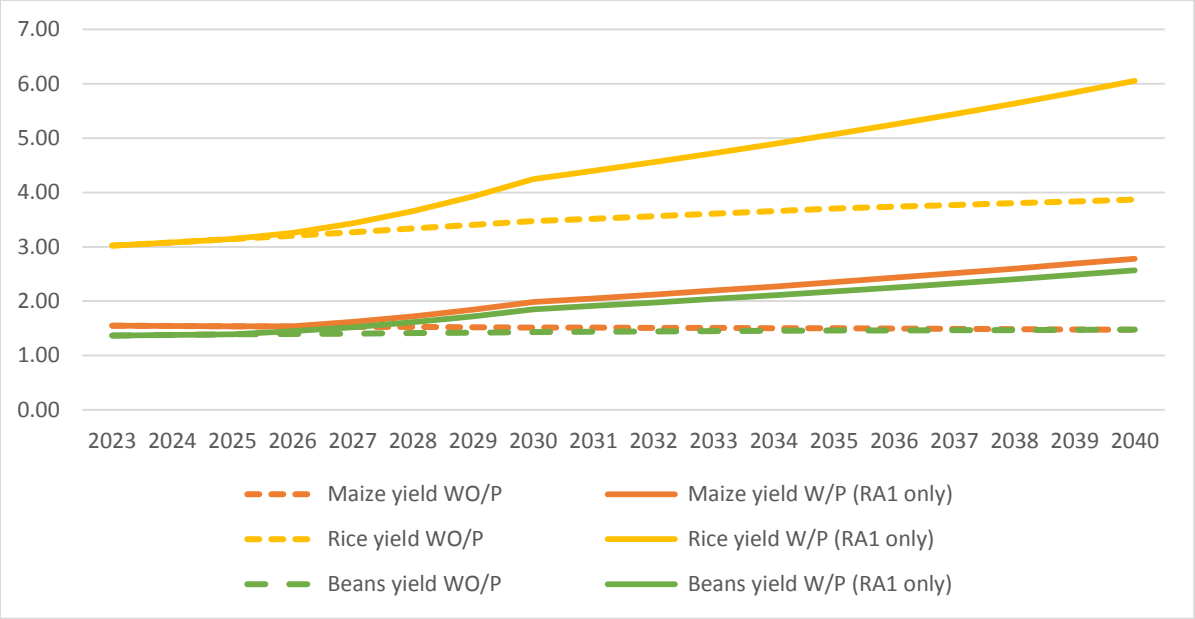
132. The benefits of TFRSP have been modelled and quantified (see summary Table 8 and Table 9) the key assumptions are as follows:

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

133. 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 10 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 8. A 3-year lag between investment in innovation and adoption at the field level is assumed.

Figure 10 - Projected yields evolution for Maize, Rice and Beans in Tanzania with (W/P) and without (WO/P) TFSRP



Source: authors based on CIAT and World Bank (2017) and Sulser et al, (2021)

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

134. 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 8. 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:

135. 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 8. 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

136. 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:

137. 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 8). It is assumed that processing adds 30 percent to the value of the commodity.

138. 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.

139. ***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 8 - 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%

Source: authors based on technical assessment

Table 9 - 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

Source: adapted and extrapolated from Sulser et al. (2021)

VI. RESULTS MONITORING AND EVALUATION

140. **MoA will coordinate the monitoring and evaluation (M&E) of the Program**. They will compile and consolidate data and supporting documents, ensure data quality, prepare, and submit the reports to the Bank on a timely basis and collect data about physical progress, achievement of results in each program area, and the flow of financial funds. The MoA will report to the Bank on a semiannual basis, covering the following items: (i) expenditures; (ii) physical progress; (iii) results in framework indicators; (iv) disbursement linked indicators (DLIs); (v) compliance with social and environmental requirements; and (vi) grievances and any allegations on fraud and corruption. Reports would be endorsed by the Steering Committee and submitted on a semiannual basis. The Government will recruit an independent third-party Verification Agency (VA) to verify the achievement of DLIs, operating in accordance with agreed protocols. A mid-term review would assess progress with implementation, and towards the development objective of the Program and at the end of Program implementation, an independent evaluation would assess the Program's results and impacts.

141. The assessment concludes that existing systems for Monitoring and Evaluation require further strengthening, especially in key areas such as gender and how government interventions are impacting the gender gap.

VII. RISKS AND MITIGATION MEASURES

142. The assessment has identified several risk areas and potential mitigation measures**.**

Digital Solutions:

143. The program will support the rapid expansion of digital salutations to increase access to information and services. The MoA is increasing the use of digital solutions. However, overall there is a lack of experience and knowledge across MoA. In this context, there is a risk that the full potential of digital solutions may not be fully realized.

144. Solution: Develop Digital Agriculture Guidelines. The introduction of digital solutions is strategically important to the MoA. However, MoA has relatively limited experience defining and establishing the strategic direction for how and where digital solutions can and should be used. In this context, the MoA will establish a guideline Monitoring and Evaluation Plan.

Closing the Gender Gap.

145. The gender gap is a major structural challenge for Tanzania's agri-food sector. There is considerable understanding and awareness of the gap's consequences, including lower productivity, reduced access to services, and less control over on-farm decision-making. However, solutions to addressing these challenges are relatively fewer. In this context, there is a risk the program may not close the gender gap.

146. Solution: Design and Implement the Women's Empowerment in Agriculture Index (WEAI) – in three crop value chains. Closing the gender is a strategic priority for the GoT. The WEAI provides a framework to help identify solutions, inform decision-makers, and monitor new methodologies' impact. Establishing WEAI in three value chains would enable the MoA to fine-tune services, direct research, adjust budget allocations, and close the gender gap in the three crop value chains. The lessons from this experience can be disseminated to other relevant value chains.

New Business Models for the sustainable management of Post-Harvest Crops.

