Synergies between the Food System Resilience Program (FSRP) and the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) in West Africa: Implementation domains for cross-fertilization

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ACRONYMS

CILSS:	Permanent Interstate Committee for Drought Control in the Sahel
FSRP:	Food System Resilience Program
AICCRA:	Accelerating Impacts of CGIAR Climate Research for Africa
IDA:	International Development Association
CIS:	Climate Information Services
CSA:	Climate-Smart Agriculture
ECOWAS:	Economic Community of West African States
CORAF:	West and Central African Council for Agricultural Research and Development
ECOWAP:	Economic Community of West Africa States Agricutural Policy
CCAFS:	CGIAR Research Program on Climate Change, Agriculture and Food Security
NMHS:	National Meteorological and Hydrological Service
ILM:	Integrated Land Management
MITA:	Market of Agricultural Innovations and Technologies
PRESASS:	Regional Climate Outlook Forum For Sudano-Sahelian Region
PRESAGG:	Regional Climate Outlook Forum For the Gulf of Guinea
PREGEC:	Food Crisis Prevention and Management
RPCA:	Food Crisis Prevention Network

1. Key messages

- Through action research across six anchored countries in Africa, AICCRA aims at scaling access and use of enhanced climate information services (CIS) and evidence-based climate-smart agriculture (CSA) technologies and innovations for effective climate risk management and sustainable productivity improvement in various agricultural value chains and sub-sectors.
- FSRP is a major climate-resilient development program that makes effective use of this new generation of climate information services to improve climatic and disaster risk management, and the application of climate-smart agriculture innovations to improve the agricultural productive base in West African food systems.
- Fostering synergy between FSRP and AICCRA offers a great spillover opportunity to scale up climate services and climate-smart agriculture to benefit all CILSS-ECOWAS member countries and beyond.
- As two World Bank-funded projects within the same region and built under a long-term programmatic approach, FSRP and AICCRA are two unique programs to strengthen the institutional capacities and make economy of scale while fostering cross-fertilization among IDA funded-projects in West Africa.
- From an operational point of view, the active participations, and interactions of both projects' stakeholders to their respective activities, events and statutory meetings bolster effectiveness of these synergies.
- The synergies between these two sister projects pave the way for fostering not only the uptake but more importantly the effective use of science-evidenced CSA innovations and CIS across West Africa and the Sahel

2. Introduction

The Food System Resilience Program (FSRP) and the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) are two World Bank's International Development Association (IDA)-funded projects that include West Africa and the Sahel as intervention region. While the first phase of AICCRA is planned for 2021-2023 with a possible 5-years additional financing from 2024 (Zougmoré et al., 2023), the FSRP is a multiphase long-term commitment program required to build sustainable regional mechanisms and institutions with sufficient substance at a regional level. This multi-phase approach will enable a set of countries with varying degrees of readiness to adopt consistent approaches and accede to regional systems at appropriately differential speeds. Phasing the accession of countries according to their readiness will allow regional mechanisms to operate with maximum effectiveness. While FSRP is aligned to the Economic Community of West Africa States Agricultural Policy (ECOWAP) as the main framework for agricultural transformation and regional integration, and implemented through three major regional organizations, i.e., Economic Community of West African States (ECOWAS), Permanent Interstate Committee for Drought Control in the Sahel (CILSS)'s specialized center AGRHYMET Regional Climate Center and the West and Central African Council for Agricultural Research and Development (CORAF), AICCRA builds on 50 years of CGIAR climate innovations, especially research on the achievements of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) to contribute developing a climate-smart African future driven by science and innovation in agriculture. More specifically, AICCRA works to upscale and make climate information services and climate-smart agriculture technologies more accessible to millions of smallholder farmers across Africa. At the same time, FSRP aims to strengthen regional food system risk management, improve the sustainability of the productive base in targeted areas and to develop regional agricultural markets.

In view of the complementarity between the two projects, i.e., AICCRA being a potential provider of scientifically evidence-based innovations, tools and approaches, while the FSRP is a potential user of these knowledge and information, and at the same time both are working on the common topic of supporting resilient agriculture and food systems, the World Bank has fostered active synergy between the two projects since their design phases, in a way to promote a win-win cross-fertilization.

