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Report No: PAD5375

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF EURO 187.6 MILLION
(US\$200.0 MILLION EQUIVALENT)

TO THE

REPUBLIC OF SENEGAL

FOR A

WEST AFRICA FOOD SYSTEM RESILIENCE PROGRAM (FSRP) PHASE 3

UNDER THE MULTIPHASE PROGRAMMATIC APPROACH (MPA)

APPROVED BY THE BOARD ON NOVEMBER 18, 2021

WITH AN OVERALL FINANCING ENVELOPE OF US\$570.0 MILLION EQUIVALENT,
REVISED TO US\$645.0 MILLION EQUIVALENT ON JULY 8, 2022,
TO US\$695.0 MILLION EQUIVALENT ON DECEMBER 15, 2022,
AND NOW INCREASED TO US\$895.0 MILLION EQUIVALENT

December 19, 2023

Agriculture and Food Global Practice
Western and Central Africa

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CURRENCY EQUIVALENTS

(Exchange Rate Effective October 31, 2023)

Currency Unit = Euro

US\$1 = Euro 0.93769047

FISCAL YEAR

January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

AICCRA	Accelerating Impacts of CGIAR Climate Research for Africa Project
AM	Accountability Mechanism
ANACIM	Agence Nationale de l'Aviation Civile et de la Météorologie (<i>National Agency for Meteorology and Civil Aviation</i>)
ANCAR	Agence Nationale de Conseil Agricole et Rural (<i>National Agency for Agricultural and Rural Advisory Services</i>)
AWPB	Annual Work Plan and Budget
CC	Climate Change
CERAAS	Centre d'Etude Régional pour l'Amélioration de l'Adaptation à la Sécheresse (<i>Regional Study Center for Drought Adaptation Improvement</i>)
CERC	Contingent Emergency Response Component
CGIAR	Consultative Group on International Agricultural Research
CILSS	Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel (<i>Permanent Inter-State Committee for Drought Control in the Sahel</i>)
CORAF	Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (<i>West African Council for Agricultural Research and Development</i>)
CNRA	Centre National de Recherche Agronomique de Bambey (<i>National Agronomic Research Center of Bambey</i>)
CPF	Country Partnership Framework
CRI	Corporate Results Indicator
CSA	Commissariat a la Securite Alimentaire (<i>Food Security Commission</i>)
CSE	Centre de Suivi Ecologique (<i>Ecological Monitoring Center</i>)
DODP	Direction de l'Ordonnancement des Dépenses Publiques (<i>Public Expenditures Scheduling Directorate</i>)
DA	Designated Account
EATM-S	ECOWAS Agriculture Trade and Market Scorecard
ECOWAS	Economic Community of West African States (<i>Communauté Economique des Etats de l'Afrique de l'Ouest</i>)
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
EISMV	Ecole Inter-Etats des Sciences et Médecine Vétérinaires (<i>Inter-State School of Veterinary Science and Medicine</i>)
ENSA	Ecole Nationale Supérieure d'Agriculture (<i>National Superior School of Agriculture</i>)
E&S	Environmental and Social
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessments
ESMF	Environmental and Social Management Framework
ESS	Environmental and Social Standard
FADSR	Fonds d'Appui au Développement du Secteur Rural (<i>Rural Sector Development Support Fund</i>)
FAO	Food and Agriculture Organization of the United Nations
FI	Financial Institution
FM	Financial Management
FNDASP	Fonds National de Développement Agro-Sylvo-Pastoral (<i>National Fund for Agro-Sylvo-Pastoral Development</i>)
FNRAA	Fonds National pour la Recherche Agricole et Agro-Alimentaire (<i>National Fund for Agricultural and Agri-Food Research</i>)
FONSTAB	Fonds d'Appui à la Stabulation (<i>Support Fund for Animal Husbandry</i>)
FSRP	West Africa Food System Resilience Program
GDP	Gross Domestic Product
GGWI	Great Green Wall Initiative
GHG	Greenhouse Gas
GRS	Grievance Redress Service
Ha	Hectare

IDA	International Development Association
IFAD	International Fund for Agricultural Development
ILM	Integrated Landscape Management
INP	Institut National de Pédologie (<i>National Institute of Pedology</i>)
IPF	Investment Project Financing
IPMP	Integrated Pest Management Plan
IsDB	Islamic Development Bank
ISO	International Standard Organization
ISRA	Institut Sénégalais de Recherche Agricole (<i>Senegalese Institute of Agricultural Research</i>)
ITA	Institut de Technologies Alimentaire (<i>Food Technologies Institute</i>)
LMP	Labor Management Procedures
LNERV	Laboratoire National de l'Élevage et de Recherches Vétérinaires de l'ISRA (<i>National Laboratory for Livestock and Veterinary Research of ISRA</i>)
M&E	Monitoring and Evaluation
MAERSA	Ministère de l'Agriculture, de l'Équipement Rural et de la Souveraineté Alimentaire (<i>Ministry of Agriculture, Rural Equipment and Food Sovereignty</i>)
MEPA	Ministère de l'Élevage et des Productions Animales (<i>Ministry of Livestock and Animal Production</i>)
MPEM	Ministère de la pêche et de l'Economie Maritime (<i>Ministry of Fishing and Maritime Economy</i>)
MPA	Multi-Phase Programmatic Approach
MFD	Maximizing Finance for Development
MG	Matching Grant
NBS	Nature-Based Solutions
NCoS	National Center of Specialization
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
NPV	Net Present Value
NSC	National Steering Committee
NTC	National Technical Committee
PAD	Project Appraisal Document
PARIIS	Sahel Irrigation Initiative Support Project (<i>Projet d'Appui Régional à l'Initiative pour l'Irrigation au Sahel</i>)
PCAE	Agriculture and Livestock Competitiveness Program for Results
PDO	Project Development Objective
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PNDE	Plan National de Développement de l'Élevage (<i>National Livestock Development Plan</i>)
PO	Producers/Professional Organization
POAS	Plans d'Occupation et d'Affectation des Sols (<i>Land Use and Allocation Plans</i>)
PPSD	Project Procurement Strategy for Development
PRAPS-2	Regional Sahel Pastoralism Support Project- Phase 2 (<i>Projet Régional d'Appui au Pastoralisme au Sahel</i>)
PRES	Senegal Jobs, Economic Transformation and Recovery Program
PSE	Plan Sénégal Emergent (<i>National Development Plan</i>)
R&D	Research and Development
RCoE	Regional Center of Excellence
RF	Results Framework
RSC	Regional Steering Committee
SAED	Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal et des Vallées du Fleuve Sénégal et de la Falémé (<i>National Company for the Development and Exploitation of the Senegal River Delta Lands and the Valleys of the Senegal River and of the Faleme</i>)
SEA/SH	Sexual Exploitation and Abuse and Sexual Harassment
SECNSA	Secrétariat Exécutif du Conseil National de Sécurité Alimentaire (<i>Executive Secretariat of the National Food Security Council</i>)
SEP	Stakeholder Engagement Plan
SNSARS	Stratégie Nationale pour la Sécurité Alimentaire et la Résilience (<i>National Strategy for Food Security and Resilience</i>)
SME	Small and Medium-sized Enterprise
SP	Sub-project

SPS	Sanitary and Phytosanitary
TA	Technical Assistance
STEP	Systematic Tracking of Exchanges in Procurement
TF	Trust Fund
VC	Value Chain
WAAPP	West Africa Agricultural Productivity Program
WB	World Bank



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DATASHEET

BASIC INFORMATION

Project Beneficiary(ies) WESTERN AND CENTRAL AFRICA	Operation Name WEST AFRICA FOOD SYSTEM RESILIENCE PROGRAM (FSRP) PHASE 3		
Operation ID P180244	Financing Instrument Investment Project Financing (IPF)	Environmental and Social Risk Classification Substantial	

Financing & Implementation Modalities

<input checked="" type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input checked="" type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternative Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date 18-Jan-2024	Expected Closing Date 29-Mar-2030	Expected Program Closing Date 29-Mar-2030
Bank/IFC Collaboration Yes	Joint Level Complementary or Interdependent project requiring active coordination	

MPA Program Development Objective

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

MPA FINANCING DATA (US\$, Millions)



MPA Program Financing Envelope	716.00
with an additional request to IDA	845.00

Proposed Development Objective(s)

To increase preparedness against food insecurity and improve the resilience of food systems in Senegal

Components

Component Name	Cost (US\$)
Digital Advisory Services for Agriculture and Food Crisis Prevention and Management	8,000,000.00
Sustainability and Adaptive Capacity of the Food System’s Productive Base	97,700,000.00
Regional Food Market Integration and Trade	141,300,000.00
Contingent Emergency Response	0.00
Project Management	19,000,000.00

Organizations

Borrower: Ministry of Finance and Budget

Implementing Agency: Ministry of Agriculture, Rural Equipment and Food Sovereignty, Ministry of Industry and Small and Medium Industry, Ministry of Livestock and Animal Production

MPA FINANCING DETAILS (US\$, Millions)

Board Approved MPA Financing Envelope	0.00
MPA Financing Envelope:	716.00
of which Bank Financing (IBRD):	0.00
of which Bank Financing (IDA):	645.00
of which Other Financing sources:	71.00

PROJECT FINANCING DATA (US\$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? Yes

Is this project Private Capital Enabling (PCE)? Yes



SUMMARY

Total Operation Cost	266.00
Total Financing	266.00
of which IBRD/IDA	200.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	200.00
IDA Credit	200.00

Non-World Bank Group Financing

Counterpart Funding	36.00
Local Beneficiaries	36.00
Other Sources	30.00
International Fund for Agriculture Development	30.00

IDA Resources (US\$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
Regional	100.00	0.00	0.00	0.00	100.00
National Performance-Based Allocations (PBA)	100.00	0.00	0.00	0.00	100.00
Total	200.00	0.00	0.00	0.00	200.00

Expected Disbursements (US\$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030



Annual	3.00	10.00	27.00	45.00	45.00	45.00	25.00
Cumulative	3.00	13.00	40.00	85.00	130.00	175.00	200.00

PRACTICE AREA(S)

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

Environment, Natural Resources & the Blue Economy;
Water

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category

Rating

1. Political and Governance

● High

2. Macroeconomic

● Substantial

3. Sector Strategies and Policies

● Moderate

4. Technical Design of Project or Program

● Substantial

5. Institutional Capacity for Implementation and Sustainability

● Substantial

6. Fiduciary

● Moderate

7. Environment and Social

● Substantial

8. Stakeholders

● Substantial

9. Other

● Substantial

10. Overall

● Substantial

Overall MPA Program Risk

● Substantial

POLICY COMPLIANCE



Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description

The Recipient shall carry out the Project in accordance with the Implementation Arrangements set out in Section I, Schedule 2 of the Financing Agreement. Project Implementation Units. The Recipient shall: (i) maintain, at all times during the implementation of the Project, two project implementation units, one within MEPA and one within MAERSA (“Project Implementation Units”), with terms of reference, qualified staffing and resources satisfactory to the Association, to be responsible for overall coordination as well as day-to-day management, supervision and



administration of the Project activities and results at the national and local levels, preparation of and consolidation of the annual work plans and budgets, fiduciary aspects (financial management and procurement), environmental and social standards aspects, reporting and communication of Project activities, and monitoring and evaluation of Project activities, all in accordance with the provisions of the PIM. To this end, the PIU within MAERSA shall be responsible for the consolidation of financial, monitoring and evaluation, AWP&Bs and Project reports and submission of Project reports to the National Steering Committee in accordance with the PIM;

The Recipient shall ensure that each PIU is staffed inter alia with: (A) a Project coordinator, a procurement specialist and relevant technical staff in adequate numbers, throughout Project implementation; (B) an environmental specialist and a social development/GBV/SEA/SH specialist, as further set out in the ESCP, no later than three (3) months after the Effective Date, or any later date as agreed by the Association; (C) a monitoring and evaluation specialist, accountants, and an internal auditor, no later than four (4) months after the Effective Date, or any later date as agreed by the Association; and (D) an external auditor, no later than six (6) months after the Effective Date, or any later date as agreed by the Association, as further set out in the PIM, all under terms of reference, experience and qualifications satisfactory to the Association;

The Recipient shall recruit and thereafter maintain, throughout Project implementation, a financial and administrative manager and a chief accountant;

The Recipient shall ensure that each PIU has set up an accounting and reporting system in form and substance satisfactory to the Association, no later than four (4) months after the Effective Date, or any later date as agreed by the Association;

Investments, Activity Areas, Matching Grants and Sub-Projects 1. The Recipient shall ensure that investments to be made and areas in which activities are to be implemented under the Project are selected and approved in accordance with criteria and procedures, and under financing terms and conditions, set forth in the PIM.