147. The utilization of government-financed post-harvest infrastructure is very low. As a result, the levels of food waste are higher than they could be. The program is introducing new business models that seek to transform the management and utilization of the post-harvest infrastructure. New ways of working will be developed, and new partnerships, including with the private sector, will be explored. Adapting to these new modalities will take time and may be challenging for some staff.

148. Solution. To reduce any associated risks, the Program will develop guidelines and training programs to support staff in building new ways of working.

Creating systems supporting the sustainable management of irrigation systems

149. A large percentage of irrigation schemes in Tanzania are poorly maintained. The Program will address this challenge by focusing on the operations and maintenance of irrigation systems. This is a relatively new approach for the institutions supporting the country's irrigation system. New approaches require systems, strong communication, and a definition of roles and responsibilities. Furthermore, the impact of the new approaches needs to be carefully monitored. If these issues are not adequately addressed, there is a risk of the new systems will fail to deliver the intended results.

150. Solution. The Program will develop i) institutional Develop protocols for NIRC, the LG, and the IOs to identify key steps and ensure due process and full inclusion of all parties in the agreement development process, ii) preparation of Guidelines on Irrigation Design Innovations for Improved Water Productivity,

including a Performance-based OMM Contract Template with legal provisions defining the roles and responsibilities of the parties to the contract, and related performance measure and iii) development of a Monitoring and Information System (MIS) for public irrigation schemes, allowing data collection and storing for critical performance indicators.

Repurposing Public Support towards Holistic Soil Health.

151. The government wants to move towards supporting a more holistic approach to soil health management. As a result, the government needs to diversify away from its current focus on fertilizer subsidies. This transition, although necessary, will be complex. Farmers have expectations over the nature of support it provides. Moving to new approaches must not only be technologically relevant; they must also be politically acceptable. In the transition to a new system, minimizing potential risks will require a strong evidence-based approach.

152. Solution. The government will Develop Guidelines for repurposing fertilizer subsidies to support environmental services and pilot policy options. The guidelines will include a roadmap for soil carbon financing (including a costed proposal for MRV design).

Monitoring Systems

153. The assessment concludes that the MoA's existing monitoring systems require strengthening. A strengthened monitoring system would enable the MoA to identify key challenges, create evidence-based solutions, analyze and track solutions to key structural challenges, such as closing the gender gap, and identify lessons for the design of future programs.

154. Solution. The MoA will develop a strategic plan focused on the strengthening of the existing monitoring plan. The plan should include i) the piloting of the Women's Empowerment Index in at least three value chains, ii) a program to train all staff and iii) the appropriate integration with digital platforms.

155. The mitigation measures have been incorporated into the Program Action Plan (see Annex 3)

ANNEX 1. RESULTS FRAMEWORK

Program Development Objective(s)

The Program Development Objective of TFSRP is to support food system resilience by strengthening agricultural service delivery, the adoption of resilient climate technologies, and fiscal performance in the agricultural sector

Program Development Objective Indicators by Objectives/Outcomes

Indicator Name	DLI	Baseline	End Target
PDO Indicators			
Improved resilience enhancing production capacity • # of farmers adopting resilience-enhancing technologies and practices[17] of which female farmers (number)		2,979,000 (608,000 women)	3,379,000 (808,000 women)
Sustainable use of natural resources • Area provided with new/improved irrigation or drainage services (hectare)		783,000	1,000,000
Outreach • Number of farmer beneficiaries reached with assets and services - Of which women, % - Youth, %		539,000 (17.3% women (15% youth)	2,350,000 (40% women) (20% youth)
Marketing and ability to leverage regional trade opportunities		4.21	10

[17] Also **MAP PDO indicator**; includes climate smart production technologies

• Tanzania's CAADP BR score on "Intra-African Trade in Agriculture Commodities and services."[18]			
Policy improvements - Number of policy products adopted with project support related to agriculture, natural resource management, and food/nutrition security [19]		0	5

Intermediate Results Indicator Name	DLI	Baseline	End Target
RA 1 – Improved research, extension, and seed service delivery			
Human resource capacity development support - # of persons receiving capacity development support (person) - Of which, the number of females		0	6140 (2020)
Improved research services (of TARI) - TARI research strategic plan 2024-2028 approved, including mid-term expenditure framework - Ratio of TARI's budget received to budget committed in the strategic plan (in %) - # of climate-resilient crop varieties released (total since 2022) - # of technologies developed, transferred to, and absorbed by extension services[20] since 2022 - Of which gender-sensitive technologies	1 1 1 1	No 0 (%) 0 0	Yes 95 (%) 25 50

[18] CAADP BR: score composed of : (i) increase the value of trade in agricultural commodities and services in Africa, (ii) to create an enabling environment for intra-African trade in agricultural commodities and services – 2021: 4.21 out of 10 (whereby 2021 target was 5)

[19] proxi for (ii) MAP PDO indicator "Policy products adopted with program's support related to agriculture, natural resource management, and food system resilience (Number); includes (i) **TARI Strategic Plan 2024-2028**; (ii) **MoA E-agriculture Roadmap ; (iii) NIRC Guidelines on Irrigation Design Innovations for Improved Water Productivity**; (iv) **Revised provision to the 'Local Government Financing Act' to formally establish the 20% provision of crop cess collection for agriculture** (v) **Roadmap to soil carbon financing**

[20] Equivalent to MAP intermediate results indicator

		(0 gender sentitive)	(10)
Improved extension service delivery			
- # of extension staff trained on smart climate practices AND e-agric solutions (% females)	2	0 (0%)	6000 (30%)
- Total # of Farmer reached with e-extension services - Of which % females	2	50,000 (of which 30% female)	780,000 (of which 40 % female)
- Share of farmers accessing e-agriculture platforms that are satisfied with the advice received (%) - Of which % females	2	0 (of which 0% female)	70 (%)(of which 40% are female)
- Increase in score of Women's Empowerment in Agriculture Index (WEAI)[21](%)	2	0	20
Improved functional linkages in the seed value chain			
- Amount of foundation seed distributed by TARI (in tons)	3	200	400
- Amount of certified seeds produced by ASA[22] (in tons)	3	60,000	73,000
- # of TOSCI seed inspectors (% female)	3	50	>90 (30%)
- % of certified seeds produced by ASA covered by seed batch tracking system	3	5%	50%
RA 2 – More resilient infrastructure services			
Improved performance of Irrigation schemes			
- Number of performance-based OMM contracts signed[23]	4	0	20
- Area (ha) operated under performance-based OMM contracts			

