



The World Bank

Additional Financing to the Food System Resilience Program, Phase 2 Ghana (P181488)

Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 08-May-2024 | Report No: PIDA37480

**BASIC INFORMATION****A. Basic Project Data**

Country Western and Central Africa	Project ID P181488	Project Name Additional Financing to the Food System Resilience Program, Phase 2 Ghana	Parent Project ID (if any) P178132
Parent Project Name West Africa Food System Resilience Program (FSRP) Phase 2	Region WESTERN AND CENTRAL AFRICA	Estimated Appraisal Date 09-May-2024	Estimated Board Date 15-Mar-2024
Practice Area (Lead) Agriculture and Food	Financing Instrument Investment Project Financing	Borrower(s) Republic of Ghana, Republic of Chad, Republic of Sierra Leone	Implementing Agency Ministry of Agriculture and Forestry - Sierra Leone, Ministry of Agricultural Development - Chad, Ministry of Food and Agriculture - Ghana

Proposed Development Objective(s) Parent

To increase preparedness against food insecurity and improve the resilience of food systems in participating countries.

Components

Digital Advisory Services for Agriculture and Food Crisis Prevention and Management
 Sustainability and Adaptive Capacity of the Food System's Productive Base
 Regional Food Market Integration and Trade
 Contingent Emergency Response (CERC)
 Project Management

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	15.77
Total Financing	15.77
of which IBRD/IDA	0.00
Financing Gap	0.00

**DETAILS****Non-World Bank Group Financing**

Trust Funds	15.77
FoodSystems2030 Umbrella Program	15.77

Environmental and Social Risk Classification

Substantial

Other Decision (as needed)

B. Introduction and Context

Country Context

1. This paper seeks approval of a grant in the amount of US\$15.77 million from the **Food Systems 2030 (FS2030) Trust Fund**¹, which includes US\$2.27 million from the Norwegian Ministry of Foreign Affairs channeled through the FS2030 as Additional Financing (AF) to the Multi-phase Programmatic Approach (MPA) of the West Africa Food System Resilience Program (FSRP, Phase 2, P178132) for the Republic of Ghana. The FSRP is a Multiphase Programmatic Approach (MPA) that was approved in November 2021 to address food insecurity and strengthen food system resilience in West Africa. Its first phase (US\$401 million, of which US\$330 million IDA) became effective in June 2022, including support to Economic Community of West African States (ECOWAS), Permanent Interstate Committee for Drought Control in the Sahel (CILSS) and West and Central African Council for Agricultural Research (CORAF) as well as Burkina Faso, Mali, Niger, and Togo. The second phase of the program supporting Chad, Ghana, and Sierra Leone (US\$315 million) was approved by the World Bank Board in July 2022 and is scheduled to close on September 30, 2028.

2. The proposed AF to the FSRP from the FS2030 TF will finance activities that are critical for Ghana's Ministry of Food and Agriculture (MoFA) to catalyze its agenda in repurposing agriculture policies and programs. The activities aim to improve the effectiveness and efficiency of agriculture expenditures through a significant policy shift in MOFA. Particularly, the repurposing will shift MoFA's own budgetary expenditures to eliminate hidden environmental and economic costs associated with the food system. The AF will help to enhance productivity, commercialization, digitization, and climate resilience of Ghana's agriculture sector, thereby adding to the parent project's resilience building efforts.

¹The Food Systems 2030 (FS2030) Trust Fund (TF), a Multi-Donor Umbrella 2.0 Trust Fund hosted by the World Bank's Agriculture and Food Global Practice (AGF GP) that was established in November 2020 to address the hidden health, environment, and economic costs arising from the current global food system.



A. Project Status

3. The project has five components: (i) Digital advisory services for agriculture and food crisis prevention and management; (ii) Sustainability and adaptive capacity of the food system's productive base; (iii) Regional food market integration and trade; (iv) Contingent Emergency Response; and (v) Project management. The first component will enhance decision support systems with demand-driven information services (agromet, hydromet, and agro-advisory) to increase the effectiveness of agriculture and food crises prevention; and strengthen capacity to adapt to climate variability and change, through reinforcing technical capacity of relevant technical agencies and service providers. The second component will strengthen national research systems, strengthen policy environment for landscape governance, and integrate landscape units under sustainable management. The third component will provide support to facilitate trade of agricultural goods and inputs within and across national borders in West Africa. The fourth component is a mechanism for financing eligible expenditures in the event of a crisis and an emergency precipitated by a natural disaster. Lastly, the fifth component will strengthen the capacity of the PIU and finance all aspects of project implementation and management.

4. As of March 31, 2024, 9 months into implementation, the project had disbursed an amount of US\$12.1 million. Some US\$4.77 million has been committed (contracts signed) and another US\$50.41 million worth of contracts is at advanced procurement stage and expected to be signed within the fourth quarter of FY24. The project expects to drawdown US\$50 million in April 2024 (US\$40 million for fertilizer input grant and US\$10million for implementation of activities in the 2024 AWPB) The withdrawal application has been prepared and is currently with the Ministry of Finance for signature. As of the last project mission in November 2023, the project ratings for Project Development Objective (PDO), Implementation Progress (IP), Environmental and Social Risk Management (ESRM), and Financial Management were Satisfactory. The project rating for procurement was Moderately Satisfactory. The progress to date includes:

a) Under component 1, following a series of planning meetings with relevant implementing institutions, FSRP has narrowed down on some critical activities for FY24. To support the Ministry of Food and Agriculture's (MOFA) Planting for Food and Jobs (PFJ) 2.0 policy shift the team reoriented some activities under component 1. The project is supporting the development and operationalization of the Ghana Agriculture and Agribusiness Platform (GhAAP), which will house, among others, the digital data systems for Food Security and Nutrition Monitoring, and Pest and Disease Surveillance as well as weather/ climate information and advisories. The project is also supporting the Ghana Meteorological Agency (GMET) with 20 Automated Weather Stations (AWS) to improve efficiency in collection of weather information. A supplier has been selected and the contract was signed on March 18, 2024. The AWS are expected to be installed in the fourth quarter FY24.