2. The Recipient shall ensure that any Project activities involving the use or risk of pollution of the waters of an international waterway will be limited to the rehabilitation or minor additions or alterations of existing schemes or existing installations that will not cause adverse impact to other riparian countries or will not be adversely affected by other riparians' possible water use, as further set forth in the PIM.

3. The Recipient shall select beneficiaries and provide Matching Grants under Parts 2.2(c) and 3.2(a) in amounts and for purposes, all in accordance with procedures and criteria set out in the MGIM.

4. The Recipient shall select beneficiaries and activities for Sub-Projects under Part 2.1(b)(iii) and (iv) and Part 2.2(b) of the Project, in accordance with procedures and criteria set out in the PIM.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	ARTICLE V — EFFECTIVENESS; TERMINATION 5.01. (a)	The Recipient shall have established: (i) the National Steering Committee in accordance with Section I.A.2(a) of Schedule 2 to this Agreement; and (ii) the PIUs in accordance with Section I.A.1(b)(i), (ii) and (iii) of Schedule 2 to this Agreement; both with	IBRD/IDA



		functions, composition, terms of reference and resources satisfactory to the Association	
Effectiveness	ARTICLE V — EFFECTIVENESS; TERMINATION 5.01. (b)	The Recipient shall have adopted the PIM, in form and substance satisfactory to the Association, and in accordance with Section I.B.1(a) of Schedule 2 to this Agreement.	IBRD/IDA
Disbursement	B. Withdrawal Conditions; Withdrawal Period 1 (a)	No withdrawal shall be made: (a) for payments made prior to the Signature Date	IBRD/IDA
Disbursement	B. Withdrawal Conditions; Withdrawal Period 1 (b)	No withdrawal shall be made: under Categories (2) and (6), until and unless: (i) the Co-financing Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of this Agreement) have been fulfilled; and (ii) the Recipient has adopted the MGIM in form and substance satisfactory to the Association	IBRD/IDA
Disbursement	B. Withdrawal Conditions; Withdrawal Period 1 (c)	Under Categories (4) and (9), until and unless all of the following conditions have been met in respect of said expenditures, namely that: (i) the Recipient has determined that an Eligible Crisis or Emergency has occurred, and has furnished to the Association a request to	IBRD/IDA



		<p>withdraw Financing amounts under Categories (4) and (9); (ii) the Association has agreed with such determination, accepted said request and notified the Recipient thereof; and (iii) the Recipient has adopted the CERC Manual and Emergency Action Plan, in form and substance acceptable to the Association.</p>	
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I. STRATEGIC CONTEXT

1. This Project Appraisal Document (PAD) covers phase 3 of the West Africa Food System Resilience Program (FSRP). The first phase was approved by the World Bank's Executive Directors on November 18, 2021, (P172769) and the second was approved on July 29, 2022 (P178132). This third phase will benefit from US\$30 million in co-financing from the International Fund for Agricultural Development (IFAD).

A. Country Context

2. **After a decade of progress, West African economies are slowing, strongly affecting poverty reduction.** Economic growth in the sub-region slowed to 3.7 percent in 2022, from 5.0 percent in 2021 following multiple global crises, including the impact of the COVID-19 pandemic, elevated inflation driven by higher food and fuel prices, adverse weather shocks, and the rising risk of debt distress. Growth is expected to further decline to 3.4 percent in 2023.¹ Acute food insecurity has risen from 17 million people in June-August 2020 to an estimated 42.5 million people in the same period in 2023.² Overall, West Africa is among the most fragile regions with high vulnerability to shocks and an urgent need for additional investments in food system resilience.

3. **While Senegal is one of the fastest-growing economies in West Africa, its strong economic performance over the last decade did not result in significant poverty reduction.** With a per capita gross national income of US\$1,465 in 2022, Senegal is currently a lower middle-income country. Real growth was approximately 6 percent annually in 2014-2019 but contracted to 0.87 percent in 2020 due to the pandemic. A strong economic recovery resulted in growth rates of 6.5 percent in 2021 and 4.2 percent in 2022, even while the fiscal deficit remained high at 6.7 percent of gross domestic product (GDP) in 2022. Over the last decade, the poverty rate remained high at around 37 percent, as income growth is driven mainly by urban services, while most of the poor derive their incomes from agriculture.³ Poverty in urban areas dropped from 22.5 percent in 2011 to 19.8 percent in 2018 while in rural areas it declined from 59 percent to 54 percent. With GDP growth expected to average 6.8 percent during 2023-2027, there is potential for significant poverty reduction over the next few years.⁴

4. **Senegal's economy is facing multiple and diverse shocks with higher energy, fertilizer, and food prices.** Inflation accelerated to a record of 14.1 percent in November 2022 driven mostly by a sharp food inflation of 21.4 percent. In 2023, inflation decreased gradually to reach 0.9 percent in November 2023. As food accounts for about half of total household expenditures, food price inflation has slowed poverty reduction. Rising food prices have also worsened existing malnutrition by causing households to replace higher quality foods with nutritionally poorer substitutes. In addition, Senegal is affected by sub-regional instability, as recently illustrated by the coup in Niger, as well as insecurity and rising social and geopolitical tensions. Finally, the country is vulnerable to climate shocks such as droughts and floods. This further reduces agricultural productivity, which is already chronically low. As a result, food insecurity is a persisting challenge. According to the last estimates from the *Cadre Harmonisé* (Harmonized Framework), about 23 percent of the population (4,106,255 people) are estimated to be under food pressure (Integrated Food Security Phase Classification - IPC - 2), and 4 percent (726,781 people) will be in food crisis or emergency (IPC 3+) in June-August 2024.⁵

¹ World Bank. 2023. The World Bank in Africa. <https://www.worldbank.org/en/region/afr/overview>

² Food Crisis Prevention Network. 2023. Analysis. <https://www.food-security.net/en/visualise/>

³ WDI. 2018. Macro Poverty Outlook 2018

⁴ World Bank. 2023. Senegal Economic Update Report: Addressing the needs of vulnerable groups for national development

⁵ World food Program, 2023. [final results of the October/November 2023 Cadre Harmonisé \(CH\)](#)



B. Sectoral and Institutional Context

5. **West Africa’s economy heavily depends on agriculture and there is an urgent need to boost agricultural productivity.** Even though its share of total GDP has decreased over the last decades from 31 percent in 1990 to an average of 23 percent in 2000-2021, the agriculture sector remains a crucial source of economic growth in West Africa and generates 33 percent of all foreign exchange earnings. It is the main source of livelihoods for 80 percent of the rural population and employs nearly half (i.e., 46 percent) of the region’s labor force.⁶ While technological advances and efficiency gains have been the main drivers of agricultural growth on a global level, their contribution in West Africa is still limited. While crop yields have increased in Africa, they still significantly trail those of the rest of the world.⁷ Overall, production of crops and livestock must increase sustainably if the region is to meet its growing food demand.

6. **Many countries in West Africa depend on food imports given their current consumption and production patterns, and Senegal is not an exception.** As a result of the rising divergence between regional supply and demand, West Africa’s food import bill has doubled over the past two decades from an average of US\$8.01 billion per year during the 2000-2010 period, to US\$17.78 billion during 2011–2020. The import bill is expected to grow further in 2022-2023 following steep food price increases. Despite the upward trend in the region’s food exports, the food trade balance is negative with an export-to-import ratio of 0.86. The food trade deficit is worsening macroeconomic imbalances and diverting much-needed foreign exchange reserves away from importing capital goods and technology.⁸

7. **Senegal is essentially an agriculture-based economy and despite the potential to substitute imports with local production, the country remains a net importer of food.** The share of the agriculture sector (agriculture, livestock, and fisheries) in GDP has declined over the years, accounting for 19 percent of the GDP in 1990 and reducing to 15.7 percent in 2022. Between 2000 and 2022, the sector grew at an average rate of four percent (albeit with wide variations, ranging from -22 to +21 percent), equal to the overall average GDP growth rate, but below the Comprehensive African Agricultural Development Program target of 6 percent. The sector supports 62 percent of the rural population and employed more than 38 percent of total labor force, on average from 2000-2021.⁹ About 30 percent of rural households derive their livelihoods from livestock production¹⁰ which contributes 3.4 percent to GDP¹¹ and plays a critical role in nutritional security.¹² Agricultural total factor productivity increased from 100 in 2015 to 119 in 2021, meaning 19 percent more output was obtained from a similar amount of inputs. Over the last decades, food production growth has not kept pace with rising food demand driven by population growth and urbanization. As a result, the country’s reliance on food imports has increased, making it more vulnerable to external shocks such as global price volatility, trade restrictions, and energy prices. However, many of the imported food products could be competitively produced domestically or in the region including maize, fruit and vegetables, live animals, and meat, as well as dairy and eggs.

⁶ World Bank. 2022. World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators>

⁷ The average cereal yield across the continent in 2020 was half that of India (3.28 t/ha), about one-fourth that of China (6.30 t/ha), and one-fifth of the yield in the United States (8.18 t/ha), African milk yield (0.19 t/head) is estimated at about 15 percent of the world’s average (1.23 t/head).

⁸ Ibid

⁹ World Bank. 2022. World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators>

¹⁰ MEPA. 2016. PNDE

¹¹ MEPA. 2021.

¹² 46 percent of Senegal’s population (7.7 million people) could not afford a healthy diet in 2020, 56 percent of pregnant women and 52 percent of non-pregnant women ages 15-49 have anemia. Sources: WB/Tufts Food Prices for Nutrition. 2020. Global Nutrition Report (GNR) Country Profile.



8. **Senegal has many untapped natural resource endowments with potential to boost agricultural growth and improve food security.** Only about 3.27 million ha of land is used for crops out of a potential of 8.87 million ha. Out of a potential of irrigable land of 350,000 ha, only 67,000 ha are irrigated¹³. The improvement of water resource use is recognized as a pivotal measure around which more resilient and productive territorial development projects can be designed. Senegal is a member of the Sahel Irrigation Initiative and signed the Dakar Declaration in 2013 through which the country committed to scale up investments in water resources management. These investments are critical in pursuing climate change adaptation. The potential for surface water resources is considerable and still largely unexplored.

9. **Senegal has taken significant initiatives to reverse land degradation and address associated challenges.** The country is home to a vibrant network of research institutions, extension services, farmer organizations, and non-governmental organizations (NGOs)¹⁴ that are addressing natural capital loss. This network fosters exchanges on best practices, promotes sustainable production methods with reduced reliance on fossil-based inputs, and advocates for the evolution of public policies at the national and regional levels. Furthermore, Senegal's participation in the Great Green Wall Initiative (GGWI) demonstrates its commitment to combating desertification and implementing sustainable land management practices, with 57,000 ha officially reforested between 2008 and 2021. Further institutionalization of agro-ecological transition and scaling up of cost-efficient solutions in the country's diverse agro-ecological contexts will be necessary to address Senegal's challenges of land degradation.

10. **Food demand will continue to grow at a fast pace as the trends in population, urbanization and income growth persist.** Based on an average annual population growth of 2.67 percent (2012-2022), domestic demand for food is expected to rise by an estimated 4–5 percent per year¹⁵, and an increasingly urban and prosperous population will consume not only more staple foods (millet, maize, rice) but also more high-value foods, such as fresh fruits, vegetables, livestock, and processed products. This offers an opportunity for farmers and agribusiness. In turn, meeting such demand requires policies and investments that will transform the food systems in a sustainable manner and strengthen urban-rural linkages.