[21] The Women's Empowerment in Agriculture Index (WEAI), is an aggregate index based on individual-level data collected from both men and women within the same household, offering an innovative method to measuring women's empowerment. WEAI has five domains of empowerment with ten indicators organized thematically. The index is comprised of two sub-indices: one measures five domains of empowerment for women (5DE) and the other measures gender parity in empowerment within the household (GPI).

22 Including sub-contractors to ASA

[23] Proxi for MAP indicator "Water user associations /FBOs for the O&M of infrastructure, equipment, and landscape restoration activities established or/and strengthened"; the performance-based agreements will all come along with establishment or strengthening of WUA;

- Share of farmers satisfied (% women) with water accessibility as per agreed times	4 4	0 0	10,000 >80 (of which 40% women)
Improved management of warehouse facilities - Number of warehouses leased by the private sector or operated by cooperatives in compliance with guidelines (for new management model)[24] - Total annual turnover of commodities stored in warehouses managed using new management model (in metric tons)	 5 5	 0 0	 TBD 400 240,000 Mt
RA 3 – Improved fiscal performance to enable the delivery of the priority investment areas			
Improved Budget Efficiency - % change in a budget outturn of MoA and its line agencies - Deviation of monthly release of budget from cash plans	 6 6	60% 50%	90% Less than 15%
Locally sustainable financing contribution for District Agriculture Development Plans (DADPs) implementation. - Annual increase in average LGAs reinvestment of crop cess revenue into financing District Agricultural Development Plans (DADP) implementation (%)	7	1.7	15
Scaling up soil health management policies - Number of soil samples that have been tested nationwide - Soil Map established and published - Number of farmers reached with tailored soil management advice	8 8 8	0 No 0	20,000 Yes 120,000
IPF Component 1: Support to Zanzibar			

[24] Proxi for MAP indicator "Marketing infrastructure constructed or rehabilitated (number); because only adequately rehabilitated warehouses will be licensed and thus can be leased to private sector or operated by cooperatives;

Improving service delivery in research, seed, and extension			
- Number of ZARI Labs rehabilitated (Soil, Tissue culture and entomology etc.)		0	3
- Number of additional professional staff with a post-graduate degree (Master's and Ph.D.) at ZARI		0	8
- Number of climate resilience enhancing technologies developed and released in Zanzibar		0	5
- Amount of certified seeds produced (in tons)		TBD	TBD
- # of extension staff trained by the project on - (i) climate-smart practices (% females), - (ii) e-agric solutions (% female)		0 0 0	100 100 (40% females) 100 (40% females)
- # of farmers that completed a farmer field school program[25] supported by the project - % women, - % youth		0	10,000 40 % 20 %
Rehabilitation of rural infrastructure to enhance climate resilience			
- Area provided with new/improved irrigation or drainage services (hectare)		0	800
- # of farmer's Service Centers rehabilitated		0	6
- # of boreholes rehabilitated		0	8
- Number of women vegetable producing/marketing groups established or strengthened		0	TBD
IPF Component 2: Institutional capacity at MoA TZ Mainland and Zanzibar improved			
- ADSP II M&E System in place and fully operational		No	Yes

[25] Soil fertility management and agroecological practices

-	MoA budget documents and data are open, transparent, and accessible		No	Yes
-	Curriculum for the training of extensionists on (i) CSA and (ii) E-agriculture solutions prepared and rolled out		0	2
-	Number of NIRC staff, district engineers, and scheme level staff trained on the new 'Guidelines on Irrigation Design Innovations for Improved Water Productivity		0	TBD
-	Performance recording system for public irrigation schemes in place[26]		No	Yes
-	Percentage of project-related grievances received that have been addressed and communicated within 30 days.		0	95%

[26] allowing data collection and storing for critical performance indicators as per 'Guidelines on Irrigation Design Innovations for Improved Water Productivity'

ANNEX 2. Detailed verification protocols for selected DLIs

	Verification Protocol Table: Disbursement Linked Indicators
DLI 1	**Sustainable financing for the development and dissemination of climate resilient technologies in agriculture**
Description	DLI 1 measures the predictability and effectiveness of agricultural research financing of climate resilient technologies
Data source/ Agency	TARI records, audited financial statements /TARI
Verification Entity (VE)	Independent Verification Agency
DLI 1 - Sub-measures	1. TARI strategic plan 2024-2028 approved, including mid-term expenditure framework 2. TARI's budget received meets budget committed in the strategic plan
DLI 1.1	**TARI strategic plan 2024-2028 approved, including mid-term expenditure framework**
Description	The sub-DLI measures the delivery of a fully budgeted and approved TARI Strategic Plan for 2024-2028 The SP should outline the strategic direction of the Institute for the next five years. It will present (i) a **Theory of Change with the strategic research areas** that will drive the Institute's efforts meet its mission*, **also highlighting the strategic direction for climate smart, nutrition and gender-sensitive research** (ii) the **approach for engaging and financing national and regional partnerships within each of the results areas** (i.e., with national extension services, TOSCI, academia, other country NARIs, the CGIAR, private sector, farmer organizations (iii) the **approach for data and knowledge management** (iv) the **approach for effectively disseminating knowledge and technologies** for impact in farmers fields (v) a results framework and an Monitoring, Evaluation and Learning (MEL) plan (vi) a Mid-Term Expenditure Framework (MTEF). *TARI mission is "to generate and promote application of knowledge, innovation and agricultural technologies as catalyst of change in achieving agricultural productivity, food and nutrition security, sustainable agriculture and economic growth involving stakeholders in the country and global community" The **development of the strategic plan** shall be based on the following **supporting documents**: (a) review of results (as per original results framework), critical success factors, and lessons learned from the latest SP 2019/20-2024/25, (b) proceedings of a systematic internal and external consultation process, (c) updated assessment of capacity needs and organizational improvement (including consolidation) opportunities (d) a stock-tacking review of climate resilience enhancing technologies already developed by TARI and its partners that are ready for dissemination.
Data source/ Agency	TARI publications / Board proceedings