b) Under component 2, the PIU assessed facilities of selected National Agriculture Research Institutes (NARIs) and MOFA earmarked for upgrade. These facilities will support the seed value chains and poultry intensification activities for six facilities (Crops Research Institute, Savannah Agriculture Research Institute, Plant Genetics Resources Research Institute, Grains and Legumes Development Board, Accra Veterinary Laboratory, and Dormaa Veterinary Laboratory). Evaluation reports are being finalized to engage consultants to undertake technical feasibility studies and prepare bidding documents for the veterinary laboratories. The Project Implementation Unit (PIU) has also engaged



Regional and District Agriculture Departments in its Target Area 2 and identified 7,974 maize and rice farmers (30 percent female) and 371 poultry farmers (23 percent female) for input credit support under a pilot program in the fourth quarter of FY24. The PIU plans to implement the input credit support using a Poultry Intensification Scheme (PIS). Twenty-two (22) anchor poultry farmers and producer groups have been selected as beneficiaries of phase 1 of the poultry intervention. Production is expected to commence in May 2024. The PIU has, in collaboration with key institutions and District Agriculture Departments, identified land for the establishment of 4 demonstration plots to promote organic fertilizers, varietal studies and the new "Sawah" rice cultivation technology. 523 (23% women) farmers are being trained on the new technologies using demonstration fields. The project has also engaged consultants to undertake technical feasibility studies for the development of 7,000 hectares of inland valleys for improved rainfed rice cultivation. Financial proposals have been opened and the combined evaluation report is being finalized to engage contractors to rehabilitate the Kpong Irrigation Scheme (KIS). This is one of the big-ticket assignments under the project. Expressions of Interest (EOIs) for technical feasibility studies for the Weta and Tanoso Irrigation Schemes have been submitted by consultants and are being evaluated by the PIU.

c) Under Component 3, the PIU has formed a working group on agricultural trade, which has started working on the adoption of Economic Community of West African States (ECOWAS) Agriculture and Trade Market Scorecard (EATMS) and harmonization of trade policies. The PIU has also assessed 7 entry/ exit borders earmarked for upgrade – to enable the relevant institutions facilitate cross-border agricultural trade and improve data collection and management. Four (4) border stations have been selected for upgrade in 2024. TOR for the assignment has been submitted to the WB for NOL. The PIU has received Bank NO for the Matching Grants Manual (MGM) to guide the disbursement of grants to improve agricultural production, processing, and trade/ marketing. The PIU, in collaboration with experts from Implementing Agencies, is assessing 32 warehouses for determination of how many will be feasible for rehabilitation based on cost, potential for effective utilization and sustainability. At the end of December 2023, 10 warehouses had been assessed. Four warehouses have been shortlisted for the first phase of rehabilitation.

d) Under Component 5, the PIU has engaged a consultant to undertake baseline studies for the project. Data collection instruments have been developed and reviewed and field work started in December 2023. Due to challenges in getting respondents, field work went beyond the expected duration. The draft report is expected by mid-April 2024. The renovation of the project offices is in progress and expected to be completed by the end of May 2024. The project has prepared a first draft of the emergency response manual to guide disbursements for emergencies under Component 4 (Contingent Emergency Response Component – CERC).

B. Rationale for Additional Financing

5. **The Republic of Ghana is a fast-growing lower-middle income country grappling with development hurdles.** Ghana doubled its per capita Gross Domestic Product (GDP) between 2000 and 2021 from US\$1,020 to US\$2,014, reducing the proportion of its population living on less than US\$2.15 a day from over a half to under a quarter^{2,3}. Economic opportunity grew even faster despite rapid population growth, with cash crop, oil, and gold prices exceeding the country's 3.3 percent average annual

² World Bank Indicators, constant 2015 US dollars

³ Per the Ghana Living Standards Survey (GLSS), the national poverty rate is 23.4 percent, where \$2.15 (2017 PPP) is the international poverty rate.



population growth rate, enough to persistently raise per capita income.⁴ The country is categorized in the medium human development category, ranking 133 out of 191 countries in terms of human development index (HDI) for 2020 and 2021⁵. By 2021, 42 percent of the population continued to live below the poverty line, at less than US\$3.65 a day. An estimated 73 percent was living on less than US\$6.85 a day.

6. Ghana's economy entered a full-blown macroeconomic crisis in 2022 on the back of pre-existing imbalances and external shocks but is recovering. Currency depreciation, rising inflation, and falling domestic investor confidence slowed the economy's recovery from COVID-19 in 2021. Economic growth plummeted from 5.4 percent in 2021 to 3.1 percent in 2022. Further contraction was projected, with growth slowing to 1.5 percent in 2023 but expected to pick up in 2024. Year-on-year headline inflation surged to 54.1 percent in December 2022, and is dropping to 25.8 percent in March 2024. Year-on-year food price inflation was 51.9 percent in August 2023 but had fallen to 27.1 percent in February 2024. As a result of soaring prices and reduced purchasing power, nearly 850,000 Ghanaians were pushed into poverty in 2022.