11. **Regional trade integration offers a unique opportunity to enhance the resilience of food systems to international shocks.** The Economic Community of West African States (ECOWAS) and the African Continental Free Trade Area can be leveraged to coordinate investments in regional infrastructure and innovation dissemination to foster regional value chains (VCs). Removing commercial and technical barriers to food trade, investing in regional trade facilitation, and enabling the free flow of capital across borders will be essential for building resilient regional food systems with digital technologies playing a critical role. Senegal has the potential to make important progress in supplying domestic and regional markets and could gain regional market shares for its main agricultural products, including dry cereals (millet, sorghum, maize), rice, groundnuts, vegetables, fruits, milk, and meat.¹⁶

12. **Many intertwined constraints are challenging the development of Senegal's agriculture sector.** These barriers are (i) severely limiting the capacity of rural households to lift themselves out of poverty; (ii) worsening per capita calorie availability and deepening food insecurity; and (iii) preventing

¹³ Data source : FAOSTAT

¹⁴ Dynamics for an Agroecological Transition in Sénégal (Dynamique pour une Transition Agroécologique au Sénégal). 2023. <https://dytaes.sn/>

¹⁵ World Development Indicators ; Africa Pulse 2023

¹⁶ As illustration, the poultry value chain (VC) has taken off with doubling production from 56,000 tons to 133,000 tons between 2011 and 2020 and with positive impact on youth entrepreneurship. Poultry now provides 40 percent of the total national meat consumption, making it the primary meat consumed in the country. On the contrary, red meat production (ruminants) only increased by 16 percent from 125,000 tons in 2011 to 145,000 tons in 2020, below its potential.



agribusiness to grow adequately. To unlock the sector's potential and promote private investment, Senegal will need to address the following structural binding constraints:

(a) Vulnerability to climate change (CC) and its adverse effects. CC and climate variability reduce productivity both for crops and livestock. Senegal is among the African countries most at risk of drought-related CC impacts. Besides droughts, floods and fires are also prevalent climate-related shocks in Senegal. The National Determined Contribution (NDC, 2020)¹⁷ states that CC will result in decreases in rainfall (ranging from an average 16 mm in the Northern region to 89 mm in the South by 2035 compared to 1976-2005), an increase in average temperatures (ranging from +1.17 to +1.41°C by 2035 compared to 1986 to 2005), and reductions in available arable land.¹⁸ CC also increases risks from pests and vector-borne diseases in animals. Compared to other ECOWAS countries, agro-hydro-meteorological data collection in Senegal is advanced and this could be useful in addressing CC impacts on agriculture. However, the country faces a lack of coordination between national agencies and regional organizations (Agrhymet), equipment, and specialized skills to provide accurate and regular weather forecasts and early warning information that is adapted to user needs and capacities.

(b) Degradation of natural resource base accelerated by CC. The resource base for food production, including water, soil, and vegetation is deteriorating rapidly as the area under agriculture has expanded significantly over the past decades¹⁹ with little attention to sustainability, a situation compounded by the impacts of CC. The area under crops doubled between 1975 and 2013, at the expense of vast areas of forest, savanna, and woodland.²⁰ Soil erosion is widespread, mainly caused by recurring droughts, deforestation, and unsustainable agricultural practices. While land planning and integrated landscape management (ILM) is developing, particularly with the implementation of the Land Use and Allocation Plans (*Plans d'Occupation et d'Affectation des Sols, POAS*), and nature-based solutions (NBS) for landscape management and climate resilience, its application needs to be scaled up. Without widespread adoption of good climate-smart agriculture practices under ILM, erosion and soil infertility are expected to further worsen.

(c) Low productivity. Besides natural resource degradation, low productivity also results from limited access to adequate climate-smart inputs (improved climate-smart varieties and breeds, fertilizers, machinery, modern irrigation, etc.), technologies, and extension services. Agriculture and livestock are poorly integrated, losing opportunities for synergies. By building on the achievements of the West Africa Agriculture Productivity Program (WAAPP, P094084) such as the creation of Regional Centers of Excellence (RCoE) for agricultural research and education based in Senegal and other countries in the region, it is possible to support the generation, transfer, and adoption of productivity-enhancing and climate-smart technologies.

(d) Limited access to finance. Bank credit for agriculture is very low, at 5.12 percent of the total credit of the Senegalese economy.²¹ As Financial Institutions (FIs) currently do not offer financial

¹⁷ UNFCCC. 2023. <https://unfccc.int/sites/default/files/NDC/2022-06/CDNSenegal%20approuv%C3%A9e-pdf-.pdf>

¹⁸ FAO. 2022. <https://www.fao.org/faostat/en/#home>

¹⁹ Landscapes are social-ecological systems that consist of a mosaic of natural and/or human-modified ecosystems, often with a characteristic configuration of topography, vegetation, land use, and settlements that is influenced by the ecological, historical, economic, and cultural processes.

²⁰ More than one-third of the region's dense forest cover has been cleared since 1975 for farms and settlements. In savanna and steppe landscapes, bare sandy areas increased by 47 percent as drought and unsustainable land-use practices degraded vegetative cover.

²¹ Central Bank of West African States. 2021. Annual Report



services aligned with the needs and financial capacity of the agricultural sector's small and medium-sized enterprises (SMEs) and producers, VC actors face significant constraints in accessing credit.

(e) A poor business environment with few incentives for private investment and weak VC organization. Senegal, like the rest of the West Africa, needs to significantly improve its business environment to foster private investment, especially to unlock the potential of commercial agriculture, develop agricultural VCs, generate economies of scale, drive innovation, and boost export markets. Senegal has many producer associations, cooperatives, and inter-professions but agricultural VCs are not organized to connect buyers and sellers and improve competitiveness.

(f) High gender inequality. With a United Nations Gender Inequality Index of 0.530, Senegal ranked 131 out of 170 countries in 2021. Women are the backbone of agriculture in Senegal yet enormous gender gaps persist, specifically related to the access to productive resources. Despite policies on gender equality, the persistence of gender disparities is shaped by: (i) a lack of technical expertise on identifying and addressing gender gaps; (ii) agricultural sector policies and programs not adequately considering gender; and (iii) social pressures preventing women from engaging in income-generating activities. As a result, women have much lower incomes and have more limited access to decision-making roles in the food system.

13. **National policy and strategy documents have consistently advocated the emergence of a vibrant agriculture sector.** The Government of Senegal, through the *Plan Sénégal Emergent* (National Development Plan, PSE) aims at achieving middle-income status by 2035 and has adopted strategies to guide the transformation of the agriculture sector by enhancing productivity growth and regional competitiveness, developing VCs to improve national food security and food sovereignty, and increase resilience to external shocks. These strategies include the National Livestock Development Plan (PNDE)²² being implementing by the Ministry of Livestock and Animal Production (*Ministère de l'Élevage et des Productions Animales*, MEPA), the National Strategy for Food Security and Resilience (SNSARS), and the new Senegal Food Sovereignty Strategy in response to rising food and fertilizer prices. Public expenditure in the agricultural sector is increasing moving from US\$97 million to 160 million between 2020 to 2023 but mostly oriented to provision of input subsidies.

14. **The project will adopt a holistic and integrated approach, complementing other programs and projects that support the agriculture sector in Senegal and leveraging the regional added value offered by FSRP.** It will work in synergy with the ECOWAS, which coordinates the overall program, the Regional Center for Agro- and Hydrometeorology of CILSS (Agrhymet), and Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (*West African Council for Agricultural Research and Development*, CORAF), as specified in the FSRP Phase 1 PAD. It will aim to reduce women's vulnerability to shocks and increase their contributions and benefits from the food systems. Specifically, the project will build on the achievements of or complement several projects, including WAAPP; Agriculture and Livestock Competitiveness Program for Results (PCAE, P164967); Sahel Irrigation Initiative Support Project (PARIIS, P154482); Regional Sahel Pastoralism Support Project Phase 2 (PRAPS-2, P173197); Senegal Jobs, Economic Transformation and Recovery Program (PRES, P174757); Accelerating Impacts of the Consultative Group on International Agricultural Research (CGIAR) Climate Research for Africa project (AICCRA, P173398); and Accelerating investments in NBS to address climate adaptation in Least Developed Countries project (P178931).

²² MEPA. 2014. PNDE



C. Relevance to Higher Level Objectives

15. **FSRP Phase 3, also referred to as FSRP-SN, aligns with key World Bank (WB) strategies.** The project will support the Africa Regional Integration and Cooperation Strategy (2021–2023, Report No. 154458-AFR), specifically Pillar 2 (Promoting Trade and Market Integration) through trade facilitation and regional VC development; and Pillar 4 (Reinforcing Resilience) through agro-pastoralism, food security and CC interventions. FSRP-SN will further the WB’s 2021 United Nations Food Systems Summit pledge to optimize public spending and mobilize private capital to achieve global food system transformation.

16. **Inclusion of Senegal in FSRP will advance two key WB commitments in the region: the GGWI and the Next Generation Africa Climate Business Plan.** Senegal is a proactive country in the implementation of the GGWI, for which an agency with ambitious means and mandate has been set up. The project will contribute to its four of its pillars: Pillar 1 (Investment in small and medium enterprises and strengthening of VCs), Pillar 2 (Land restoration and sustainable ecosystem management), Pillar 3 (Climate-resilient infrastructure and access to renewable energy), and Pillar 5 (Capacity building).

17. **The proposed project is aligned with the Country Partnership Framework (CPF) 2020–24** (Report No. 143333-SN). By addressing factors constraining sustainable production, productivity, and competitiveness, while fostering climate adaptation and mitigation, the project will directly support CPF Focus Area 2 (Boost competitiveness and job creation through private sector-led growth), particularly objective 2.4 (Boost the competitiveness of agriculture and related VCs); and CPF Focus Area 3 (Increase resilience and sustainability in the context of growing risks), particularly objective 3.1 (Promote and protect resilient livelihoods, ecosystems, and infrastructure in the face of CC). The project aims to meet the IDA20 Policy Commitments on Gender (GEN2 on productive economic inclusion).

18. **It will also directly contribute to the PSE.** The proposed project is fully aligned with PSE’s Axis 1 (Economic structural transformation and growth) and its strategic objectives 1.1 (Promote sectors that drive growth, exports, and social inclusion), 1.5 (Strengthen the foundations of high productivity), and 2.10 (Reduce the degradation of the environment, natural resources, and the adverse effects of CC).

19. **The operation is consistent with the Paris Agreement and the country’s NDC.** The NDC targets agriculture (which contributed 43.8 percent of Greenhouse Gas (GHG) emissions in 2010) as one of the key sectors to address climate mitigation (through increased carbon sequestration) and adaptation (see details in Annex 4). By investing in climate-smart technologies, innovations, and management practices and building capacities on ILM, increasing water-use efficiency, water conservation, and use of renewable energy, the project will contribute to mitigating GHG emissions, enabling Senegal to transition to low-carbon agriculture and livestock production.

D. Multiphase Programmatic Approach (MPA)

20. **FSRP Phase 3 will retain the same Theory of Change, Program Development Objective, and Program Development Objective Indicators as Phases 1 and 2.** Each is described in detail in the FSRP Phase 1 PAD. With the addition of Senegal, the program will cover 8 out of 15 ECOWAS countries. As for all FSRP countries, Senegal will benefit from the higher level political and technical added value from ECOWAS, CILSS and CORAF, and will directly contribute to boost the impact of regional activities.

21. **Senegal will play a critical role in building food system resilience in the region.** Senegal, by its size, its diverse agro-ecological systems, its dynamic pool of experts and reference institutions, and its strategic geographical position, at the intersection of trade corridors in the region, is expected to be a key actor of



the program. It is home to advanced agro-meteorological centers, has research and innovation capacity (including its RCoE on dry cereals and Inter-states School of Sciences and Veterinary Medicine (*Ecole Inter-Etats des Sciences et Médecine Vétérinaires*, EISMV) and nurtures dynamic partnerships with international research institutions. It is also a leader on transition towards more sustainable systems of agriculture production and landscape management as well as a major player in regional trade with the Dakar region serving as an import and export hub. Annex 8 describes in detail Senegal's contributions to the regionality of the program while the MPA Program Framework is in Table 1 below.