Since the commencement of **FSRP** implementation, clear Program of Work and Budget has been developed, with strategic areas of collaboration in a formal document that will serve as implementing guide to both projects and inform other WB operations in IDA countries and regions in Africa and beyond. This Info Note synthesizes and analyses collaboration domains for synergy and cross-fertilization between AICCRA and FSRP, with focus on the latter's two regional components led by CILSS/AGRHYMET and CORAF.

3. Overview of FSRP objectives and expected achievements.

The FSRP Program Development Objective is to increase preparedness against food insecurity and improve the resilience of food systems in participating countries. The expected achievements include: (i) increase of the number of beneficiaries including women of the food system who have access to early warning services and hydro & agro-meteorological advisories; (ii) increase of areas under integrated land management practices; (iii) increase number of beneficiaries who adopted climatesmart technologies and agricultural services; (iv) reduction of % of persons, including women, in food crisis situation in targeted zones, and (v) increase of the part of intra-regional trade for certain value chains.

COMPONENT 1: Digital Advisory Services for Agriculture and Food Crisis Prevention and Management

The objectives of Component 1 are: (i) to enhance decision support systems with demand-driven services information to increase the effectiveness of agriculture and food crises prevention and management, integrating data and leveraging cutting-edge science, innovation, and technologies, and (ii) to strengthen regional capacity, institutional sustainability as well as adaptive capacity to climate change. The expected outcomes are (i) an upgraded regional food crisis prevention and management systems leveraging stronger regional operational capacity of agro-hydro-meteorological services and impact-based early warning systems, and (ii) food system users accessing and using agro-and hydrometeorological information services in their decision making.

The Component 1 comprises: Sub-component 1.1, which objective is to upgrade and operationalize Regional Food Crisis Prevention and Monitoring Systems, with the aim of transforming the regional food security and agriculture information system in order to support risk management decision-making. Specific activities include: (a) Improve regional and national capacity to deliver reliable information services for food and nutrition security and vulnerability assessment; (b) Reorganize and improve regional and national pest and disease monitoring and management mechanisms: (C) Strengthen regional collaboration for food crisis prevention. Subcomponent 1.2, aims to strengthen and operationalize Digital Hydromet and Agro-Advisory Services for Farmers. It focuses on developing new services, improving the quality, and increasing access to and use of impact-based and location-specific weather, climate and hydrological (hydromet) information as well as their application to agriculture (agromet) tailored to the needs of the agriculture sector. A special focus is made on the needs of the most vulnerable groups, for instance women and

young farmers and pastoralists. This will be achieved by strengthening operational linkages between CILSS/AGRHYMET and the national meteorological hvdrological and services (NMHSs) in collaboration with key stakeholders such as disaster risk management agencies and the private sector. The envisaged activities are to: (a) Improve production of hydromet, climate, agromet and impact-based information by decision-makers, farmers, pastoralists, and other actors in the food system; (b) Support the timely deliverv and use of essential agrohydrometeorological information; (c) Strengthen the financial and institutional sustainability of regional and national institutions providing hydromet, climate, agromet information.

COMPONENT 2: Sustainability and Adaptive Capacity of the Food System's Productive Base

Component 2 aims to enhance the resilience of the food system's productive base and contribute directly to the Great Green Wall Initiative. It comprises two mutually supporting sub-components: subcomponent 2.1 Consolidate Regional Agricultural Innovation Systems and subcomponent 2.2 Strengthen Regional Food Security through integrated land management (ILM). Technologies and innovation to be upscaled flow from sub-component 2.1 to 2.2, and the land and water management research group set up under Subcomponent 2.1 will provide technical support and coordination between countries implementing landscape interventions. Expected outcomes include: (i) strengthened national and regional agricultural research systems; (ii) a strengthened policy environment for landscape governance (multisectoral inclusive policies and regulations to avoid, reduce, and reverse land degradation); and (iii) landscape units (LUs) under integrated management that can achieve multiple objectives sustainably (food production, provision of ecosystem services, protection of improvement biodiversity, and of local livelihoods).