Sectoral and Institutional Context

7. The agricultural sector is a key driver of Ghana's economy, contributing an average of 21 percent to the GDP and employing 41 percent of the workforce from 2012 to 2021. It also plays a significant role in generating export earnings, primarily through cocoa, which represents about 75 percent of agricultural exports. Agricultural exports averaged US\$3.23 billion per year between 2012 and 2021, constituting 24 percent of total export earnings. Ghana's agricultural sector achieved robust growth with an annual average growth rate of 4.5 percent from 2012 to 2021, contributing to the country's overall economic growth, which averaged 5.2 percent annually during the same period. This growth resulted from increased productivity and land area expansion, with an average annual growth of 3.4 percent in real value added per harvested hectare and a 1.4 percent increase in harvested area.

8. Despite these successes, multiple challenges impede a stronger, more inclusive, and more resilient agricultural growth. These pertain especially to the supply, demand, and adequate use of modern inputs (such as agrochemicals and certified seeds) and complementary services (such as extension, credit, and mechanization), as well as to the absence of key infrastructure (e.g., for irrigation, transport, and storage). For example, fertilizer use in Ghana averages 20 kg per hectare⁶, below both the Abuja Declaration's commitment of 50 kg per hectare, and the global average of 80 kg per hectare⁷. Some estimates place the rate of adoption of improved seeds at just 10 percent⁸, and the extension agent-to-farmer ratio at 1:745. Furthermore, only 3.18 percent of cultivated land is irrigated⁹. These shortcomings

⁴ Estimates from the World Bank Macroeconomic and Poverty outlook.

http://macropovertyoutlook.worldbank.org/mpo_files/mpo/mpo-sm23-gha-scope.pdf

⁵<https://www.undp.org/ghana/press-releases/multiple-crises-halt-progress-9-out-10-countries-fall-backwards-human-development-undp-report-warns>

⁶ MOFA. (2021). Medium Term Expenditure Framework (MTEF) for 2022-2025. Programme based budget estimates for 2022.

⁷ FAO. (2023). Food and Agriculture Statistics (FAOSTAT).

⁸ Quarshie, P. T., Abdulai, A.-R., and Fraser, E. D. G. (2021). Africa's "Seed" Revolution and Value Chain Constraints to Early Generation Seeds Commercialization and Adoption in Ghana. *Frontiers in Sustainable Food Systems*, 5.

⁹ IWMI. (2022). Ghana Irrigation Sector Mapping.



limit sectoral resilience to pests and disease—as well as to climate change, which reduces the predictability of precipitation, raises temperatures, and extends the duration of dry periods¹⁰. Additionally, post-production segments suffer from issues like lack of cold-storage and poor post-harvest management like drying, storing and transportation prior to processing and marketing.

9. For decades, the Government of Ghana supported farmers primarily through the provision of inputs subsidies. This was achieved through programs such as the government's Fertilizer Subsidy Program (FSP, 2008-2017), Planting for Food and Jobs (PFJ, 2017-2022), and the Ghana COVID-19 Alleviation and Revitalization of Enterprise Support (Ghana CARES). In addition, the Ghana Cocoa Board (COCOBOD) has provided subsidies to cocoa farmers. Subsidies provided by the PFJ program put the Government under a heavy fiscal burden. Excluding project-related expenditures, the cost of these subsidies represented half (51 percent) of MOFA's expenditures (Figure 1). Moreover, these subsidies cost about 3 times MOFA's capital expenditures (19 percent of MOFA's spendings excluding projects), with limited resources for value chain upgrading. The subsidy program has been linked to higher crop yields but several reasons limited its effectiveness, including underfunding of extension services and the digitization component of the program, input use efficiency, insufficient marketing support, non-adoption of the value chain approach, crowding out of the private sector, and limited access to agricultural credit. In short, the subsidies were not accompanied by sufficient complementary goods and services (Figure 1 shows for instance the relatively low spending in capital). Despite the lack of formal evaluation of the impacts of this program on beneficiaries it is evident that several inefficiencies limited subsidies' returns. Additional limitations of PFJ include low prioritization of national strategic stock and limited focus on the needs of commercial small, medium, and large-scale farmers¹¹.

10. Acknowledging the achievements and shortcomings of the six years of PFJ implementation, the Government of Ghana introduced the Planting for Food and Jobs program 2.0 (PFJ 2.0) in 2023¹², shifting from a model of direct input subsidy to a smart agricultural input credit system, linked to structured market arrangements. This five-year program has the following objectives: (i) ensuring food availability, (ii) lowering food price inflation, (iii) promoting import substitution, (iv) promoting exports and job creation, and (v) ensuring food security and resilience. Eleven commodities, including grains (maize, rice, soybean, sorghum), vegetables (tomato, pepper, onion), roots and tubers (cassava, yam, plantain), and poultry, have been prioritized. Key components of the PFJ 2.0 implementation model include: (i) an input-credit system, (ii) an emphasis on high-quality inputs and other support services to enhance productivity; (iii) storage infrastructure and logistics for storage and distribution of produce; (iv) off-taker

¹⁰ Chemura, A., Schauberger, B., and Gornott, C. (2020). Impacts of climate change on agro-climatic suitability of major food crops in Ghana. *PLoS One*, 15(6), e0229881.