Table 1: MPA Program Framework

Phase #	Project ID	Sequential or Simultaneous	Phase's DO	Countries	IPF or PforR	IBRD Amount (US\$M)	IDA Amount (US\$M)	Other Amount (US\$M)	Approval Date	Estimated Environmental & Social Risk Rating
I	P172769	Simultaneous	To increase preparedness against food insecurity and improve the resilience of food systems in participating countries.	ECOWAS, CILSS CORAF, Burkina Faso, Mali, Niger, Togo	IPF	0.00	330.00	71.00	Nov. 18, 2021	Substantial
II	P178132			Chad, Ghana Sierra Leone	IPF	0.00	315.00	0.00	July 29, 2022	Substantial
AF	P180211			Sierra Leone	IPF	0.00	50.00	0.00	Dec. 15, 2022	Substantial
AF	P181088			Sierra Leone	IPF	0.0	0.00	25.0	July 27, 2023	Substantial
AF	P181139			Togo	IPF	0.0	0.00	20.0	August 11, 2023	Substantial
III	P180244			Senegal	IPF	0.00	200.00	66.00	January 18, 2024	Substantial
				Total		0.00	895.00	182.00		
		Revised Financing Envelope including other fundings					US\$1077.00			
		Board Approved Financing Envelope including other fundings					US\$811.00			
		Of which IDA					US\$695.00			



II. PROJECT DESCRIPTION

A. Project Development Objective

(i) PDO Statement

22. To increase preparedness against food insecurity and improve the resilience of food systems in Senegal.

(ii) PDO Level Indicators

23. As for all FSRP countries, the key results indicators in Senegal include: (i) intra-regionally traded production in selected VCs (percentage), (ii) reduction of food insecure people in project targeted areas (percentage), (iii) project beneficiaries (number and percentage of female beneficiaries), (iv) food system actors accessing hydro and agrometeorological advisory services (number and percentage of female beneficiaries), (v) land area under ILM practices (CRI, ha), and (vi) producers adopting climate-smart agriculture technologies and services (number and percentage of female beneficiaries).

B. Project Components

24. **The components and sub-components for FSRP-SN will remain the same as those for Phases 1 and 2.** These are: (i) Digital Advisory Services for Regional 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 Component (CERC); and (v) Project Management. Additional information on linkages of Senegal's activities to the regional program can be found in Annex 8.

COMPONENT 1: DIGITAL ADVISORY SERVICES FOR REGIONAL AGRICULTURE AND FOOD CRISIS PREVENTION AND MANAGEMENT (US\$8 MILLION EQUIVALENT, IDA)

25. This component is coordinated at the regional level by CILSS/AGHRYMET and has the following objectives: (i) enhance decision support systems with demand-driven information services to increase the effectiveness of agriculture and food crises prevention and management; and (ii) strengthen regional capacity and institutional sustainability, as well as the capacity to adapt to CC. CILSS/AGHRYMET receives resources under FSRP-1 to fulfil its mandate of collecting, processing, and disseminating climate and other information necessary for improving food security, and strengthening mechanisms such as the *Cadre Harmonisé* and the ECOWAS Agriculture Information System database.²³ At the national level, this component will be led by MAERSA. Linkages will be established with Senegal Digital Economy Acceleration Project (P172524) aiming to expand access to affordable and climate resilient broadband connectivity.

26. The regional spill-over effects under this component include: (i) agro-met data: contribution to climate intelligence in the region jointly with CILSS using its more advanced technology than other FSRP countries, building the capacity of countries in the region, using the expertise and hands-on experience of Senegal in generating, analyzing and exploiting agro-hydro-meteorological data; (ii) food security and market data: contribution to generate quality data to feed the *Cadre Harmonisé* and market prices information to monitor regional food prices; (iii) plant pest and disease prevention and control: enhancement of transboundary pest and disease surveillance and early response capacity, feeding the

²³ The Regional Integrated Agriculture Information System. <http://www.plateforme-ecoagris.net/>



regional early warning systems and allowing coordinated action; and (iv) digitalization: experiences and best practices adapted to various agro-ecological conditions in Senegal disseminated throughout the region, generating models and economies of scale for the other countries.

Sub-component 1.1: Upgrading Regional Food Crisis Prevention and Monitoring Systems (US\$4.5 million, IDA)

27. This sub-component seeks to: (i) improve national capacities for delivery of reliable information services on vulnerability, nutrition, and food security through *Cadre Harmonisé* and market information systems; (ii) reorganize and improve national pest and disease monitoring and management mechanisms; and (iii) strengthen regional collaboration for food crisis prevention.

28. FSRP-SN support will:

(a) Improve national capacity to deliver reliable information services on vulnerability, nutrition and food security: the project will finance (i) the collection and delivery at national and regional level of agro-meteorological data from the National Agency of Civil Aviation and Meteorology (*Agence Nationale de l'Aviation Civile et de la Météorologie*, ANACIM), through purchase of equipment, support to digitalization of data, and database upgrade; as well as from the Ecological Monitoring Center (*Centre de Suivi Ecologique*, CSE) which will be supported to monitor vegetation index, water points, biomass situation, and wildfires; and (ii) the completion of advanced studies to fill information gaps on nutrition and food security, feeding into the *Cadre Harmonisé* by the Executive Secretariat of the National Food Security Council (*Secretariat Exécutif du Conseil National de Sécurité Alimentaire*, SE-CNSA), as well as the Food Security Commission (*Commissariat à la Sécurité Alimentaire*, CSA) to better inform risk-based decision making and help develop tailored actions to address food insecurity crisis risks.

(b) Reorganize and improve national pest and disease monitoring and management mechanisms: the project will support institutional capacity building on transboundary plant pest and disease surveillance and control. The project will finance (i) the rehabilitation, construction and equipping of surveillance units of the Plant Protection Directorate (*Direction de la Protection des Végétaux*), and capacity building of their staff as well other actors involved in the surveillance network, including staff from the National Agency for Agricultural and Rural Advisory Services (the national extension agency, *Agence Nationale de Conseil Agricole et Rural* (*National Agency for Agricultural and Rural Advisory Services*, ANCAR) and village committees; and (ii) the integration of plant pest and disease surveillance information and agrometeorological information into ANCAR tools (through the Agricultural Services and Digital Inclusion in Africa platform).²⁴

(c) Strengthen regional collaboration for food crisis prevention: FSRP-SN will contribute to enhancing collaboration, knowledge sharing and cross-fertilization of best practices between the relevant national institutions in Senegal and other countries in the region, facilitated by CILSS/AGHRYMET.

Sub-component 1.2: Strengthening Digital Hydromet and Agro-Advisory Services (US\$3.5 million, IDA)

29. This subcomponent seeks to: (i) improve the production of climate, hydromet, agromet and impact-based information for use by decision-makers, farmers, livestock producers and other food system actors; (ii) support timely delivery and use of essential agro-hydrometeorological information to key users; and

²⁴The Agricultural services and digital inclusion in Africa is a FAO designed program, implemented by ANCAR, aimed at providing real-time information to producers and to improve data collection in the field using modern technological tools.



(iii) strengthen the financial and institutional sustainability of national and regional institutions providing climate, hydromet and agromet information. Under this sub-component, FSRP-SN will make investments to:

(a) Improve the production of climate, hydromet, agromet and impact-based information for use by decision-makers, farmers, livestock producers and other food system actors: the project will finance (i) the capacity building of staff from MAERSA, MEPA, and ANCAR to exploit agro-climatic data produced by ANACIM, CSE and CILSS, and improvement of agro-climatic modeling capacity; as well as (ii) the establishment of effective mechanisms for information sharing between government agencies, through the establishment of partnership agreement(s) between data providers and data users.

(b) Support timely delivery and use of essential agro-hydrometeorological information to key users: the project will support (i) ANCAR's e-advisory services incorporating information generated under (a) above with the development of a digital mega-platform including all digital applications available to farmers and a call center to help farmers transition to digital information; and (ii) the training of extension service agents and farmers to use digital applications on agro-meteorological data to support agriculture production. This will include the production of e-advisory tailored to meet women's information access gaps. Particular attention will be paid to people who are illiterate, have few commands of digital technology, and to national languages. Moreover, the project will support the establishment of public-private partnerships for the broader dissemination of agro-climatic information with adapted business models.

(c) Strengthen the financial and institutional sustainability of national and regional institutions providing climate, hydromet and agromet information by sharing of experiences, tools, and practices at the regional level, under CILSS's leadership.

COMPONENT 2: SUSTAINABILITY AND ADAPTIVE CAPACITY OF THE FOOD SYSTEM'S PRODUCTIVE BASE (US\$96.7 MILLION EQUIVALENT IDA, US\$1.0 MILLION, PRIVATE CONTRIBUTION)

30. This component's objectives are to (i) strengthen national agricultural research systems; (ii) strengthen the policy environment for landscape governance through multisectoral inclusive policies and regulations to avoid, reduce, and reverse land degradation; and (iii) support landscape units under integrated management that are able to achieve multiple objectives sustainably (including food production, provision of ecosystem services, protection of biodiversity, and improvement of local livelihoods). Private contribution will be made by project holders receiving Matching Grants financing their sub-projects. At the regional level, CORAF will ensure the coordination of this component across all FSRP countries and consolidate the regional research system established under the WAAPP, using funds from Phase 1. At the national level, this component will be led by MAERSA, except for activities related to the National Laboratory for Livestock and Veterinary Research (*Laboratoire National de l'Élevage et de Recherches Vétérinaires* LNERV) and EISMV which will be led by MEPA.

31. The regional spill-over effects under this component include: (i) on research and dissemination of innovations and technologies: through its RCoEs and other veterinary and livestock research institutes, Senegal will be able to play a leading regional role in developing and disseminating climate-resilient seeds as well as improved breeds, animal nutrition, and vaccine production capacity for livestock to support production efficiency and climate adaptation in the region. Senegal, as regional hub for innovations, will help feed and boost CORAF's regional interventions including the technology marketplace; (ii) on the regional human capital building: Senegal will offer opportunities to host and train master and PhDs



students from the region in its reference research and education institutions; and (iii) on ILM: Senegal will serve as a regional proof of concept to pilot NBS to reverse and prevent land degradation and increase landscape resilience to CC in its diverse agro-ecosystems, for scale-up in other countries of the region. More detail is provided in Annex 7.

Sub-component 2.1: Consolidate Regional Agricultural Innovation Systems (US\$48.3 million, IDA)

32. This sub-component seeks to strengthen the national and regional research and extension systems to deliver and widely disseminate improved technologies and innovations including climate-smart, nutrition-sensitive, gender and youth friendly technologies, bio-digital applications as well as technologies supporting agro-processing and commercialization for value addition. The activities under this sub-component are essential to achieving Senegal's NDC goals for the agriculture and food sector and will contribute to a paradigm shift towards applying climate smart agriculture practices.

33. Specifically, the project will focus on:

(a) Strengthening national and regional research centers: The project will strengthen (i) the RCoE for dry cereals (millet, maize, sorghum) and associated crops (groundnuts, cowpeas) led by the Regional Study Center for Drought Adaptation Improvement (*Centre d'Etude Regional pour l'Amélioration de l'Adaptation à la Sécheresse – CERAAS*) of the Senegalese Agricultural Research Institute (*Institut Sénégalais de Recherche Agricole, ISRA*),²⁵ the regional leader in the generation of new drought-resilient varieties and other climate-smart agri-food technologies; and (ii) the LNERV of ISRA and EISMV to develop zotechnical research programs on genetics, animal health and nutrition for improved livestock management technologies adapted to CC. Specifically, the FRSP-SN will finance (i) research infrastructure and equipment; (ii) International Standard Organization (ISO) certification/accreditation and quality assurance development; (iii) research programs with a focus on climate-smart plant breeding, seed systems, agri-food processing, phytopathology, entomology, bio-digital applications, animal breeding, feeding and vaccines adapted to local conditions, as well as gender-smart focused technologies; and (iv) master and PhD scholarships for young scientists. Activity (iii) above will contribute to reduce methane emission intensity (see GHG Accounting Annex), through improved livestock management including improved animal husbandry and feeding practices, as well as improved animal health.