Activities under subcomponent 2.1 include: (a) Strengthen Regional Research Centers and Support Establishment of new National Research Centers; (b) Deepen and expand regional Research and Development Networking: (c) Modernize National Extension Services; (d) Promote Technology Access and Exchange. Activities under subcomponent 2.2 include: (a) Establish participatory ILM;(b) Enhance the resilience of eco- and food systems in priority landscapes; (c) Secure resilient eco- and food systems beyond priority landscapes. CORAF is expected to: Coordinate annual technical exchanges at regional level involving nationallevel project coordinators responsible for implementing sub-component 2.2 activities.

4. Overview of AICCRA objectives and expected achievements.

AICCRA development objective is to strengthen the technical, institutional, and human capacity needed by targeted regional and national partners and stakeholders, to enhance transfer and access of climate-relevant information. decision-making tools, and validated climatesmart agriculture (CSA) technologies in support of scaling efforts in IDA-eligible countries in Africa. The project focuses on filling the "missing middle" by bridging the gap between the organizations that generate and make available climate information services (CIS) and CSA technologies and the organizations and individuals that take up, re-transmit, or otherwise make use of the climate knowledge and CSA technologies, for the purpose of enhancing the resilience of Africa's agriculture and food systems in the face of climate change. AICCRA expected outcomes are threefold: (1) AICCRA partners and stakeholders in the project

area are increasingly accessing enhanced CIS and/or validated climate-smart agriculture technologies; (2) AICCRA beneficiaries in the project area are increasingly accessing enhanced CIS and/or validated climate-smart agriculture technologies; (3) Enhanced CIS and/or validated climate-smart agriculture technologies originating in one SSA country are increasingly being made accessible in other SSA countries. To achieve the expected outcomes, AICCRA is structured in three components: (1) Knowledge Generation and Sharing; (2) Strengthening Partnerships for Delivery, and (3) Validating Climate-Smart Agriculture Innovations through Piloting. The Project supports critical knowledge generation and sharing through capacity building activities and enhance the ability of regional and national-level stakeholders to improve access to CIS and effectively promote uptake of CSA technologies and innovations. With better access to technology and advisory services-linked to information about effective response measures—farmers can better anticipate climate-related events to take preventative action that helps their communities safeguard livelihoods and the environment.

By supporting activities that will be implemented multiple countries through multi-actor in networks, AICCRA will be able to leverage and add value to the results of other World Banksupported activities being pursued at country level, leading to outcomes that cannot be achieved easily, if at all, by engaging with individual partners at country level. Planned activities for West Africa include seven areas that focus on partnerships & capacity strengthening for CSA/CIS regional spillover effects, South-South learning and mainstreaming into training curricula: (1) Development of ag-data hubs and decision support systems; (2) Strengthening digital climate advisory services; (3) Support strengthening of national met real-time services; (4) Enhance the capacity of public institutions and private firms to provide climate service delivery models; (5) Build capacity in three focus countries of public and private sector next users to support implementation of CSA technology packages; (6) Develop existing or strengthen new National Frameworks for Climate Services (NFCS); (7) Identify and prioritize climate- and gender and social inclusion-smartness of CSA packages.

5. Synergies between the two programs

FSRP and AICCRA are two WB-funded programs that intervene within the same sub-region, involving the same kev implementing institutions, and focusing on the transformation of food systems in the context of climate change. Therefore, the contractual agreements between the CGIAR lead institution for AICCRA (Alliance of Bioversity International and CIAT) and regional organizations namely AGRHYMET and CORAF, built on some potential areas of synergistic collaborations between the two programs. In the sections below, we expand on strategic areas of AICCRA-FSRP collaborations.



Katie Kennedy Freeman speaking during an AICCRA event

5.1 Strategic areas of AICCRA-FSRP collaboration on agromet/hydromet services

Climate Information Services (CIS): while AICCRA is feeding FSRP with start-of-art science and technology inputs to be used along the FSRP value chain of climate information services, AICCRA benefits from FSRP investment opportunities in regional organisations and countries to scale-up its evidenced-based tools, approaches and products on climate services.