Verification Entity	Third-party Verification Agency
Procedure	(1) TARI provides the following supporting evidence for DLI 1.1 1. **Copy of the approved and published TARI Strategic Plan 2024-2028** 2. **Official Meeting proceedings** of the TARI Board approving the Strategic Plan 3. **Supporting documents** for the preparation of the Strategic Plan (as listed in the description section above) (2) VE audits evidence for compliance with DLI 1.1 and provides opinion.
DLI 1.2	**TARI's budget received meets budget committed in the strategic plan**
Description	This Sub-DLI measures the budget outturn, i.e., percentage of funds released to TARI over the funds that have been committed through the approval of the mid-term expenditure framework presented in the TARI Strategic Plan
Data source/ Agency	TARI audited financial statements, TARI Mid-Term Expenditure Framework
Verification Entity	Independent Verification Agency
Procedure	(1) MoA provides a. Latest approved Mid Term Expenditure Framework (MTEF) for TARI b. TARI's annual audited financial statement c. TARI self-report of annual budget outturn (2) VE inspects whether (i) accreditation and validity of the independent assurance presented for TARI's financial statement is adequate (i.e. either Controller and Auditor General or external auditing firm is recognized by CAG) (ii) the reported budget outturn is supported by the TARI audited financial statement. Note: Disbursement in year 2 would be based on year 1 outturn which still will be subject to the old Strategic Plan (reflected in the 2022/2025 MTEF for vote 43)
DLI 2	**Extension outreach strengthened, including through ICT solutions for promoting climate smart practices**
Description	This DLI would measure improvement to the performance of the extension system, in particular the introduction and mainstreaming of an e-extension system. The newly established farmer register would be combined with other data platforms (e.g., weather forecasting, pest and disease identification and monitoring, market pricing, and access to finance). In parallel,

	the DLI would measure the delivery training of selected LGA extension staff in using data-driven solutions and help deliver climate-smart solutions to farmers.
Data source/ Agency	M&E Unit at MoA
Verification Entity (VE)	Independent Verification Agency
DLI 2 - Sub-measures	1. Technical Integration of farmer registry with m-kilimo: # of new service function rolled out 2. Training: # of extension staff trained on (i) climate smart practices and (ii) e-agric solutions 3. Outreach: # of farmers receiving early warning messages about (i) pest & diseases (ii) weather and (iii) market 4. Learning: Mid-term review of guideline implementation published
DLI 2.1	**Number of new service functions rolled out with m-kilimo**
Description	The sub-DLI measures the number of new functions that have been integrated and rolled out into the m-kilomo platform. Targeted service functions include: (1) seasonal production and management advice (2) digital recognition of pests, (3) early warning on pest, diseases, (4) weather information, (5) market prices and marketing opportunities, (6) targeting of public support mechanisms (e.g.,e-voucher)
Data source/ Agency	m-kilimo application reports, m-kilimo unit at MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA will provide the following information and supporting evidence (i) M-kilimo architecture/design document, the Manual and access information to application to browse functionality (ii) Application Performance Reports for each 'function': monthly user activity reports, m-kilimo deployment performance measures (e.g., # of users by function, messages sent, relevant transaction logs) (iii) Other documents as demanded by VE VE will (i) review documentation and test functionality of applications (ii) provide opinion on the reported functionality
DLI 2.2	**Number of extension staff (% women) trained on (i) climate smart practices and (ii) e-agriculture solutions**
Description	This sub-DLI measures the increas of awareness and understanding by extension staff about the use of data-driven solutions and climate-smart solutions in agriculture by measuring the number of extension that graduated from a training program on climate smart practice's and e-agric solutions Target: xx,000 extensionist (30% women) on CSA Xx,000 extensionist (30% women) on e-agricultures solutions

Data source/ Agency	Capacity Development records, Division of Research and Development at MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA will provide (i) Overview Table with: number of extensionist, % women, name of training program, duration and date delivered (ii) detailed list of extensionist that completed training on CSA and e-agriculture (with full names, gender, contact e-mail and phone, date and type of training program completed) (iii) copy of agenda of training programs, corresponding material distributed to participants and sign-in sheets VE will review reported figures and supporting evidence and conduct verification calls to a representative sample of extensionist listed under (ii) VE will provide opinion on the validity of the reported indicator measure.
DLI 2.3	**Number of farmers (% women) receiving early warning messages about (i) pest & diseases (ii) weather and (iii) market**
Description	This sub-DLI is a measure of delivery outreach of e-agriculture solutions to farmers. It measures the number of farmers (% women) that have received early warning messages in year 2025 Target: xx,000 (sms) messages on pest and diseases (% sent to women) Xx,000 (sms) messages on weather forecast (% sent to women) Xx,000 (sms) messages on market prices and off-take opportunities (% sent to women)
Data source/ Agency	e-kilimo operational records, MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA provides (i) Overview table listing: text of each text message (by type, i.e., pest/disease, weather, market) sent, date message was sent, total number of cell numbers sent to successfully, number of bonce backs (ii) Supporting evidence: excerpts from program code and application transaction logs reflecting mass sending of message (iii) Access information to application transaction log - if requested by VE VE review report and evidence and provide opinion on the validity of the reported measures (i.e., number of messages received by farmers)