(b) Deepening and expanding the Regional Research and Development (R&D) networking: The project will deepen and extend R&D networks and technology transfer through the financing of: (i) competitive and commissioned research sub-projects based on priority research themes identified, to be managed by the National Funds for Agricultural and Agri-Food Research (*Fonds National de Recherches Agricoles et Agro-Alimentaires, FNRAA*); (ii) competitive sub-projects to support large-scale dissemination of research products on both crops and livestock and the multiplication of new improved seed varieties (including forage crops), to be managed by the National Fund for Agro-Sylvo-Pastoral Development (*Fonds National de Développement Agro-Sylvo-Pastoral, FNDASP*); (iii) capacity building and equipment as institutional support to strengthen FNRAA and FNDASP; and (iv) regional scientific exchanges and workshops for joint planning of R&D programs and to promote the dissemination of innovations and technologies. The project will support generating, transferring, and adopting gender-smart technologies created under the FSRP.

²⁵ The RCoE includes in addition CERAAS, the Food Processing Technologies Institute (*Institut de Technologies Alimentaire, ITA*), the Macro-Economic Analysis Office (*Bureau d'Analyse Macro-Economique/ISRA*), National Agronomic Research Center of Bambey and National Superior School of Agriculture (*Ecole Nationale Supérieure d'Agriculture - ENSA*).



(c) Modernizing national agricultural extension and advisory services: The project will support the modernization of agricultural advisory and extension services, including the capitalization of agro-ecological practices, and the use of digital agriculture tools. The project will finance: (i) the construction and equipping of ANCAR's agricultural advisory center of excellence including an e-advisory center; (ii) capacity-building of ANCAR's staff to upgrade its management procedures as well as technical skills in advanced technologies; (iii) ISO management certification of ANCAR to ensure a quality approach; and (iv) management and coordination by ANCAR of the national agro-sylvo-pastoral advisory system (including private advisory services providers), with a particular focus on agro-ecological transition aspects. A specific mapping of women's information and advisory needs and access capabilities will be prepared to tailor all advisory services products appropriately.

(d) Promoting access to and exchange of technology: The project will finance: (i) in conjunction with CORAF, the creation of participatory field schools and technology parks for demonstration and adoption incentives; (ii) the promotion of modern technology platforms and services, including on mechanization, soil fertility management, and purchase of equipment; and (iii) study tours and fairs enabling regional technology transfer with CORAF support. Technologies, seeds, and livestock choices for these will consider gendered preferences and roles.

Sub-component 2.2: Strengthen Regional Food Security through ILM (US\$48.4 million, IDA; US\$1 million private contribution)

34. This sub-component seeks to contribute to improved food security for rural households and build their resilience to climate variability by supporting ILM as a long-term collaborative process. The project will support interventions to:

(a) Establish participatory territorial ILM system: FSRP-SN will support a multi-stakeholder territorial planning process at community level to sustainably use and manage local resources and be more responsive to the needs of producers and markets. Within each of the six agro-ecological zones of Senegal, two communes will be selected to develop ILM. Those territorial planning processes and projects will be facilitated by the Center for Promotion and Territorial Development (*Centre de Promotion et de Développement Territorial*).²⁶ This sub-component will finance: (i) the mobilization of scientific and technical assistance (TA) and workshops to prepare and facilitate such planning processes, including the development of initial studies and investment plans, integrating NBS to support an agro-ecological transition of the food systems and improve landscapes productivity and resilience. These planning processes will enable a specific inclusive role for women farmers and land-users and leverage the women's local knowledge and uses for land and resources; (ii) the preparation of territorial planning guides and training modules, exploiting experience from the ILM plans, and the provision of training to public sector officials involved in territorial planning to help scale up and institutionalize ILM; (iii) the formulation of public policy proposals and a stock-taking of the ILM processes; and (iv) capacity building and equipment to strengthen the National Institute of Pedology (*Institut National de Pédologie*, INP).

(b) Enhance the resilience of ecosystem and food system in priority landscapes: Using plans and studies developed under (a) above, the project will finance: (i) public investments into Sub-

²⁶ The Center for Promotion and Territorial Development is organized at district level, under the responsibility of Ministry of Local Authority and gathers public servant from MEPA, MAERSA, ANCAR, among others.



projects (SPs) through grants, managed by FNDASP;²⁷ (ii) private investments (estimated at US\$ 1 million) through matching grants (MG) that will support producer's organizations (POs) in engaging in local business opportunities with a focus on NBS to accelerate an agro-ecological transition, managed by MAERSA project implementation unit (PIU). Private contribution will be made by project holders receiving MG to financing their sub-projects; and (iii) finance TA. Women-owned and -managed plots, will be prioritized using a preferential system of selection.

(c) Secure resilient ecosystem and food system beyond priority landscapes: FSRP-SN will finance the following pre-identified public SPs to restore natural assets that support production: (i) agricultural valorization of septage and manure for soil fertilization; (ii) building on innovative irrigation solutions developed under PARIIS, rehabilitation of 4,700 ha of irrigation schemes in the Senegal River Valley and equipping these with modern water and labor-saving irrigation technologies for small-scale perimeters led by women and youth, as well as 1,500 ha of the Dioulol basin to stop water erosion and increase the productive capacity, to be managed by the National Company for the Development and Exploitation of the Senegal River Delta Lands and the Valleys of the Senegal River and of the Faleme (*Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal et des Vallées du Fleuve Sénégal et de la Falémé, SAED*); and (iii) restoration of selected landscapes²⁸ including small infrastructure, equipment, training and operating costs, to be managed by INP.

COMPONENT 3: REGIONAL FOOD MARKET INTEGRATION AND TRADE (US\$76.3 MILLION EQUIVALENT, IDA; US\$30 MILLION IFAD; US\$35 MILLION, PRIVATE CONTRIBUTION)

35. The objective of Component 3 is to facilitate the trade of agricultural goods and inputs within and across national borders in West Africa, to increase intra-regional food trade between surplus and deficit areas, and value creation in regional priority VCs. ECOWAS will ensure the regional coordination of this component, utilizing the resources it received under Phase 1. At the national level, MAERSA will be the responsible agency for sub-component 3.1 and the sub-component 3.2, and MEPA will be leading the livestock aspects of the sub-component 3.2. VC investments will be made through climate-smart subprojects.

36. The regional spill-over effects on this component include: (i) on the regional food reserve system: the inclusion of an improved Senegal food reserve system in the regional mechanism; (ii) on trade facilitation: as an important regional trade actor, Senegal will more efficiently contribute to data generation including by contributing to the Agriculture Trade and Market Scorecard (EATM-S), as well as policy dialogue, design and implementation of regional trade policies and regulations under ECOWAS coordination; and (iii) on regional VCs: VCs selected by Senegal will complement other VCs prioritized under FSRP 1 and 2, building on the country's comparative economic advantages to strengthen climate resilience nationally and regionally. Private contribution will be made by project beneficiaries receiving MG to finance their sub-projects.

²⁷ Landscape level SPs will include rehabilitation of small irrigation infrastructure and development of floodplains/inland valleys, water harvesting infrastructure, light anti-erosive infrastructure, afforestation, scaling up of degraded land recovery techniques, etc.

²⁸ Bushra, Koussanar, Diatock valley, Djilacounda valley, Simal valley, Keur Moussa, Djender, Notto, Diobass, Toubatoul.



Sub-component 3.1: Facilitate Trade across Key Corridors and Consolidate Food Reserve System (US\$3.3 million, IDA)

37. ECOWAS will implement the regional-level activities of sub-component 3.1 as outlined in the PAD of FSRP Phase 1. In Senegal, investments will focus on:

(a) Implementation of the ECOWAS Agriculture Trade and Market Scorecard (EATM-S) mechanism: The EATM-S, developed under FSRP Phase 1, aims to increase accountability by tracking countries' implementation of regional policies and regulations, including the ECOWAS Trade Liberalization Scheme and the ECOWAS Agricultural Policy. FSRP-SN will support the participation of Senegal in the EATM-S, in particular collection of data, capacity building and dissemination of information. It will also support the participation of Senegal in ECOWAS cooperation frameworks to facilitate regional trade for the selected priority crops, as well as promote awareness and build capacity of its stakeholders on regional regulations, standards, and procedures.

(b) Build national capacity for agricultural trade negotiations by providing analysis and foresight to inform trade strategies, action plans and fiscal policy positions for selected regional priority products, to assess and prioritize value chains as and when needed. Senegal will participate in the ECOWAS West Africa Rice Observatory and the project will finance a mapping of the selected priority VCs including their contribution to national and regional food sovereignty, focusing on trade flows, both formal and informal (especially for cattle), their competitiveness, and trade bottlenecks, and provide advice to adapt strategies as well as trade and fiscal policies related to these products.

(c) Improve National and Local Food Security Reserve Performance: At the national level, the project will support: (i) strengthening the technical and management capacity of producers and their organizations to manage first-level stocks (storage of dry cereals, financed under sub-component 3.2); and (ii) strengthening the capacity of CSA to coordinate and monitor national food security stocks and strengthening the capacity of the Village Stock Security coordination cell under the supervision and coordination of MAERSA.

38. To achieve the above, FSRP-SN will finance TA, meetings and training workshops, participation in regional events for knowledge and experience sharing on regional market trade, studies and analytical work, as well as supporting operational costs of specialized services.

Sub-component 3.2: Support the Development of Strategic and Regional Value Chains (US\$73 million, IDA; US\$30 million IFAD; US\$35 million, private contribution)

39. This sub-component will focus on selected priority VCs, that have the potential to be competitive at regional level, contribute to regional and national food and nutrition security, reduce GHG emissions and enhance climate resilience of smallholder farmers. The selected regional priority VCs in Senegal are among the most vulnerable to the impacts of climate change - dry grains, horticulture crops, dairy and meat. Nevertheless, a level of flexibility will be retained given the typical market dynamics. Climate-smart financing will represent US\$45 million. FSRP-SN will contribute to the structuring of the agropole's supply chains and will strengthen producers organizations (POs) in the agropole's catchment areas.²⁹ Co-financing of US\$30 million has been confirmed from IFAD that would increase investments in the selected

²⁹The Senegal Agropoles project currently includes five agro-industrial transformation zone being established throughout the country, covering the North, South, East, West and Central zones, and promoting value chains with high development potential. <https://agropole.sn/>



VCs and support VC actors.³⁰ Collaboration with the International Finance Corporation (IFC) will help attract large-scale investment in value-chains and structure public-private partnerships where possible.

40. Under this sub-component, FSRP-SN will support the following interventions:

(a) Strengthen VCs organization and financing: This sub-component will finance US\$40.5 million to eligible producers to support climate-smart VC development including agroecological transition. Producers who are most vulnerable to the impacts of climate change such as women and young people, and their organizations, will receive greater support. For dry cereals, seed multiplication, natural fertilization, investments in climate-smart, energy-efficient storage, and processing will be prioritized. This will include investment in solar energy. For horticulture, agroecological production, smart irrigation equipment and access to seeds and energy-efficient storage facilities will be promoted. For dairy and meat, the focus will be on pasture management, fodder production for better digestibility and lower emissions, improvement of production, processing, and marketing. As a result of these activities, the emission intensity of animal protein production will reduce mainly due to enhanced livestock productivity. Investments in climate smart facilities and equipment (including energy-efficient cold-chain, solar irrigation, solar processing, anaerobic digestors and others³¹), sustainable input supply mechanisms (soil fertility for carbon sequestration, anaerobic digestors, climate-smart seed multiplication for adaptation and others³²), the emergence of specialized business and VC services, and agroecology to enhance the climate resilience and sustainability of the food system will be made (see also Annex 7). The project will prioritize climate-smart, low-carbon technologies, NBS and innovative practices. Several of these VCs are heavily gendered and targets will be established to support women's investment needs in female-dominated sub-sectors such as processing and retail of dairy, poultry, and horticulture products.