Side event on communicating climate information during the 2023 PRESASS

For example, through AICCRA, AGRHYMET Regional Climate Center has strengthened its technical capacity to produce new generation of climate services that are used to upgrade the outputs from the Regional Climate Outlook Forum (PRESASS and PRESAGG) in West Africa and the Sahel (Halidou et al., 2022).

FSRP will build on these new generation of climate services to support farmers and other stakeholders to build resilience. These new products of seasonal forecasts will also enable the FSRP thematic expert group on CIS to assess and guide implementation of actions. AICCRA will benefit from the FSRP investment in hydromet and agromet data collection, automatization and sharing for further innovations in climate services.

Capacity building of regional and national institutions for effective climate service systems: Both AICCRA and FSRP aim at strengthening the AGRHYMET institutional capacities. Indeed, AICCRA aims at supporting the mandates and ambition of AGRHYMET as the West-African regional leader in capacity building of national met and hydro services through training of trainers approach and in providing start-of-the art CIS to contribute to its accreditation by WMO as the West African and Sahel Regional Climate Centre (Houngnibo et al., 2022; Ali et al., 2022a; Minoungou et al., 2022;

Segnon et al., 2022a; Segnon et al., 2023a). On the other hand, FSRP plans to contribute developing a business model for AGRHYMET that can guarantee the sustainability of its services. Therefore, the two efforts are complementary as they will position AGRHYMET as the regional place-to-go in West Africa and the Sahel for climate information services. The acceleration of global warming is inducing a new era of hydroclimatic extremes in the Sahel (Bichet and Diedhiou, 2018; Panthou et al., 2018; Salack et al., 2016). Yet, AGRHYMET is still lacking capacity to track such types of rapid hazards. To fill this gap, FSRP and AICCRA are joining efforts to strategically enable AGRHYMET with a relevant watch room that will support countries' early warning systems.

The goal is for AGRHYMET to sustainably strengthen the capacity of countries to develop operational and effective national climate service systems. It is in this framework that both AICCRA and FSRP target the training of National Meteorological and Hydrological services. One of the foci of FSRP is on degree training of NMHS professionals as well as an impact evaluation platform for the training programs. On the other hand, AICCRA provides state-of-the-art scientific tools, approaches, and knowledge to support the curricula of the different training programs. In addition, AICCRA supports short term trainings to NMHSs to complement the degree trainings and to be spill overed through FSRP investments throughout CILSS-ECOWAS member countries (Minoungou et al., 2022; Segnon et al., 2022a; Hansen et al., 2022).

Channelling CIS to the last mile: AICCRA and FSRP consider communication as a strategic mean to support large-scale dissemination of knowledge products and to provide agroadvisory services through cascading to various levels of users (regional – national – subnational entities – last mile). AICCRA focuses on developing knowledge products to bridge the gap between science and policy, and to provide science-based evidence in response to various issues and needs. Through story stelling on the best experiences, AICCRA ensures upscaling of CIS to foster their use. Also, AICCRA strengthens the capacities of media and communication actors for their better understanding of the climate jargon used by scientists to translate and format climate information messages and for their contribution to codevelop communication products using the appropriate language (Mainassara et al., 2023).

FSRP supports particularly the development of operational communication channels based on digital-led platforms to foster timely agromet and hydromet information delivery to beneficiaries. These digital platforms constitute a tool for FSRP to track and assess the impact of these services. Both FSRP and AICCRA make use of regional concertation frameworks such as the Regional Climate Outlook Forum (PRESASS, PRESAGG), PREGEC, RPCA to strengthen dialogue between national and regional stakeholders (Halidou et al., 2023).

5.2. Strategic areas of AICCRA-FSRP collaboration on the food systems productive base

One of the key intervention areas of the FSRP is sustaining the productive base of the food system by investing in CSA at the farm and landscape levels. To enhance the resilience of food systems in priority landscapes, the FSRP has envisaged the delivery of farm/community-level packages of CSA technologies (including droughtresistant crops and specific soil management techniques to reduce water evaporation and enhance resilience). CORAF, as the regional lead of these areas, has defined 3 main strategic intervention domains to collaborate with AICCRA including capacity building, CSA innovation and e-extension.