DLI 2.4	**Mid-term review of e-agriculture roadmap implementation published (Y/N)**
Description	This sub-DLI aims to assess the willingness and capacity for continuous learning as innovative e-agriculture solutions are being implemented. As such MoA will commission an external mid-term review of the achievements under the e-agriculture roadmap to date. The DLI will be triggered if the report was completed and published, including a MoA management response to the recommendations was made as part of the review.
Data source/ Agency	Mid-term review report, MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA will provide (i) ToR for review, invoice for work completed (ii) link to public website with report and management response VE will review documents reported and indicate whether DLI was achieved in their report to World Bank
DLI 2.5	**Extension coverage: Total # of Farmer (% women) reached with e-extension services**
Description	This sub-DLI aims to measure changes in the overall coverage of e-extension services as an indicator of improved performance of extension service delivery. As such it tracks changes the total number of farmers reached with e-extension tools offered on the m-kilimo platform and through the farmer registry. A farmer is recognized and counted if he/she is an active subscriber to the platform and received regular information and or sent it queries during the past 12 month.
Data source/ Agency	e-kilimo operational records, MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA **will report on the total figure as per definition above**, and provide the following supporting evidence (i) Integrated Platform (including registry) Performance Reports (e.g., # of users by function, messages sent, relevant transaction logs) (ii) Access to digital contact information included in DLI measure and activity logs of subscribed farmers

	VE will assess information provided, conduct sample verification (as needed) and provide opinion on reliability of DLI measure reported
DLI 3	**Improved functional linkages in the Seed value chain**
Description	DLI 3 measures the functionality and effectiveness of the seed value chain
Data source/ Agency	ASA and TOSCI records
Verification Entity (VE)	Independent Verification Agency
DLI 3 - Sub-measures	1. Amount of certified seeds production by ASA (tons) 2. Improved quality control mechanism: % of certified seeds covered by seed batch tracking system
DLI 3.1	**Amount of certified seeds production by ASA (tons)**
Description	The DLI measures the total production of certified seeds by ASA (and its sub-contractors) **AND** subsequently certified by ToSCI in accordance with the most current seed regulation. This measure only includes seeds of cereal crops, grain legumes and pulses, vegetable crops, fruit crops (see table 19 of seed regulation 2007) and oil seeds; not included are grass forage and green manure crops, fiber crops "Certified" refers to the seeds available on the market to farmers that have been declared and officially tagged as "Tanzania Certified Seeds" by TOSCI;
Data source/ Agency	ASA and TOSCI records
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA/TOSCI provides as evidence copies of (i) monthly statement of seed amounts certified for each ASA farm (and sub-contractors) – disaggregated by type of seed (e.g., maize, wheat etc.) VE validates reported figures against submitted monthly statements and conducts random sample checks of seed producers' documentation of certification (and in some cases the physical tagging).
DLI 3.2	**% of certified seeds produced by ASA and covered by seed batch tracking system**
Description	This DLI will measure the implementation of an improved quality control mechanism (i.e., the so called seed batch tracking system) for monitoring of seed movement after harvest, during processing, packing, labeling, and selling
Data source/ Agency	TOSCI

Verification Entity (VE)	Independent Verification Agency
Procedure	MoA/ provides as evidence copies of (i) Operational Manual of the seed batch tracking system (ii) monthly performance reports of the seed-batch tracking system VE validates reported DLI 3.2 figure against (i) verified DLI 3.1 figure (i) monthly reports on the seed tracking system performance; and conducts random sample checks of seed producers' documentation of certification and tracking numbers (and in some cases the physical tagging).
DLI 4	**Performance-based Operations, Management and Maintenance (OMM) contracts introduced and implemented**
Description	This DLI measures the formal legal establishment and the coverage area of contractual agreement between NIRC and Irrigation organizations for the operation, management and maintenance of targeted irrigation schemes with a defined number or service recipients "Operations" refers to the hydraulic control, including water withdrawal, conveyance, transport/delivery and drainage of irrigation water "Management" refers to (i) scheduling and delivery of agreed-on quality, quantity, reliability, flexibility and equity to enable specific uses of water in the scheme (ii) the evacuation of excess water to avoid salinization and production losses after extreme events "Maintenance" refers to technical upholding and safeguarding of the irrigation infrastructure installed (i.e., canals, pumps, other hydraulic control equipment)
Data source/ Agency	NIRC records
Verification Entity (VE)	Independent Verification Agency
DLI 4 - Sub-measures	1. Number of performance-based OMM contracts signed (disaggregated by region) 2. Area (ha) operated under performance-based OMM contracts
DLI 4.1	**Number of performance-based OMM contracts signed (disaggregated by region)**
Description	This sub-DLI measures the number of legally signed contracts between NIRC, IOs and the District Executive Office governing the operation, management and maintenance of targeted irrigation schemes in zone xyz

	The contract would stipulate (i) roles and responsibilities between NIRC/District Executive Office/the District Irrigation Engineer/IO for the operation, management and maintenance of the scheme, (i) an operational plan (iii) bulk water tariff to be paid by the IO to the NIRC for services provided, (ii) minimum standards for IO bye-laws (iv) provisions for key-performance indicators (v) **other - as per NIRC guidelines and template for the establishment of OMM contracts**[27]
Data source/ Agency	NIRC records
Verification Entity (VE)	Independent Verification Agency
Procedure	NIRC will provide as evidence copies of (i) the signed contracts and (ii) corresponding design of the irrigation scheme (iii) registration certificate of the signatory IO (iv) proof of IO member training conducted by the NIRC, signed by the official IO signatories (vi) relevant technical guidelines and templates issued by NIRC VE validates reported figure on number of performance-based contracts signed against the supporting evidence provided (see above)
DLI 4.2	**Area (ha) operated under performance-based OMM contracts**
Description	This sub-DLI assesses the implementation of performance-based OMM contracts by measuring the change in total area (ha) operated under performance-based OMM contracts. 'Operated' refers to the agreed and then implemented management of water resources by the operator, i.e., supply and drainage of water at the wider scheme perimeters down to the plot level. Disbursements are scalable and will be made against the area under operation for the year under assessment
Data source/ Agency	Operational reports, OMM contractor
Verification Entity (VE)	Independent Verification Agency
Procedure	NIRC provide the following (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

[27] Guidelines on Irrigation Design Innovations for Improved Water Productivity, including Performance-based OMM contract Template with legal provisions defining the roles and responsibilities of the parties to the contract, and related performance measures.