(b) Support agricultural competitiveness and market access infrastructure. This sub-component will finance capacity building within national institutions to develop and implement international standards and ECOWAS regional and national regulations for improved product quality, such as Sanitary and Phytosanitary Standards (SPS) implementation measures, certification, traceability, and quality control (feed, seeds, dairy, meat). It will include: (i) climate-smart agriculture investments under MAERSA (US\$4.5 million): the rehabilitation and equipping of national and regional seed control laboratories and capacity building; training of certified climate-smart seed multipliers; the digitalization of seed control and certification as well as agriculture production data; agriculture campaign monitoring; and equipment and operational support; and (ii) for investments under MEPA: TA for public and private service providers on animal health, investments in SPS, and financing studies for the relocation and construction of a modern slaughterhouse³³ in the Dakar-Thiès area, to replace the current outdated infrastructure; and equipment and operational support.

(c) Strengthen multi-stakeholder coordination and promote a private sector enabling environment: The project will invest in (i) strengthening multi-stakeholder mechanisms for the governance of the selected VCs (*interprofessions*) and innovation platforms (in particular for

³⁰This co-financing is expected to be approved during FY 24.

³¹ Including mechanization, village storage facilities for dry cereals, aggregation and processing facilities, milk collection and processing, and waste treatment units, etc.

³² Including climate-smart seed multiplication for maize/sorghum/millet, production of concentrate feeds, delivery of veterinary and artificial insemination services and improvement of breeds, improved fodder, and forage, etc.

³³ On-going consultations with IsDB for potential financing of the construction of the slaughterhouse.



market-oriented urban and peri-urban dairy, and poultry); (ii) supporting POs involved in the targeted VCs (especially women-led PO's and women seeking to strengthen their production in groups and youth seeking to start farming as a livelihood); (iii) building the operating capacities of FI partners (Fonds d'Appui à la Stabulation - FONSTAB, Fonds d'Appui au Développement du Secteur Rural FADSR); and (iv) public-private dialogue to catalyze policy reforms in agri-food and input trade.

COMPONENT 4: CONTINGENCY EMERGENCY RESPONSE COMPONENT (US\$0 MILLION)

41. The Contingency Emergency Response Component (CERC) is a mechanism for Borrowers (Senegal) to access funds rapidly to respond to an eligible crisis or disasters and health emergency. Standard conditions will apply to allow the activation of the CERC and ensure its adequate implementation, completion, and evaluation. An operation manual will detail implementation arrangements including activities that may be included, eligible expenditures, financial management (FM), procurement procedures and methods, as well as environmental and social (E&S) standards management framework for the implementation of CERC related activities.

COMPONENT 5: PROJECT MANAGEMENT (US\$19 MILLION EQUIVALENT, IDA)

42. Project financing under this component will be split between MAERSA and MEPA and will cover all aspects of project management at the national level. This will include operation, equipment, and staff costs of the two PIUs to be established under the two ministries managing activities under their mandate. This component will also support the National Steering Committee (NSC) and National Technical Committee (NTC), and participation of the PIUs in the Regional Steering Committee (RSC) under the leadership of ECOWAS. The Project Implementation Manual (PIM), to be approved before project effectiveness, will detail these aspects (see also Annex 1 on implementation arrangements).

43. **Maximizing Finance for Development (MFD).** In line with the WB's MFD framework, the project is committed to ensuring efficient use of public resources in mobilizing and enabling private investments to catalyze sustainable investment. This includes addressing key constraints in the agri-finance market to improve access to credit through (i) TA for developing financial products that meet sector needs; (ii) building the capacity of the VC participants to meet the requirements of FIs; and (iii) linking VC participants with FIs. In addition, the strengthening of multi-stakeholder coordination and VC governance will catalyze policy reforms in agri-food and input trade and improve the enabling environment for the private sector. The project is expected to directly mobilize at least US\$36 million from various VC³⁴ actors that are engaged in production, processing or trade along the VCs through MGs promoting private sector led technology dissemination. Opportunities to develop synergies with other investments from the IFC will also be sought.

44. **Gender.** The project, as in all phases of FSRP, will specifically tackle women's access to productive resources and income and their decision-making power over community resources. Specific gender gaps and constraints have been identified across components. The projects' gender-specific work will be implemented in close collaboration with existing initiatives of other WB financed projects, including the AICCRA projects' incubators on women's climate-smart agriculture businesses and the Gender and Land Trust Fund (TF0B7247). Senegal will join the gender working group for FSRP, coordinated by CORAF, and participate in initiatives such as the gender-smart technology markets, women's seed business training and capacity building. Specifically, the project will address identified gender gaps in Senegal, as detailed in Annex 6.

³⁴ US\$27 million will be mobilized through IDA and US\$9 million through IFAD, cf. Annex 7.



45. **Citizen engagement.** The project commits to consult with relevant stakeholders throughout project preparation and implementation to ensure that concerns from POs, civil society and communities are adequately considered to adapt approaches as necessary. This provides confidence that the approaches will remain relevant for beneficiaries and implementation partners, realistic, and achievable and will contribute to the sustainability of the results. Such consultations processes will be embedded in project decision making and reflected in the PIM. These will be critical especially under subcomponent 2.2, to avoid conflict over land use planning, enhance social cohesion, reduce inequity, and offer opportunities to youth and women from targeted communities. Survey on beneficiaries’ satisfaction will be conducted regularly and findings will be considered to inform stronger implementation.

46. **Climate adaptation and mitigation.** The project is aligned with the Paris Agreement (para. 63). The project will support the continuing development and adoption of climate-smart agriculture technologies, assets and services that include improved, high-yielding, early-maturing and drought- and pest-resistant plant varieties, best cropping management practices as well as improved livestock breeds and animal husbandry practices (through sub-component 2.1 and sub-component 3.2), improved land management approaches and improved irrigation technologies (through sub-component 2.2), as well as climate-smart infrastructure that will help to mitigate or adapt to CC (through sub-components 2.1, 2.2 and 3.2). Adequate climate data and forecasts will be widely disseminated using digital technologies (through Component 1). Annex 4 provides more details on the project’s GHG accounting, contribution to NDC, and climate adaptation and mitigation activities.

47. The budget of FSRP-SN, consolidated by component and sub-component and providing a breakdown of the portions to be managed by MAERSA and MEPA, is displayed in Table 2.

Table 2: Budget summary

Component	Project budget US\$ million				Budget share per component (%)
	Managed by MAERSA	Managed by MEPA	Total	Of which, regional activities	
Digital Advisory Services for Agriculture and Food Crisis Prevention and Management	8.0	0	8.0	6.3	4.5
Upgrading Food Crisis Prevention & Monitoring Systems	4.5	0	4.5	4.5	
Digital Hydromet and Agro-Advisory Services for Farmers	3.5	0	3.5	1.8	
Sustainability and Adaptive Capacity of the Food System’s Productive Base	95.3	2.4	97.7	56.6	39.0
Consolidate Regional Agriculture Innovation System	45.9	2.4	48.3	31.9	
Strengthen Regional Food Security through Integrated Landscape Management	49.4	0	49.4	24.7	
Regional Food Market Integration and Trade	66.6	74.7	141.3	72.2	50.0
Trade across Key Corridors and consolidate Food Reserve System	3.3		3.3	3.3	
Support to Development of Strategic and Regional Value Chains	63.3	74.7	138.0	69.0	
CERC	0	0	0	0	0
Project Coordination	10.0	9.0	19.0	9.5	6.5
TOTAL	179.9	86.1	266.0 ³⁵	144.7	100.0

³⁵ Budget includes US\$200 million from IDA, US\$30 million from IFAD and US\$36 million as private capital mobilized.



C. Project Beneficiaries

48. **FSRP-SN aims to reach at least 600,000 farmers.** Direct beneficiaries include individual men and women (crop and livestock) farmers, small-scale producers and processors, and members of agricultural micro-SMEs and SMEs. At least 40 percent of beneficiaries across all project components will be women, with higher targets in specific activities. Additional beneficiaries include other food system actors, such as government line ministries and agencies, POs, financial service providers, other public and private institutions, and services, as well as ECOWAS, CILSS and CORAF, and other FSRP countries.

D. Rationale for World Bank Involvement and Role of Partners

49. **FSRP offers a unique opportunity for the WB to work collectively with West African regional organizations and countries to address key drivers of food insecurity in the region and build the resilience of the food system.** The WB has unique expertise and experience to support the development and implementation of regionally integrated, multisectoral approaches to tackle food insecurity and malnutrition across the region. It has extensive experience in addressing agricultural development, sustainable natural resources management, CC mitigation and adaptation, social protection, innovation and trade policy, and private sector development.

50. **Convening power.** FSRP works with a range of partners in the region to ensure that the best available knowledge and capacities are harnessed. This program offers a platform to connect other initiatives, as well as to attract additional financial sources (as evidenced by TF resources attached to the program). Partners include the African Development Bank, the CGIAR, Climate Risk and Early Warning Systems Initiative, Club du Sahel, the French Development Agency, the Food and Agriculture Organization (FAO), IFAD, the International Institute of Tropical Agriculture, Islamic Development Bank (IsDB), Kingdom of the Netherlands, the Organization of Economic Co-operation and Development (OECD), the World Meteorological Organization, and others. FSRP-SN will benefit from US\$30 million in IFAD a co-financing to further support agriculture VC development under sub-component 3.2 and parallel financing from IsDB to finance the modern slaughter infrastructure for the Dakar/Rufisque/Thies area.

E. Lessons Learned and Progress on Learning Agenda

51. The FSRP-SN design incorporates lessons learned from the implementation of several regional projects, including WAAPP (P094084), PRAPS-2 (P173197), PARIIS (P154482), FSRP phases 1 and 2 (P172769, P178132), AICCRA (P173398), as well as other national projects in Senegal and the region. Additional learning from the MPA and other programs is included in Annex 5.

52. **Component 1: Sub-components 1.1 and 1.2** are largely based on lessons learned from the AICCRA project in Senegal. Collaboration of (public and private) agencies and organizations involved from quality data collection to provision of (digital) advisory services tailored to the needs of various users is crucial. FSRP-SN will help establish coordination mechanisms between institutions, and consolidate platforms, allowing for economies of scale and more efficient user access to services and data.

53. **Component 2: Sub-component 2.1** is based on lessons learned from the WAAPP achievements of the RCoE for dry cereals with respect to the development of technologies. FSRP-SN will help boost the RCoE's capacities to continue to develop new seed varieties as well as other innovations and prioritize their dissemination in Senegal and the region, starting with "ready to go" innovations such as those



previously developed under WAAPP to reach more producers across the entire region, facilitated by CORAF. **Sub-component 2.2** brings together lessons learned from other WB funded projects in local planning, notably FSRP phases 1 and 2, and PARIIS which developed several irrigation solutions based on modern water-labor-efficient technologies powered by solar energy systems in Senegal and across the Sahel region. FSRP will build on these achievements to improve water control and expand irrigated areas for a more climate-resilient food system. Senegal has also taken significant steps towards implementing ILM practices to tackle environmental, social, and economic challenges, with POAS having been instrumental in managing land and resources effectively in the Senegal River Valley since the late 1990s.³⁶ Senegal has a long experience in the development of Pastoral Units as best practice of ILM in the sylvo-pastoral zone. FSRP-SN will apply key factors of success of POAS including: the need for an active engagement and collaboration among key stakeholders, taking a learning-by-doing approach (allowing communities to gradually develop comprehensive regulations), and adapting to changing circumstances.

54. **Component 3: Sub-component 3.1.** embeds the experiences of ECOWAS and its national counterpart organizations (including the Ministry of Trade and SMEs, CSA, the Warehouse Receipt System Regulatory Body (*Organe de Régulation du Système de Récépissé d'Entrepôt*) with respect to regional market integration, as well as the specific experiences of Senegal. In particular, the good results of the Senegalese village grain storage facilities backed the decision to link them up with national/regional food reserves, that will be further developed with FSRP-SN under ECOWAS leadership. In **Sub-component 3.2.**, lessons learned with respect to the development of priority VCs (selection, competitiveness, role of private sector, link with financing institutions) include the value of MG to (i) tackle market failures that restrict farmers and agricultural SMEs' access to finance, and (ii) introduce new technologies and practices that contribute to higher productivity and generate positive E&S externalities. FSRP-SN will ensure that mechanisms that facilitate the engagement of project beneficiaries with FIs are put in place to enable the establishment of client relationships. Such an approach will also ensure that FIs and other Funds (FADSR and FONSTAB) will continue to provide financial services to beneficiaries beyond project closure.