Tetteh, B., Baidoo, S. T., and Takyi, P. O. (2022). The effects of climate change on food production in Ghana: evidence from Maki (2012) cointegration and frequency domain causality models. *Cogent Food & Agriculture*, 8(1).

¹¹ A comprehensive assessment of the Planting for Food and Jobs program has yet to be completed, resulting in a lack of robust evidence of the impact of this program or its returns. Studies that investigated PFJ's outcomes of the program provide stylized evidence on increased availability and use of inputs, and increased production of several crops (see, for instance, Azumah, 2020; Asante & Bawakyillenuo, 2021; Pauw, 2022). These studies also identified some inefficiencies affecting the performance of the program. However, this stylized evidence of the performance of PFJ 1.0 can be contested on two technical grounds. First, there was no credible comparison group (or counterfactual) with which to compare performance and outcomes, which means that it is not possible to identify the true impact of the program. Second, PFJ 1.0 has no cost-effectiveness analysis that can tell us, for example, what the return or value for each GHS spent was. This second issue raises an important question of resource allocation efficiency (this will be assessed in an impact evaluation of PFJ 2.0, at baseline).

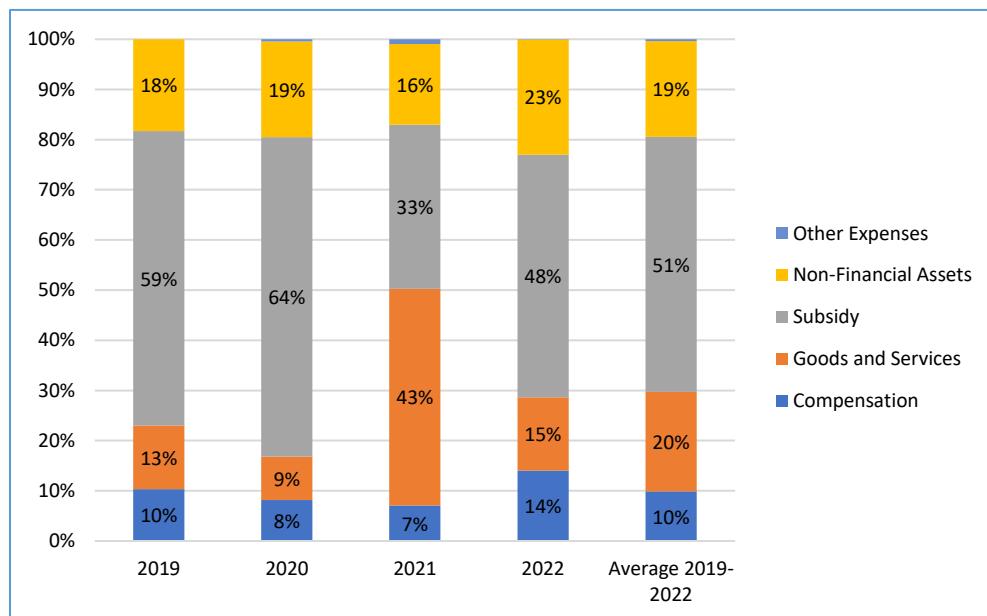
¹² Planting for Food and Jobs Phase II: A Five-Year Master Plan for the Renewal of Agriculture in Ghana, MOFA, 2024: https://drive.google.com/file/d/1XplwZhB2FQAIO_XIzo5ESjk44Gn9QHLL/view



arrangements/commodity trading to improve market access; (v) a digitized platform for management, monitoring and coordination and establishment of Agricultural Zones through the development of Agricultural Economic Enclaves (MOFA, 2023). The decision to shift away from subsidies led to a significant reduction in MOFA's expenditures on agricultural inputs, from 238 million GHC in 2022 to 5 million in 2023, a 98 percent decrease¹³.

11. **The shift from PFJ to PFJ 2.0 is inherently a repurposing effort.** It entails a potential reallocation of the substantial cost savings resulting from the withdrawal of subsidies to expenditures on the provision of essential public goods and services that foster agricultural development with a key focus on enhancing climate resilience. Moreover, the implementation modalities of PFJ 2.0 should effectively address the inefficiencies in the inputs delivery and technical support systems that limit farmers' adoption of more productive and climate resilient technologies. For instance, although access to extension is a major limiting factor to productivity gains, the extension (including e-extension) pillar of PFJ was poorly funded. The PFJ 2.0 proposes to address this issue by organizing farmers around aggregators and working with the aggregators' and the MOFA extension department to build capacity of the aggregators to provide technical advice to their farmers, take advantage of locally available extension agents and mechanization services providers, and monitor farmers' practices during the agricultural season. Hence, if well implemented, this program can foster a greater adoption of more productive inputs and climate resilient farming techniques among participating farmers.

Figure 1: Composition of MOFAs expenditures



Source: World Bank calculations based on data from MOFA

12. **Under the umbrella of the Food Systems 2030 trust fund, the World Bank will support key areas of the PFJ 2.0 program, chosen based on their importance in the country's policy priorities on the one**

¹³ Source: MOFA



hand, and their alignment with the repurposing agenda on the other. These areas include the transformation of the tomato industry and the design and development of Ghana's Agriculture and Agribusiness Platform (GhAAP). Supporting these areas is consistent with FS2030's three strategic themes: (i) Healthy People, with the goals of better nutrition and diversification away from staples; (ii) Healthy Planet, with the goal of building resilience, particularly climate resilience, and reduce the environmental footprint of agricultural production; and (iii) Healthy Economy, through the reallocation of unsustainable public support's financial resources to the provision of essential public goods while achieving food security. Triple wins can be achieved through implementing PFJ 2.0 due to the inherent design of the [input-credit model](#). The following paragraphs provide more details for the key support areas. The support areas also align with the West Africa Food Systems Resilience Program (FSRP).