	(iii) 6 monthly reports by OMM IO contractor to NIRC for each scheme that is included in the measurement of DLI (incl. IO payment statement for bulk water supplied by NIRC); (iv) Copy of NIRC/District Executive Office Notices (or equivalent) addressed to scheme operators about the IOs service performance and the payments issued (in line with para 49 of the National Irrigation Act requiring the Monitoring and Evaluation of performance of irrigation schemes) VE will review report and evidence and provide opinion on the validity of reported DLI measure
DLI 5	**Effective management of public warehouse facilities**
Description	DLI 5 measures the effective use of public warehouses and their efficient management
Data source/ Agency	Institutional guidelines, legal agreements / Tanzania Warehouse Licensing Board/MoA
Verification Entity (VE)	Independent Verification Agency
DLI 5 - Sub-measures	1. New Warehouse Utilization Guidelines issued specifying improved management model (yes/no) 2. Number of MoUs with relevant central/regional/local government agencies signed adopting new guideline on improved management model for district 3. Number of warehouses managed by the private sector or operated by cooperatives in compliance with new Guidelines 4. Total annual turnover of commodities stored in warehouses managed using new model (in tons)
DLI 5.1	**New Warehouse Utilization Guidelines issued specifying improved management model (yes/no)**
Description	This sub-DLI measures whether a new "Warehouse Utilization Guideline" was developed and formally issued by Tanzania Warehouse Licensing Board (TBC WHETHER NEEDS APPROVAL OF MoA) that specifies the management criteria, regulatory and legal provisions in a reformed management model of publicly-owned warehouses. It will address (i) licensing regulation of warehouses under new management model, (ii) the operational model , i.e., type of warehouse agreement with warehouse operator (private sector/cooperative/ other service provider) e.g., service agreement, lease agreement, property management agreement (iii) the legal provisions and process for signing of MoU between MoA/LGA/Operator/Owner specifying clear roles and responsibilities (iv) process for issuing of warehouse receipts to depositors, if any (v) system of storage and handling charges (vi) payment terms, warranties, liabilities, termination rules (vi) provisions for warehouse inspections, including fee structure and the development of an inspection manual, and (vii) provisions for depositor rights and responsibilities, and process for their sensitization
Data source/ Agency	Records of Warehouse Management Guideline / Tanzania Warehouse Licensing Board, Department of National Food Security and Nutrition at MoA

Verification Entity (VE)	Independent Verification Agency
Procedure	MoA provides as evidence copy of (i) new "Warehouse Utilization Guideline" specifying improved management model (ii) TWLB Board approval for issuing new guideline (e.g., excerpt from Board meeting proceedings stating approval) VE reviews evidence and provides opinion on the achievement of DLI 5.1
DLI 5.2	**Number of MoUs signed by relevant local government agencies and private sector entities adopting new guideline on improved management model for district**
Description	This sub-DLI measures the number of Memorandum of Understanding (MOU) signed by the MoA, LGA, Warehouse Owner (Village Government/FBO) and the Private Sector/Cooperative The MoU will govern the partnerships and clarify the roles and responsibilities of each party, and (i) a new warehouse management agreement, (ii) copies of warehouse licenses, where the WRS is applicable (iii) copy of registration of warehouse operator signing agreement (iv) annual warehouse inspector reports (v) tbd Disbursements are scalable and will be made against the number of signed MOUs with valid supporting documents.
Data source/ Agency	Official records, Tanzania Warehouse Licensing Board (TWLB)
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA will provide as evidence copies of (i) all MoUs signed by district (ii) list of district warehouse facilities governed by new management model VE will review evidence to validate (i) reported total number of signed MoUs (ii) list of district warehouse facilities governed by new management model (see DLI 5.1) , and provide opinion on DLI achievement
DLI 5.3	**Number of warehouses leased by the private sector or operated by cooperatives in compliance with guidelines**
Description	This sub-DLI assess the number of warehouses recognized as complying with the "Warehouse Utilization Guideline" that were subject to the MoU and management agreement.
Data source/ Agency	Official records from MoA, Tanzania Warehouse Licensing Board (TWLB)
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA will provide the following evidence: (i) copies of each new warehouse management agreement signed (ii) copies of warehouse licenses, if any (iii) copy of registration of warehouse operator signing agreement (iv) annual warehouse inspector reports (v) annual financial audits of warehouse operator.

	VE reviews agreements and other supporting evidence and then validates compliance with Guideline and respective MoU. VE may decide or at the request of the World Bank conduct field surveys for additional verification.
DLI 5.4	**Total annual turnover of commodities stored in warehouses managed using new model (in tons)**
Description	This sub-DLI assesses utilization of public warehouses by measuring total annual turnover (in tons) of commodities stored in warehouses managed using new model (i.e., with MoU adopting new guidelines) Disbursements will be made against the total turnover, in metric tons, of all warehouses adopting the new management model
Data source/ Agency	annual/quarterly warehouse inspector reports, Audit reports, Tanzania Warehouse Licensing Board (TWLB)
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA though TWLB will provide **detailed calculation of the total turn-over of commodities stored in warehouses recognized under DLI 5.3** with supporting evidence, including - warehouse inspector report of all recognized warehouses VE will validate reported turn-over figures using warehouse inspector reports and financial reports of facility operation. VE may decide or at the request of the World Bank conduct field surveys for additional verification.
DLI 6	**Improved agricultural budget monitoring and predictability**
Description	DLI 6 measures the use of good budgeting practices (i.e., transparency, credibility, predictability, sustainability)
Data source/ Agency	MoA
Verification Entity (VE)	Independent Verification Agency
DLI 6 - Sub-measures	1. Timely release of monthly approved cash plans 2. End of year budget outturn
DLI 6.1	**Timely release of monthly approved cash plans**
Description	The timely release of agreed monthly budgets is a critical budget predictability measure. “Cash plan” refers to a budget management tool that manages liquidation of both short- and long-term cash liabilities. It includes for the month ahead, a daily forecast of cash outflows (i.e., mainly expenditures) and cash inflows. “Timely release “ refers to the full release of budget from MoF to MoA as per its monthly cash plan
Data source/ Agency	Accountant General’s Department at MoF
Verification Entity (VE)	Independent Verification Agency