55. **Crosscutting: Gender.** There is evidence that using targets and quotas can increase women's representation in national and communal decision-making. Lessons from PRAPS, demonstrate the value of nudging norms through quotas of representation in, for example, natural resource management bodies and local decision-making platforms. The AICCRA project has also supported a women's climate-smart agri-enterprise finance incubator in Senegal, which has demonstrated that while a pipeline of women-led agri-enterprises exists, they urgently need capacity building to be scalable, bankable, and investable. AICCRA has also provided key lessons in designing climate-smart tools to appropriately meet women's needs. FSRP-SN will use these experiences and tools for greater impact on gender gap reduction.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

56. FSRP-SN arrangements seek to ensure clear accountability and effective coordination between MEPA and MAERSA, in line with their mandates. To this end, two PIUs will be established to manage activities under MEPA's and MAERSA's respective mandate. Cross-cutting activities will be placed under MAERSA's management. Each PIU will be led by a Coordinator, and staffed with technical, safeguard, and procurement teams. A single financial management team will cover jointly the two PIUs. The PIUs will

³⁶ D'Aquino Patrick. 2015. Participatory development of collective rules for natural resource and land management. Lasting effects from the local to the national level. *Perspective* (33): pp. 1-4.



ensure the adequate project planning, supervision and execution of the annual work plans and budgets (AWPBs), monitoring and evaluation (M&E) and reporting, and communication, in compliance with fiduciary and E&S standards. The two PIUs will work in collaboration with relevant MAERSA and MEPA directorates and associated agencies to implement the project at central and field level. Implementation of selected activities will be delegated to other governmental bodies, private firms, professional organizations, or NGOs, under partnership agreements or contractual arrangements. MAERSA PIU will oversee consolidating financial, as well as AWPBs, M&E and project reports for the entire project and submission to the National Steering Committee in accordance with the PIM.

57. The project oversight and orientation will be provided by a joint National Steering Committee and a joint NTC, the composition, mandate, and operating procedures, of which, will be detailed in the PIM. The NSC will be co-chaired by the ministers of MEPA and MAERSA or their respective designees. At the regional level, activities will be overseen by the RSC under the leadership of ECOWAS. More details are provided on institutional arrangements in Annexes 1 and 2.

B. Results Monitoring and Evaluation Arrangements

58. **FSRP-SN will employ the M&E framework developed under Phases 1 and 2.** A detailed description of the technical arrangements underlying the regional M&E system can be found in the regional M&E Manual that has been validated by regional entities for phases 1 and 2. The FSRP M&E system ensures that data collection on the program’s key indicators is consistent and harmonized across countries.

59. **The regional partners and country PIUs are responsible for the internal monitoring of program outcome and output indicators as defined in the results framework.** In line with the regional M&E system developed to track progress on FSRP RF indicators, FSRP-SN’s M&E system will rely on the Kobo toolbox application for primary data collection and processing. Collected data will be validated by CILSS/AGRHYMET, CORAF and ECOWAS respectively and ECOWAS oversees the management of this centralized Kobo-server aggregating country-level M&E data. In addition, country M&E data will be stored and archived through the M&E system of ECOWAS. For Senegal, the MAERSA and MEPA PIUs M&E team will work closely and consolidate their PIUs reports to produce project semi-annual progress reports and feed the FSRP-SN RF. The PIM will elaborate a template for semi-annual report for easy and harmonized use and consolidation for both PIUs’ M&E teams. External service providers will be recruited to organize the baseline and evaluation surveys to monitor program indicators.

C. Sustainability

60. The program design focuses on two dimensions of sustainability—institutional and technical.

61. **Institutional sustainability:** FSRP aims to work with and build on the current institutional ecosystem for food system resilience, which comprises multiple bodies and systems. As detailed in the Phase 1 PAD, it will improve the sustainability of regional infrastructure and support the development and strengthening of national systems. FSRP Phase 3 will add Senegal as a critical trade and research hub to the FSRP countries and will support the development and consolidation of digital information systems, climate services, national agricultural research infrastructure, modern extension and advisory services, SPS systems, financial services and others, paying attention to the longer-term strategies of these institutions, and leveraging complementarities and synergies between public and private sectors to optimize financial resources utilization. Efforts in strengthening institutional capacity of professional organizations of farmers/herders and other value chains actors will contribute to project institutional



sustainability. Given Senegal's importance in the sub-region, strengthening Senegal in these areas will help to reinforce the efforts to build resilience of the regional food system.

62. **Technical sustainability:** All activities have been designed ensuring their technical sustainability, by (i) building on successful approaches previously piloted and ready to be scaled-up, (ii) using lessons learned from past and ongoing projects, and (iii) exploiting results from consultations with stakeholders to optimize the design of the project. Strong attention will be paid to ensure the quality of infrastructure design and management to ensure their adequate operation and maintenance beyond project closure. The involvement of FIs, and TA embedded in SP implementation, will also provide solid ground to sustain results and further develop agribusinesses after project closure.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

63. **The program interventions to enhance food security and resilience of the food system in Senegal are economically justified.** The program is expected to lead to three main quantifiable benefits: increased agricultural incomes; increased CC resilience; and broader and more effective regional agricultural integration between ECOWAS member countries. The economic and financial analysis (see Annex 3) confirms the economic justification of the program, generating an indicative net present value (NPV) of the net additional benefits (using a social discount rate of 6 percent) of US\$209.9 million and an economic internal rate of return (EIRR) of 22.8 percent (over a 20-year period). These economic results are satisfying more so, given that several other project benefits (such as strengthened national capacity to prevent and manage future pest events, improved food, and nutrition security, etc.) could not be quantified at this stage. In addition, these results are robust when tested against several sensitivity scenarios (e.g., delayed implementation and reductions in benefits). The incorporation of the social cost of carbon generated by the program (see Annex 4) lowers the economic indicators depending on the social carbon pricing scenario: assuming the low estimate range of social carbon price, the EIRR is 19.4 percent and the NPV is US\$37.8 million lower; assuming the high estimate range, the EIRR becomes 16.3 percent and the NPV is US\$75.4 million lower. However, despite this decrease, these indicators are high enough to confirm the program's economic validity.

64. **The operation is aligned with the goals of the Paris Agreement on both mitigation and adaptation.**

(a) Assessment and reduction of mitigation risks. Under Components 1 and 2, the operation will support data and digital technologies, agricultural extension services, ILM, rehabilitation of irrigation schemes, water harvesting, research, development, and innovation, which meet the conditions for being considered Universally Aligned. Under Component 3, the new processing facilities were assessed for risks to the country's low GHG emissions development pathways. The project will prioritize climate-smart, clean energy based on solar system, low-carbon technologies and innovative practices for the irrigation equipment, storage facilities and other processing facilities. To avoid carbon lock-in and minimize transition risks and emissions, the operation will invest in production efficiency (improved seeds and breeds, and climate-smart agriculture practices) and resource use efficiency. The operation will also invest in TA, training workshops and analytical work to ensure investments in facilities and equipment for priority VCs are climate resilient. To further reduce mitigation risks, the project will invest in waste treatment units (including biogas), and the promotion of agroecology and NBS.



(b) Assessment and reduction of adaptation risks. The project is at material risk from climate hazards (high risk from flooding, extreme heat, and drought), however, these risks have been reduced to an acceptable level.). Flood and drought risk reduction investments include the technical design of structural measures (water harvesting infrastructure, anti-erosive infrastructure, modern water, and labor-saving irrigation technologies etc.) informed by projected flooding and temperature rise scenarios. Drought risks will be reduced through drought resilience measures such as water harvesting and the rehabilitation of irrigation schemes and by investing in improved, high-yielding, early maturing, and drought- and pest-resistant plant varieties, as well as improved livestock breeds and animal husbandry practices, and improved infrastructure and basic services. Climate resilience measures have been incorporated in the infrastructure being financed to reduce risks from flooding and extreme heat.

(c) Overall, FSRP-SN will adequately reduce the physical climate risks of the project outcomes. On adaptation, the project's climate resilience and adaptation design considerations will limit the exposure to an acceptable level of residual risk. On mitigation, the operation has a low risk of preventing Senegal's transition to low-carbon development pathways, given its contribution to scaling up climate-smart agriculture practices and technologies, and transitioning away from a dependency on non-renewable energy sources by promoting solar energy.

B. Fiduciary

Financial Management

65. **The project will be implemented by two PIUs, namely PIU MAERSA and PIU MEPA, with a single financial management team.** The overall project's financial management (FM) responsibility will be entrusted to PIU MAERSA, to which the FM team will be attached. A member of this financial team will be hired by the MEPA PIU and will carry out some specific FM tasks, including payment management. As part of the project preparation, an assessment was conducted to determine whether MAERSA has adequate FM arrangements to ensure that (a) project funds will be used for purposes intended in an efficient and economical way; (b) project financial reports will be prepared in an accurate, reliable and timely manner; (c) project assets will be safeguarded; and (d) the project is subjected to a satisfactory auditing process.³⁷ While the assessment revealed that MAERSA is familiar with WB-funded projects, establishing specific FM arrangements is required due to fiduciary constraints that are yet to be resolved in the country. The program will use the same approach as other WB projects (e.g., PARIIS, P154482) to address the risks associated with weak internal control mechanisms, unqualified FM staff, and potential misappropriation of project funds (see Annex 2 for details).

66. **Flow of funds and disbursement:** One designated account (DA) will be opened for each PIU in a commercial bank acceptable to IDA and managed by the Public Expenditures Scheduling Directorate (*Direction de l'Ordonnancement des Dépenses Publiques, DODP*), the entity assigned with the overall responsibility of payments. Arrangements for the management of the DAs will be described in the manual of procedures and the Disbursement and Financial Information Letter (DFIL). The accountant dedicated to MEPA will have the delegation authority to carry out some FM-specific tasks, including processing payment requests. All the disbursement methods consistent with WB disbursement Guidelines will apply.

³⁷ FM assessment was carried out in compliance with Bank Directive: Financial Management Manual for World Bank Investment Project Financing Operations issued February 4, 2015, and effective from March 1, 2010; and the Bank Guidance: Financial Management in World Bank Investment Project Financing Operations Issued and Effective February 24, 2015.



Advances will be documented based on transactions (statement of expenditures). Furthermore, to align with the World Bank's minimum requirements outlined in the WB Policy and Directive on IPF, in effect since 2017, the project will need to implement the FM action plan described in Table 3.

Table 3: FM action plan

Actions	Due date	Responsible
Set up an acceptable project financial and administrative manual	Before effectiveness	MAERSA/MEPA
Set up an acceptable project matching grant implementation manual	Before disbursement	MAERSA/MEPA
Recruit the administrative and financial officer	No later than two months after effectiveness	MAERSA
(a) Set up an adequate accounting and reporting system; (b) Recruit an internal auditor; (c) Recruit two accountants with qualification and experience satisfactory to the bank; one will be dedicated to MEPA PIU and will be established within the MEPA team.	No later than four months after effectiveness	MAERSA/MEPA
Recruit an external auditor	No later than six months after effectiveness	MFB MAERSA MEPA

67. Subject to the implementation of the agreed action plan, **the overall residual FM risk of the project is rated as Moderate.**

Procurement

68. Project procurement will be carried out in accordance with the World Bank Procurement Regulations for IPF Borrowers (Fifth edition September 2023), the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants' dated July 1, 2016, and beneficiary disclosure requirements, as well as other provisions stipulated in the project Legal Agreements. A Project Procurement Strategy for Development (PPSD) has been developed by the Borrower, which specifies how procurement entities will deliver best value for money under a risk-based approach. In conjunction with the PPSD, a detailed Procurement Plan for the first 18 months of implementation has been reviewed and approved by the Bank. During implementation, the Procurement Plan will be updated as required and at least annually, to reflect project implementation needs and improvements in institutional capacity. A procurement risk assessment has been conducted by the WB for each PIU as well as implementing agencies and mitigation measures were identified. The overall procurement risk is rated Substantial, but after the implementation of the proposed mitigation measures, the residual risk is deemed to be "Moderate". Annex 2 provides details on procurement management.