13. The GhAAP is an integral component of PFJ 2.0 underpinning the data and digitization strategies and implementation arrangements including the performance of the input-credit system. The successful execution of the PFJ2.0 program relies on the efficient coordination among various stakeholders, including farmers, aggregators, input dealers, financial institutions, extension agents, warehouse managers, and produce off takers. To facilitate this integration and enhance transparency while improving market access for farmers, the program will leverage the GhAAP platform. MOFA has set out the GhAAP as the central facilitator of access, sharing, and utilization of data and both digital and financial service deliveries (Use Cases) to improve farmer livelihoods and agricultural performance for stakeholders across the ecosystem. This platform encompasses several modules tailored to meet the needs of all value chain actors and align with PFJ 2.0 objectives. These modules include User Interface Services for easy interaction, Registration Service for stakeholder management, Aggregation Service for farmer management, Financial Service for transaction management, Input Management Service for input coordination, Market Place Service for trading, Support Services for assistance, Extension Service for agent support, Warehouse Management Service for produce handling, Notification & Event Service for updates, and Reporting and Data Analytics Service for decision support. The farmer module of the platform registers farmer information including identity (Ghana card) and records farm polygons. The module enables aggregators and other service providers to tailor inputs, extension advice, mechanization, as well as monitor outputs including farmer yields. As such, the digital platform is intended in part to remove moral hazard issues.

14. The GhAAP platform will play a critical role to the MOFA's transition from current input subsidy program to the smart input-credit system, and thus, will facilitate the overall repurposing of agricultural support in the country. This platform will help aggregate and manage data, improve the capacity and practices of all actors, and enhance efficiency and efficacy of the overall agricultural public support in the country. MOFA positions the platform to bring a range of data sets, data-related capabilities and services, and support partners to improve public service delivery for the sector. Some of these services are available now, some by adapting current and future programs, and others as new partners are engaged.

15. The platform will support diverse partners with different needs and requirements for data, data sharing, and digital services. The current and new partner archetypes include farmer-facing product/service providers, market and ecosystem connectors, weather intelligence service providers and data infomediaries, global Earth Observation (EO) data providers, and research institutions. For each partner archetype, MOFA aims to offer a differentiated value proposition and digital services model tailored to each partner's short- and longer-term needs and ambitions.

16. The GhAAP will be a digital platform hosted by MOFA that integrates diverse data and information for farmers, aggregators, input dealers, off-takers/commodity traders, the government,



and financial institutions.¹⁴ The platform will facilitate these stakeholders' access to relevant data and information pertinent to their operations. The GhAAP's functionalities will facilitate access to advisory and information services, access to agricultural intelligence (e.g., real time climate and weather information, pest and disease monitoring, food security, prices), a digital database recording farmers' cropping decision, supply chain management. It will also strengthen market linkages and enhance financial access. In accordance with the repurposing agenda's goals of better nutrition, building resilience, and diversifying away from staples, these benefits are anticipated to increase farmers' productivity and resilience and facilitate their production diversification.

17. The GhAAP will develop climate module, extension module, and pest and disease modules that can use geo-enabling coupled with earth observation, AI, and machine learning to move towards low emission agri food systems. Leveraging on localized farmer data in the GhAAP, information on climate, pest and disease, soils, and extension can be better tailored and delivered for farmer decision making. At the same time, decision makers can leverage area-based approaches for analyzing crop suitability, farmer behaviors and forecasting production and yields. Investments in the GhAAP provides potential for adoption of Climate Smart Agriculture (CSA) practices by farmers and for unlocking triple wins in the agriculture sector.

18. In addition, the GhAAP will generate efficiency gains in the use of public resources. It will (i) reduce the high transaction costs resulting from coordinating fragmented digital systems within MOFA, (ii) exploit latent opportunities to leverage digital systems to guarantee on-time delivery of quality inputs and services to farmers and other value chain actors, and (iii) enable greater traceability of products (inputs and outputs) and financial resources across the value chain. These GhAAP advantages are critical for the transition out of the current input subsidies to the input-credit system, and thus, consistent with the repurposing agenda's objective of reallocating unsustainable public support's financial resources to the provision of essential public goods while achieving food security. The extent to which GhAAP is effectively utilized for PFJ2.0 implementation will be evident in the reduction of agricultural public spending, achieved by transitioning from input subsidies to an input-credit system.

19. The tomato sector is important for Ghana because tomatoes are an essential part of the Ghanaian diet, accounting for 40 percent of vegetable expenditures. Yet only 34 percent of the 1.4 million tons of tomatoes consumed annually are produced locally, resulting in substantial imports. Actors in the value chain are confronted with numerous obstacles and high production and modernization costs. These issues, including costs of disease control, use of poor-quality seed, limited extension knowledge on productivity enhancing and good agronomic practices limit their productivity (average yield of 8.3 t/ha significantly lower than the potential of 20 t/ha) and cause substantial post-harvest losses ranging from 20 percent to 60 percent annually. Through PFJ 2.0, the government aims to increase national production and achieve 115 percent national self-sufficiency by 2027. Supporting this national agenda is consistent with the repurposing agenda's goals of better nutrition and diversification away from staples. In addition, the activities that will be financed by the trust fund involve the use of climate resilient tomato varieties and improving post-harvest management. Consequently, this support is also consistent with the repurposing agenda's objective of resilience building.