Procedure	MoA will provide the following information: - Approved annual **Cash Plans** of (i) MoA vote 43, (ii) NIC vote 5 - Monthly **Cash flow statements from MoF** to (i) MoA and (ii) NIC for the last 12 months - **MoA self-assessment** of the 'deviation of monthly release of MoF budget from expected inflows established in MoA cash plans' for the last 12 months VE reviews documents, validates MoA's self-assessment, and determines the twelve-monthly average deviation of cash inflow liabilities by MoF for the period under assessment (weighted by the budget under vote 43 and 5).
DLI 6.2	**End of year budget outturn**
Description	Budget outturn is here defined as the percentage of funds released by the Ministry of Finance to agricultural agencies over funds that have been committed to the sector (approved budget books by parliament). This sub-DLI measures the annual budget outturn for vote 43 and 5. Disbursements will me made against increases in budget outturn for the whole vote 43 and 5. It is scalable.
Data source/ Agency	Accountant General's Department at MoFP
Verification Entity (VE)	Independent Verification Agency
Procedure	The Accountant General's Department at MoFP will provide copies of the following documentation to the VE : - **Annual MoA Financial statements audited by Chief Auditor General (CAG) of past fiscal year** - **MoA Budget Book of past fiscal year** - **MoF self-assessment of MoA Budget Outturn** VE will review documentation received and verify MoF self-assessment using the supporting documentation.
DLI 8	**Scaling up soil health management policies**
Description	This DLI measures improvement to the knowledge base about soil health to make evidence-based policy decisions and subsequently measure their implementation.
Data source/ Agency	MoA

Verification Entity (VE)	Independent Verification Agency
DLI 8 - Sub-measures	1. Number of soil samples that have been tested nationwide 2. Soil Map established 3. Number of farmers reached with tailored soil management advice
DLI 8.1	Number of soil samples that have been tested nationwide
Description	This DLI measures the total number of soil samples taken and tested using internationally accepted Standard Operation Procedures (SOPs) for measuring (i) mineral content (at minimum nitrogen (N), phosphorus (P), and potassium (K)), (ii) Soil organic carbon (iii) pH level and soil moisture, (iv) salinity, (v) pesticides and chemical contamination, (vi) structure and texture.
Data source/ Agency	MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA will provide the following evidence - Soil sampling frame for year 1 and 2 - Copies of records of soil testing labs engaged in activity: (i) total soil samples actually analysed (by district), including details about type and methodology applied (ii) random sample of testing results as per VE request (see below) - Self-reported figure of total soil samples tested (disaggregated by district) using internationally accepted Standard Operation Procedures (SOPs) for the period under review. VE will request a random sample of soil testing results (i.e. report by soil testing lab) drawn from the soil sampling framework VE will review evidence received and provide option on the reliability of the reported figure.
DLI 8.2	**Mapping and assessment**
Description	This sub-DLI establishes the actual preparation and publication of a nation-wide digital soil map, as well as its interpretation and use for improved targeting of agricultural public support. Soil maps are geographic information products generated by **soil surveys**, which in turn refer to the systematic study of the soil of an area including **classification and mapping of the physical, chemical, and/or biological properties** and the distribution of various soil units.

	The **soil classifications and properties** expected to be mapped are as following - Classifications should follow the World Reference Base for Soil Resources (WRB) - Soil properties mapped should include at minimum xyz. Minimum scale of maps expected is 1: xxx . The soil map will be publicly published online. In addition, the soil map will lead to the identification of priority areas (granularity is expected to be no smaller than LGA level) for policy support for soil health management, based on state of soil health and agricultural activity.
Data source/ Agency	MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA will provide a public link to the digital soil maps and documents (either public or internal) identifying priority areas for policy support for soil health management. VE will review and provide opinion about the achievement of the DLI, i.e. (i) in terms of it's national coverage (ii) whether the agreed soil classifications and properties have been mapped (iii) map was formally published (iv) map led to the identification of priority areas for policy support.
DLI 8.3	**Number of farmers reached with tailored soil management advice**
Description	This sub-DLI measures the number of farmers trained on improved soil management practices
Data source/ Agency	Training records, MoA
Verification Entity (VE)	Independent Verification Agency
Procedure	MoA provides copies of - Training manual on improved soil management practices - Records about the delivery of farmer training in the districts identified for priority action (see DLI 8.2) - List of names of farmers with contract information that have participated in soil management training program (including demos, FFS) VE will review evidence, verify participation of farmers on a sample basis and provide opinion on the validity and reliability of reported figure.

ANNEX 3. PROGRAM ACTION PLAN

Action Description	Source	DLI#	Responsibility	Timing	Completion Measurement
Develop Digital Agriculture Guidelines[28]	Technical	2	MoA	By the end of Year 1	Guidelines Completed and Approved by MoA Management
Develop Warehouse Receipt Guidelines	Technical	4	MoA and	By the end of Year 1	Guidelines Completed and Approved by MoA Management
Develop and implement an action plan to strengthen the MoA's Monitoring and Evaluation System	Technical		MoA	System designed and approved by Senior Management by the end of Year 1 Action Plan Implemented years 2-5	Action Plan Developed Progress Report
Design and Implement the Women's Empowerment in Agriculture Index (WEAI) – in three crop value chains	Technical		MoA	The design was developed and approved by Senior Management by the end of Year 1 Action Plan Implemented years 2-5	
Develop and Implement Guidelines to support the implementation of Improved OMM Systems. The guidelines should include i) a description of the process of	Technical	4	MOA/NIRC	Systems to be in place six months of project effectiveness	○ OSHA registration certificate for every contractor in place.