Capacity building: AICCRA trains FSRP countries' stakeholders to better understand concepts, approaches, tools and methods for sound prioritisation, implementation and use of climate-smart agriculture (Kpadonou et al., 2023a). In addition, AICCRA supports the setting up and training of a West and Central Africa community of practice on foresight analysis (Segnon et al., 2023b; Chesterman et al., 2022; Neely et al., 2022) which is a strategic objective defined in CORAF's strategy 2030 and endorsed

in FSRP plans/objectives. This was followed by foresight application to various thematic areas of interest (e.g., pest and disease outbreaks) (Chesterman et al., 2022; Segnon et al., 2023c). AICCRA provides technical backstopping to CORAF in conceptualizing and in better framing of the scaling approach in order to support FSRP implementation across West and Central Africa (Kpadonou et al., 2022; Segnon et al., 2022b). In this way, AICCRA leverages FSRP as a springboard to deploy innovative research outputs and outcomes.



Participants at the CSA training workshop in Central Africa



Participant at the CSA training workshop in West Africa

Climate-smart agriculture innovations: In line with CORAF goal of promoting access and exchanges of innovations, including CSA technologies, among FSRP countries, AICCRA through generation and mainstreaming of evidenced-based CSA technologies from its intervention countries, is contributing to various scaling mechanisms set up by CORAF such as: (i) the physical and virtual market of agricultural innovations and technologies (MITA), (ii) the virtual platform for West Africa Fertilizer and Seed Recommendations (FeSeRWAM) and (iii) the network of Agricultural Parks of Technologies (APT) for physical and live showcasing (Segnon et al., 2022b; Ganyo et al., 2022; Kpadonou et al., 2022). Also, AICCRA brings integrated approaches and tools such as the climate-smart village, the CSA prioritization methods to support sound selections of CSA technologies that are tailored to the specific contexts and needs of various FSRP value chains and beneficiaries (Segnon et al., 2022c). Given AICCRA is providing transformative CIS under FSRP component 1, this will be leveraged to promote the bundling of CSA and CIS. Indeed, this will improve access by farmers and other value chain actors to climateinformed agricultural advisory services to inform decision-making about choice of technology and enterprise management for better climatic risk management and improved productivity.

E-extension: The FSRP is supporting the modernization of countries' extension services, which is also an area of focus for AICCRA. Among the actions undertaken, CORAF is mapping in collaboration with AGRYHMET, the digital-led modern tools and approaches being piloted through AICCRA to promote the use by countries of the most evidenced as successful (Agali et al., 2022). Experiences from West Africa Agricultural Productivity Program (WAAPP) and the CGIAR Research Program Climate on Change, Agriculture, and Food security (CCAFS) in Ghana, Senegal, and Côte d'Ivoire will provide relevant inputs to these e-extension initiatives (Partey et al., 2019).

5.3. Cross cutting issues

Both AICCRA and FSRP prioritise Gender and social inclusion as a cross cutting topic across all activities and promote synergies and the principle of subsidiarity through public-private engagement (PPE) mechanisms.

• Gender and social inclusion

There is cross-fertilisation between FSRP and AICCRA through various initiatives such as (1) joint capacity building on specific skills to benefit actors of both projects (Ganyo et al., 2023a), (2) identifying and sharing best practices, experiences and strategies for gender and social inclusion in generation and scaling of CSA and CIS innovations addressing priorities and needs of different groups, in particular women, youth and under-represented groups in both project activities (Ali et al., 2022b, Ganyo et al., 2023b,c; Segnon et al 2023d), (3) developing a national gender and climate action plan in agriculture to identify and support concrete actions for gender empowerment at local level, (4) the inventory of gender-responsive CSA innovations in West and Central Africa for MITA platform (Ganyo et al., 2023b; Segnon et al., 2023d), (5) Identifying CSA business models through scaling of the Gender Smart Accelerator model developed in AICCRA to benefit ECOWAS member-countries.