¹⁴ The GhAAP is currently under development and initial modules are set for deployment by February 2024. The World Bank has provided advisory services through the engagement of an experienced IT-Agriculture consultant to MOFA in the initial development of the GhAAP.



C. Proposed Development Objective(s)

Original PDO

To increase preparedness against food insecurity and improve the resilience of food systems in participating countries.

Current PDO

To increase preparedness against food insecurity and improve the resilience of food systems in participating countries.

Key Results

20. The AF includes new results under component 1 that are additional and pertain to digitization to support the repurposing PFJ 2.0 policy agenda and improved service delivery. These are 1,000,000 farmers registered in the GhAAP and receiving data and digital solutions, and a NOC built and functional to support PFJ 2.0 policy reform. Under component 2, the AF will increase the number of program beneficiaries (farmers reached with agricultural assets or services) by 1,500 farmers. As 1,200 tomato producers will be trained on good agronomic practices and climate-smart agriculture, the AF will increase the number of producers adopting climate-smart agricultural technologies and services by 1,200. This adoption will also result in an increase in the area under integrated landscape management practice by 500 ha.

21. Moreover, additional AF-specific indicators are introduced to measure the effects of the AF more accurately. Additional indicators aiming at measuring the results of the AF's interventions in the tomato sector include: yield of tomatoes, increase in the volume of tomatoes produced, area of land developed for tomato production, number of locally developed tomato seed varieties released to farmers, quantity of tomato seed supplied to farmers, number of farmers trained on Good Agronomic Practices & Climate-Smart Agriculture, share of farmers who are beneficiaries of the tomato pilot project and are receiving extension services, number of value chain actors supported with grants for small equipment, Reduction of greenhouse gas emissions from tomato production in areas targeted by the tomato pilot, and number of farmers adopting innovations and technologies that support sustainable food systems in targeted areas. The last two indicators are part of the FS2030 result framework.

D. Project Description

22. **The proposed Additional Financing will not affect the PDO or project components but rather add activities to components that are well aligned.** The proposed AF will finance activities under components 1, 2, and 5, as described below.

Component 1. Digital advisory services for agriculture and food crisis prevention and management (US\$ 12 million AF).

23. Sub-component 1.2: Strengthening Digital Hydromet and Agro-Advisory Services for Agriculture Producers, of the parent project, provide resources for (a) Improve the production of climate, hydromet, agromet, and impact-based information; (b) Support the timely delivery and use of essential agro-hydromet information to key users; (c) Strengthen the institutional and financial sustainability of national institutions providing climate, hydromet, and agromet information. The proposal is to add two new activities to Sub-component 1.2 in support of the GhAAP; farmer registration and equipping the Network



Operating Center (NOC) to run the digital platform. With GoG resources, MOFA has financed the development of some modules of the GhAAP platform. These include modules on farmer, aggregator, agro-input dealer, mechanization service provider.¹⁵ Activities to be financed with the AF include: (i) farmer registration (US\$ 7.5 million), including the purchase of laptops for 261 District Departments and 16 Regional Departments and 50 District Extension Officers (DEOs), and 3,000 tablets for Agriculture Extension Agents (AEAs) and incentive payments to AEAs for farmer field registration; and (ii) developing of a NOC for the GhAAP (US\$ 4.5 million), including procurement of both hard and software infrastructure for the NOC, documentation for NOC¹⁶, monitoring and management tools, revamping IT unit, specialized trainings for MoFA IT (NOC) staff to enhance their skills in proactive monitoring, incident management, and emerging network technologies, collaboration, and knowledge sharing.

24. The largest share of AF resources targets supporting the GhAAP because these resources are seen as catalytic to supporting MOFA's own Public Expenditures shift away from subsidies towards an input-credit system. The GhAAP brings a range of data sets, data-related capabilities, and digital services to the farmers and MoFA partners. It will enable integration and interoperability of information to improve agricultural services, notably targeting, identification, coordination, delivery, evaluation, and monitoring, mainly focusing on farmers' needs and pain points. The farmer registry will support the design of differentiated and tailored agricultural services, policies, and facilitate access to government programs, such as agricultural extension services, inputs and credit subsidies, market access, and agribusiness services. It offers a 'one-stop- shop' for easy access to various services including farmers and farm information and insights for all.

Component 2. Sustainability and adaptive capacity of the food system's productive base (US\$ 1.97 million AF).

25. Under Sub-component 2.1, Consolidate the Regional Agriculture Innovation Systems the parent project investments are for (a) Strengthen the national and regional agriculture research centers; (b) Deepening and expanding R&D networking; (c) Modernize national extension services; (d) Promote technology access and exchange. The proposal under the AF is to support a pilot on strengthening research and development (R&D), farm productivity and value addition in the tomato sector.¹⁷ The activities to be financed include: (i) conducting adaptive trials in Northern zone in order to evaluate new hybrid varieties ("ante dede", tomato queen and "legon tomato") tested in the coastal zone; (ii) multiplying local Open Pollinated Varieties (OPVs, namely "KOPIA" and Kwabena Kwabena") and new hybrid varieties following successful adaptive trials; and (iii) conducting sensitization, training, and creating awareness of FBOs, input dealers, aggregators and marketers on improved characteristics of new varieties. In terms of farm productivity, activities to be financed include: (iv) providing input support to targeted tomato producers; and (v) strengthening extension services in targeted areas. In terms of value addition, activities to be financed include: (vi) providing small grants to tomato value chain actors in storage, processing, transportation, and marketing to support the acquisition of simple work equipment. The pilot will focus on the Northern Zones (Upper East, Northeast and Northern regions) where food and

¹⁵ Development of initial platform architecture and modules linked to climate and weather monitoring, pest and disease monitoring, and food security modules will be financed under the FSRP C1. Other modules include warehouse manager, offtaker/commodity traders, and regional and district departments of agriculture, MOFA head office.