[28] Including a chapter on Climate-Smart Agriculture applications

engagement between NIRC, the LG, and the IOs[29], ii) Irrigation Design Innovations for Improved Water Productivity[30], and Development of a Monitoring, Information System (MIS) for public irrigation schemes[31], and Assignment of ESMP roles and responsibilities, preparation of a standard ESMP framework[32] and a capacity development and awareness program relation to Irrigation Operations, Maintenance, and Management[33]				Implementation is to be tracked every six months.	○ Labor and Employment contract template in place. ○ Valid Employment Contracts are provided to Workers ○ GBV Code of Conduct in place. ○ Progress supervision reports on the performance of labor issues in place.
Develop a Roadmap for Soil Carbon financing (including a costed proposal for MRV design) and guidelines for repurposing fertilizer subsidies to support environmental services and pilot policy options.	Technical	8	MoA and MoFP	Guidelines for subsidy program developed by the end of Year 2 Roadmap for carbon financing developed by the end of year 4	Annual Progress Reports

[29] Identifying key steps, and ensuring due process and full inclusion of all parties in the agreement development process.
[30] Including Performance-based OMM contract Template with legal provisions defining the roles and responsibilities of the parties to the contract, and related performance measures[30]
[31] Including data collection and storing for critical performance indicators
[32] Includin tasks and actions to be allocated in the NIRC/IO agreement (ie. the DLI indicator). Will include reference to works execution, and responsibility for ESMP
[33] Training for NIRC staff and LG engineers; communication materials; and exchange visits.

				The Pilot launched end of Year 3; the Pilot was evaluated end of Year	
Further, strengthen environmental and social management system by ensuring E&S personnel are in place and training is given to the E&S staff to all implementing institutions (MoA, TARI, ASA, NIRC, and LGAs)	Environment		MoA, TARI, ASA, NIRC and LGAs	MoA, TARI, ASA, NIRC and LGAs	Within six months of effectiveness
Improve collaboration between MoA, its institutions, and LGAs on E&S matters by establishing collaborative agreements with roles and responsibilities between LGAs& MoA, TARI, ASA, and NIRC.	Environment		MoA, TARI, ASA, NIRC and LGAs	The agreement developed within six months of effectiveness	Agreement in place Progress reports provide commentary on the implementation of the agreement.
Ensure protection for workers and local communities against exploitation of labor, infectious diseases, GBV and SE. By developing protocols, training programs, or systems.[34]	Environment		MoA, ARI, ASA, NIRC and LGAs	Systems to be placed six months of project effectiveness Implementation is to be tracked every six months.	Progress supervision reports
Ensure land and way leave acquisitions proceed in accordance with Tanzania law and Regulations, specifically: develop Due Diligence Reporting on land tenure status for all proposed sites where construction of irrigation infrastructure, rural infrastructure, marketing	Environment		All implementing institutions	Annual	• Due Diligence Report in place • Progress supervision reports

[34] The areas to be covered include training COVID-19 Management protocols. Training program for contractor on Employment and Labor Relations Act, No. 6 of 2004 (Immediate after signing contracts), Systems to ensure employment contracts for laborers are consistent with the Act (Immediate during mobilization of laborers),Systems to publicize project' GRM to all affected people and contract workers and Workers' code of conduct including GBV/SEA prevention and response to be in place.

infrastructure, and feeder roads are planned to be constructed. Develop systems for generating evidence of compensation of PAPs or land donation where private land is acquired.					
Ensure staff have a basic awareness (though training or awareness campaigns) of safeguard issues	Environment		All implementing institutions	Within one Year of FSRP effectiveness	Progress report
Measure Fiduciary Key Performance Indicators (KPIs): For procurement and contract management such as (a) procurement lead time (tender invitation to award of the contract), (b) competition (average number of bidders), (c) a percentage of contract award publication, (d) a percentage of re-tender, (e) a percentage of contracts having cost and time overrun, etc. other key parameters throughout the procurement cycle. For FM: (a) audit with no material deviations (b) timeliness of audit (c) timeliness of fund release.	Fiduciary Systems		MOA and PORALG	Annually	Procurement and VFM audit reports
Conduct annual independent procurement audits of the program as well as value for money (VFM) audits by IAG and CAG	Fiduciary Systems		MOA and PORALG	procurement audits - after year 1 of implementation and after that annually, and (ii) VFM audit at mid-term and end of the program	Procurement and VFM audit reports
Liaise with PPRA to provide necessary training and simplified guidelines to govern outsourcing skilled workforce to execute works under force account arrangement	Fiduciary systems		MOA, PO-RALG, PPRA	Within twelve months of project implementation	
Establish record keeping/ management system	Fiduciary systems		MOA, PO-RALG, NIRC, LGAs, IAs	Within six months of project implementation	

Deploy additional staffs in PMUs and internal Audit units	Fiduciary systems		MOA, PO-RALG, NIRC, LGAs, IAs	Within six months of project implementation	
Conduct training tailor made courses specifically to address weakness identified in areas of procurement processes and procedure and contract management to Procurement and Technical staffs at LGAs, PO-RALG and IAs.	Fiduciary systems		MOA, PO-RALG, LGAs, IAs	Throughout project implementation	
Share information on corruption allegations with the World Bank immediately and at least an annual report from Prevention and Combating of Corruption Bureau (PCCB) on reported fraud and corruption cases pertaining to the program	Fiduciary Systems		Implementing Agencies, The public, PCCB	Recurrent/ semi annually	Promptly – Notification on Fraud allegation Yearly – For annual PCCB report