Presentation of gender and nutrition sensitive CSA and CIS innovations during the MITA event

• Public-Private Engagement

Through public-private engagement, FSRP plans to (1) support the development of business models for the sustainability of regional and national institutions in charge of climate services and climate-smart agriculture, (2) develops regional platforms for exchange between public and private actors (e.g., capitalize on MITA experience to build a platform for a better contribution of private sector to climate services). On the other hand, AICCRA has been testing various PPP business models on the bundling of CSA and CIS that could inform the above objectives of FSRP. Similarly, the sustainable finance schemes piloted through AICCRA to support investments by small and medium enterprises are relevant to supporting FSRP initiatives on public-private engagement and business models development.



Participants at the MITA event in Ougadougou

• Bundling of CIS with climate-smart agriculture innovations

Using climate information to decide about the most appropriate climate-smart technology is crucial in the context of the important climate variability in West Africa and the Sahel. Therefore, potential climate-smart agricultural innovations and technologies promoted by CORAF (Ganyo et al., 2022) can be more efficiently used if packaged based on climate information. This is where the component of FRSP led by AGRHYMET comes in through the timely delivery and use of essential agrohydrometeorological information to key users, including farmers and pastoralists, by building developing their capacity, multimodal communication channels, and supporting the codevelopment of services by engaging users.

Bio-risks management

CORAF is supporting the establishment of new national centre of specialisation for mechanization, bio-risk management in Togo. AGRHYMET with its long experience in pest and disease monitoring and management mechanisms can work synergistically with CORAF to backstop this new centre. In terms of capacity building, AICCRA has supported CORAF to set up a community of practice in foresight analysis and a regional action plan for preparedness and rapid response has been produced to guide implementation actions against foreseen or emerged crop pest and disease outbreaks in the region (Segnon et al., 2023b; Chesterman et al., 2022).



Training on Biorisks management in Togo

• Modern agricultural advisory tools

One of the major expected achievements through FSRP component 2 is the modernization of national extension services. Indeed, FSRP will promote modern approaches to extension, including by supporting the adoption of digital agriculture and e-extension services. Under the component 1 led by AGRHYMET, it is also expected the development of decision support tools and methods for improved, user-targeted agro-advisory services. Therefore, CORAF, AGRHYMET and AICCRA have jointly developed a concept note to map the modern advisory tools and approaches being promoted to identify bestpractice countries as examples for spillover across West Africa.

• Formal institutional partnerships and supports

In a bid to strengthen the collaboration with CORAF and AGRHYMET, AICCRA has signed partnership performance agreements with these two organizations to include them as major regional implementing partners and therefore, allocated dedicated funds to support both spillover organizations for their activity implementations. AICCRA has been actively contributing to the MITA and other CORAF-led events (Segnon et al., 2022b; Segnon et al, 2023d; Kpadonou et al., 2023b) through organizing specific sessions to share AICCRA success cases and experiences. Similarly, AICCRA has been contributing to the annual Regional Climate Outlook Forums (PRESASS and PRESAG) and the biannual scientific conference on climate in the Sahel organized by AGRHYMET (Zougmoré, 2022; Segnon et al., 2022a; Halidou et al., 2023; Mainassara et al., 2023).

6. Recommendations

- Strengthen the active participation and contribution of AICCRA to key FSRP meetings including the steering committees and vice versa, such as the example of AICCRA chairing the FSRP component 1 Scientific & Technical Committee.
- Promote join communication of the results of the two projects and their complementarities (Example of co-organization of a side event at COPs)
- Further align AICCRA Additional Financing activities with FSRP.
- Co-supervise academic trainings (master, PhD) on thematic areas of interest to both FSRP and AICCRA
- Develop a long-term vision paper for both programs that shape their synergies and complementarities towards transforming food system and resilience in West Africa

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Titles in this series aim to disseminate interim research on the scaling of climate services and climatesmart agriculture in Africa, in order to stimulate feedback from the scientific community.

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