¹⁶ Standard Operating Procedures (SOPs), documentation of network configurations, troubleshooting guides, and incident response protocols for NOC staff.

¹⁷ The resources of the AF dedicated to Component 2 are provided by the Norwegian Ministry of Foreign Affairs, and as such the PIU will provide separate reporting to the Norwegian Ministry on the use of the resources.



nutrition security, and climate resilience are priorities. It will impact 1,500 tomato producers on 500 hectares.¹⁸ Further details of the tomato pilot project are provided in annex 1.

Component 5. Project Management (US\$1.8 million AF).

26. **Under this component, the AF will provide resources to supervise additional activities proposed and strengthen MoFA's institutional capacity to run the PFJ 2.0 implementation model.** Activities to be financed include: (i) setting-up a functional PFJ 2.0 unit in MoFA and (ii) operational costs of the FSRP PIU. This will include: (i) building capacity of MOFA on legal and regulatory aspects related to PFJ 2.0¹⁹; (ii) developing of Policy and Procedures manual to govern the operations of the Inputs Credit System; (iii) conducting feasibility study for establishment of Credit/Payment Guarantee Fund to support the program; (iv) establishing a Produce Pricing Mechanism, i.e., undertaking study and stakeholder engagement to establish market-based forward pricing mechanism for valuation of produce (commodities) for the in-kind repayment of input credit.

Changes in Beneficiaries and Target Areas:

27. The AF will benefit farmers, other value chain actors, and supporting institutions. Through support to the GhAAP digital platform, it will help register and therefore support at least 1,000,000 farmers. Farmers registered with information and polygons will then benefit from access to the input credit system of PFJ 2.0, and extension services. In terms of farmers, the grant will help expand the reach of FSRP to an additional 1,500 tomato producers, covering approximately 500 hectares. These farmers will receive support in the form of certified seeds, fertilizers, and agro-chemicals, which will lead to increased productivity, higher income, and improved resilience to climate change. These additional beneficiaries are located in the Northern Zone (Upper East, Northeast, and Northern regions) and in selected major production enclaves including Kassena Nankana West and Bongo Districts. These areas have been selected based on the spatial concentration of tomato production, current production levels, the potential to increase tomato production, improve nutrition and food security, and reduce the low-season production gap. Selected tomato value chain actors will also receive grants to acquire small equipment. These actors are involved in various post-harvest activities such as storage, processing, transportation, and marketing.

28. The grant will also benefit institutions, including the Council for Scientific and Industrial Research (CSIR-CRI), the Ministry of Food and Agriculture (MoFA), the West Africa Centre for Crop Improvement (WACCI), and the World Vegetable Centre (WorldVeg). Some of these institutions are also beneficiaries of the parent project. These beneficiary institutions will receive the necessary financial resources to conduct adaptive trials and multiply tomato seeds.

Revised Costs

29. Table 3 below summarizes the revised costs as a result of the AF for Ghana, while Table 4 shows the regional costs by component and subcomponent for FSRP Phase II.

¹⁸ It will also benefit the Council for Scientific and Industrial Research – Crop Research Institute (CSIR-CRI), the Ministry of Food and Agriculture, the West Africa Centre for Crop Improvement (WACCI) and World Vegetable Centre (WorldVeg).

¹⁹ Support would finance external legal experts on retainer basis to provide external legal advisory and preparation of contractual documents to guide relationships and conduct of the various value chain actors. Retention of external counsel to provide guidance and support for management of dispute among the various private sector value chain actors. Development of enabling Regulations to support implementation of the PFJ 2.0 model.

**Table 3: Project Cost by Component for Ghana FSRP**

Component and Subcomponent	Parent Project (US\$ million)	AF (US\$ million)	Revised Total (US\$ million)
Component 1: Digital Advisory Services for regional agriculture and food crisis prevention and management	13.10	12.00	25.10
Subcomponent 1.1: Upgrading Food Crisis Prevention and Monitoring Systems	1.60	0.00	1.60
Subcomponent 1.2: Strengthening Digital Hydromet and Agro-Advisory Services for Farmers	11.50	12.00	23.50
Component 2: Sustainability and adaptability of the productive base of the food system	98.21	1.97	100.18
Subcomponent 2.1: Consolidate Regional Agricultural Innovation System	7.95	1.97	9.92
Subcomponent 2.2: Strengthen Regional Food Security through Integrated Landscape Management	90.26	0.70	90.26
Component 3 Regional market integration and trade	24.79	0.00	24.79
Subcomponent 3.1: Facilitate Trade Across Key Corridors and Consolidate Food Reserve System	6.83	0.00	6.83
Subcomponent 3.2: Support the Development of Strategic and Regional Value Chains	17.96	0.00	17.96
Component 4: Contingency emergency response component	0.00	0.00	0.00
Component 5: Program Management	13.90	1.80	15.70
TOTAL	150.00	15.77	165.77

Table 4: Project Cost by Component for FSRP Phase II

	FSRP Phase II (US\$ million)						
	Original Envelope:			Additional Financings (AFs)			Total revised envelope
	Chad	Ghana	Sierra Leone	SL AF1	SL AF2	Ghana AF	
Component 1: Digital Advisory Services for Regional Agriculture and Food Crisis Prevention	18.4	13.1	13.7	0	0	12	57.2
Subcomponent 1.1: Upgrading Food Crisis Prevention and Monitoring Systems	10.1	1.6	5.3	0	0	0	17
Subcomponent 1.2: Strengthening Digital Hydromet and Agro-Advisory Services for Farmers	8.3	11.5	8.4	0	0	12	40.2
Component 2: Sustainability & Adaptive Capacity of the Food System's Productive Base	52.1	98.21	5.1	45	23.2	1.97	225.6



Subcomponent 2.1: Consolidate Regional Agricultural Innovation System	9.2	7.95	4.6	7	3.4	1.27	33.4
Subcomponent 2.2: Strengthen Regional Food Security through Integrated Landscape Management	43	90.26	0.5	38	19.8	0.7	192.3
C 3 Regional Food Market Integration & Trade	28.2	24.79	11.2	2.5	0	0	66.7
Subcomponent 3.1: Facilitate Trade Across Key Corridors and Consolidate Food Reserve System	6.1	6.83	2.7	2.5	0	0	18.1
Subcomponent 3.2: Support the Development of Strategic and Regional Value Chains	22.1	17.96	8.5	0	0	0	48.6
C 4 Contingency emergency response component	0	0	25	0	0	0	25
C 5 Program Management Subtotal	6.3	13.9	5	2.5	1.8	1.8	31.3
Total	105	150	60	50	25	15.77	405.8

Legal Operational Policies

Triggered?

Projects on International Waterways OP 7.50

Yes

Projects in Disputed Areas OP 7.60

No

Summary of Assessment of Environmental and Social Risks and Impacts

30. The environmental risk rating of this AF is substantial which aligns with the rating of the parent project. This rating has considered the inherent risks and impacts of the proposed activities, the sensitivity of the environment, the project's nature, and the capacity of the implementing agency. The project's environmental risks will largely emanate from the activities proposed under components 1 and 2. Component 1 comprises farmer registration and development of a Network Operating Centre (NOC) which will involve procurement of IT equipment including laptops for 261 District Departments, 16 Regional Departments, 50 District Extension Officers (DEOs), and 3,000 tablets for Agriculture Extension Agents (AEAs). The batteries, metals, plastics, and other components of these equipment, at the end-of-



life stage, will pose substantial risk to the environment if they are not properly managed. Interventions under component 2 include support for research and development (R&D), farm productivity (500ha is envisaged) and value addition in the tomato sector. The potential environmental risks and impacts associated with these interventions include solid and liquid waste generation, noise, contamination of water bodies with agrochemicals, loss of biodiversity, exposure of personnel to agrochemicals e.g., pesticides, and other occupation health and safety risks such as animal attack, exposure to physical and mechanical hazards. Given that adaptive trials on tomatoes will be conducted in the northern zone, it could potentially lead to the introduction of non-native pests in the target regions which could be devastating to other unintended crops. These impacts will largely be localized, and temporary but those associated with water contamination from agrochemicals, and accidental introduction of pests could go beyond the project boundaries and may have long-lasting impacts.

31. The AF implementation arrangements are the same as for the parent project. The Environment and Social (E&S) performance of the parent project is currently rated satisfactory for Ghana. The PIU includes one seasoned Environmental Specialist and one Social Development Specialist, who have so far demonstrated adequate commitment and competence in E&S risk management. The project has additionally commenced the process to recruit a Gender Specialist to oversee gender mainstreaming and implementation of the project's Gender Action Plan (GAP). The current E&S staffing and arrangements at the PIU are adequate to manage the potential E&S risks and impacts associated with the AF.

32. With respect to IT equipment, the parent project the PIU, has drafted an electronic waste (e-waste) management plan to manage all electrical and electronic waste generated by the ministry including the quantities expected from the AF activities. It is envisaged that the e-waste management plan will be finalized and disclosed before the project reaches mid-term, by which time most of the equipment will still be working, as expiration is expected beyond the life of the project.

33. On addressing the risks of component 2, the parent project already identifies tomato as one of the crops being supported within the northern zone which is the same geographic location for the AF's interventions on tomato. The existing E&S instruments prepared for the parent project such as the Environmental and Social Management Framework (ESMF), and Integrated Pest Management Plan (IPMP) already provide adequate guidance and procedures to mitigate the potential environmental risks and impacts of the AF activities including those associated with the trials, production, and value addition of tomato. This includes the requirement to screen all proposed sites to determine the level of potential risk and prepare relevant site-specific instruments, when necessary.

34. The E&S documents prepared for the parent project: ESMF, RPF, SEP, IPMP, LMP are adequate to manage the risks of the AF.

E. Implementation

Institutional and Implementation Arrangements

35. The implementation arrangements remain the same as those of the Parent project in Ghana. The institutional arrangements for the project are organized around the following functions: (i) oversight and orientation by a National Project Steering Committee (NPSC); (ii) overall coordination of project activities



and partners and management of the Designated Account and fiduciary responsibilities by the PIU; and (iii) technical execution of project activities, vested with strategic government entities. The project implementation manual (PIM, already finalized, details all coordination, management, implementation, M&E, and reporting functions.

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