C. Legal Operational Policies

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Area OP 7.60	No

69. OP 7.50 is applicable to this Project because the Project will finance activities that may use or risk polluting waters of the Senegal River, which is considered an international waterway. The exception to



the riparian notification requirement according to paragraph 7(a) of the Policy applies because activities are limited to upgrading and modernization of existing, small-scale schemes which will not adversely change the quantity and quality of water flows to other riparians. The exception to the notification requirement was approved by the RVP on October 10, 2023.

D. Environmental and Social

70. Key environmental risks include generic risks associated with civil works and the exploitation of the proposed infrastructure, such as the loss of vegetation cover, disturbance of wildlife, increase of greenhouse gas emissions (GHG), ground and surface water pollution, soil degradation and pollution associated with waste management (i.e., building/construction wastes, e-waste, waste from veterinary medicine, and e-waste). Key social risks include potential for elite capture and the exclusion of vulnerable groups and individuals (i.e., women, persons with disabilities, pastoralists, etc.), economic and/or physical displacement, risks of sexual exploitation and abuse and sexual harassment (SEA/SH), poor working conditions, child and forced labor, as well as security risks for activities conducted in the region of Casamance. Other environmental and social risks include occupational and community health and safety risks, nuisances related to noise and vibration, as well as the transmission of communicable diseases. As the scope and exact sites of the infrastructure works and technical assistance activities are not yet defined, a framework approach has been adopted to provide guidance on the preparation of the various instruments. The PIUs have prepared and disclosed a consolidated Environmental and Social Management Framework (ESMF), a Stakeholder Engagement Plan (SEP), a Resettlement Framework (RF), Labor Management Procedures (LMP), an Integrated Pest Management Plan (IPMP), and a Plan for the Prevention, Mitigation and Management (PPMM) of SEA/SH at MAERSA and MEPA websites on November 9, 2023. The ESMF, LMP, IPMP, were disclosed in the WB external website on October 21-23, 2023 and the CPR and the PPMM/SEA/SH on November 9, 2023³⁸. Finally, the Borrower has also prepared an Environmental and Social Commitment Plan (ESCP) with the support of the WB. The ESMP includes the commitment to prepare the site-specific Environmental and Social Management Plans (ESMPs), and Environmental and Social Impact Assessments (ESIAs), as well as capacity-building activities in environmental and social (E&S) risk management. The ESMF includes: an exclusion list; procedures for E&S screening of future infrastructure subprojects; a screening tool to identify ESS5 impacts; E&S management planning processes for addressing negative externalities in the course of project implementation; a system for monitoring the implementation of mitigation measures; a CERC-ESMF Addendum; E&S risk management capacity building measures; a grievance mechanism with guidance on the reception, recording, handling, and reporting of complaints; and an estimated budget. Additionally, the ESMF is in line with sector-specific (for agribusiness/food production) WB environmental health and safety guidelines (EHSGs) and best industry practices.

³⁸ CPR: (disclosed on Nov 9, 2023)

<https://worldbankgroup.sharepoint.com/sites/P180244/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FP180244%2FShared%20Documents%2FProject%2FFSRP%2DSN%5FP180244%5FCPR%2Epdf&parent=%2Fsites%2FP180244%2FShared%20Documents%2FProject>; ESMF: (disclosed on Oct 23, 2023) <https://worldbankgroup.sharepoint.com/sites/P180244/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FP180244%2FShared%20Documents%2FProject%2FFSRP%2DSN%5FP180244%5FCGES%5Fversion%5FClean%5F09102023%2Epdf&parent=%2Fsites%2FP180244%2FShared%20Documents>; LMP: (disclosed on Oct 23, 2023) https://worldbankgroup.sharepoint.com/w:/r/sites/P180244/layouts/15/Doc.aspx?sourcedoc=%7B7F840FA-92B0-4EBD-A893-651533915E17%7D&file=FSRP-SN_P180244%20PGMO_Clean_111023.docx&action=default&mobileredirect=true; PGIP: (disclosed on Oct 23, 2023) <https://worldbankgroup.sharepoint.com/sites/P180244/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FP180244%2FShared%20Documents%2FProject%2FFSRP%2DSN%5FP180244%5FPGPP%5Fversion%5FClean%5F09102023%2Epdf&parent=%2Fsites%2FP180244%2FShared%20Documents>



V. GRIEVANCE REDRESS SERVICES

71. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, visit <https://accountability.worldbank.org>.

VI. KEY RISKS

72. **The project's overall residual risk is rated as substantial.** The Government of Senegal and regional bodies are committed to the projects' objectives and implementation models. The risks are related to potential shocks to food systems, complicated management-sharing facilities, and global spill-over risks to the economy.

(a) The political and governance risk is high. With the presidential election scheduled on February 25th, 2024, the political context is tense. Unprecedented protests and violent manifestations causing fatalities and damages to infrastructure occurred June 1st to 3rd 2023 and may increase in frequency in the run-up to the election. Such situation may generate political instability delaying project effectiveness and implementation. As mitigating measure, anticipation is being done in preparing manuals, recruiting staff and conducting studies.

(b) The macroeconomic risk is substantial. Inflation pressure, strains Senegal's fiscal space and lessens availability of public services, creating discontent and potential political instability. Senegal is also negatively affected by sub-regional insecurity, rising social and geopolitical tensions, and tightening international and regional financing conditions. As mitigation measure, no counterpart funding from the Government is planned given the limited fiscal space. Rapid and successful implementation of the project would increase agriculture's contribution to economic growth for a better macroeconomic performance.

(c) Technical Design of project is substantial. While this is part of an approved MPA, the agriculture and livestock sectors' specificities and the shared set-up of responsibilities among the ministries may affect the outcome of the project in Senegal. Mitigation measures will include setting up of coordination mechanisms between the two leading ministries' authorities, a strong stakeholder engagement strategy, and a close collaboration with other relevant ministries and development actors. Furthermore, the risk attendant to adding another phase to the MPA rated as substantial. Overall, the Senegal program is slightly lower risk than the more volatile fragile, conflict and violent countries included in phases 1 and 2, due to a historically more stable political situation and demonstrated implementation capacity with other WB programs. However, the residual risk in



Senegal is assessed to also be substantial due to the complexity of the MPA program and specific implementation arrangements of Senegal project with two PIUs. These risks will be mitigated in part by the Government of Senegal and regional bodies commitment to the projects' objectives and implementation models.

(d) E&S risk is substantial. The environmental risk of the project is rated substantial due to the wide impact area of the project, the civil works, the development and rehabilitation of irrigation infrastructure, the potential use of chemical products (pesticides and fertilizers) and the Borrowers' limited capacity in environmental impacts and risks management under the ESF. The social risk rating is also considered substantial due to risks of social conflict, as well as risks of limited stakeholder participation in infrastructure and landscape management frameworks design and implementation. Mitigation measures have been identified and are included in the ESF instruments.

(e) The stakeholder risk is substantial. The private sector and the financial system in Senegal, are chronically underfunded, limiting their ability to represent members in public policy. Stakeholders have limited capacity to sustainably take on technology. Given that local actors are expected to play a strong role in project implementation, their irregular and unstructured set-up may hinder effectiveness. While capacity building for them will be embedded in the project interventions, the complex stakeholder environment justifies a residual substantial risk.

(f) Others (Land Reforms): This risk is rated substantial. Land reform is now prominent in Senegal's development agenda. A complicated land tenure system underlies all discussions over agriculture and natural resources use. Hence conflicts over land-use may spill over into establishment of agriculture infrastructure or communal resources. A dedicated project (the Senegal Cadaster and Land Tenure Improvement Project – P172422, approved in June 2021) contributes to reduce such risks.



VII. RESULTS FRAMEWORK AND MONITORING

PDO Indicators by PDO Outcomes

Baseline	Period 1	Period 2	Period 3	Period 4	Period 5
Increase Preparedness Against Food Insecurity					
Reduction of food insecure people in program targeted areas (Percentage)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0.00	5.00	10.00	15.00	20.00
Program Beneficiaries (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	10,000.00	100,000.00	200,000.00	300,000.00	500,000.00
➤ Program beneficiaries - Female (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	4,000.00	40,000.00	80,000.00	120,000.00	200,000.00
Improve Resilience of Food Systems in Participating countries					
Food system actors accessing hydro and agrometeorological advisory services (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	10,000.00	50,000.00	100,000.00	150,000.00	200,000.00
➤ Of which women (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	4,000.00	20,000.00	40,000.00	60,000.00	80,000.00
Land area under sustainable landscape management practices (Hectare(Ha)) ^{CR1}					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0.00	0.00	20000.00	30000.00	30000.00
Producers adopting climate-smart agricultural technologies and services (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	5,000.00	50,000.00	100,000.00	200,000.00	300,000.00
➤ Of which nature based solutions (Number)					
Oct/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	1,000	10,000	20,000	40,000	60,000
➤ Of which women (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	2,000.00	20,000.00	40,000.00	80,000.00	120,000.00

Intermediate Indicators by Components

Baseline	Period 1	Period 2	Period 3	Period 4	Period 5
Digital Advisory Services for Agriculture and Food Crisis Prevention and Management					
Satisfaction of farmers having access to usable weather, climate and ag-advisory services (Percentage)					
Apr/2023	Dec/2026	Dec/2028			
0.00	60.00	80			
Improved access to local climate information services with digital information platforms (Yes/No)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
No	No	No	Yes	Yes	Yes



Agreements involving co-production of agro-hydro-meteorological services between the public and private sectors (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0.00	0.00	1.00	1.00	2.00
Sustainability and Adaptive Capacity of the Food System's Productive Base					
Area provided with new/improved irrigation or drainage services (Hectare(Ha)) ^{CR1}					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	200	2200	4700	4700
Research sub-projects funded with competitive funds (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	30	70	100	100
Sub-projects of transfer of improved technologies funded with competitive funds (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	10	20	50	50
➤ Sub-projects of regional transfer of improved technologies (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	2	6	8	8
Technologies made available to farmers by the consortium of NCoS, CGIAR and other international research institutes (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0.00	0.00	5.00	10.00	20.00
Areas restored with sustainable land management practices in targeted 7 sites (Hectare(Ha))					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	100	400	700	700
Sub-projects selected from the integrated landscape management plans with climate-resilient measures implemented (Percentage)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0.00	30.00	30.00	60.00	60.00
Spatial information system established and operational for designing and planning climate-resilient land management practices (Yes/No)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
No	No	No	Yes	Yes	Yes
Regional Food Market Integration and Trade					
Small investments sub-projects financed by Matching Grant (MG) inferior US\$ 10,000 (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	500	1000	1500	2000
➤ of which led by women (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	150	300	450	600
➤ of which led by youth (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	100	200	300	400
Medium investment sub-projects financed by MG from US\$ 10,000 to 50,000 (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	170	340	510	700
Large investment sub-projects financed by MG over US\$ 50,000 to US\$ 500,000 (Number)					
Sep/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0	0	5	10	15	15
Private-sector actors involved in regional agriculture trade that are supported by the Program (Number)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0.00	0.00	50.00	70.00	90.00
Women reached with dedicated assets or services to support their increased commercialization in the selected value chains (Number)					



Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0.00	300.00	1,000.00	2,000.00	3,000.00
Contingent Emergency Response					
Project Management					
Grievances registered and addressed by the Program (Percentage)					
Apr/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027	Dec/2028
0.00	0	70.00	80.00	90.00	90.00
Beneficiaries satisfied with the Program's interventions (Percentage)					
Apr/2023	Dec/2026	Dec/2028			
0.00	60.00	80.00			

Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Increase Preparedness Against Food Insecurity	
Reduction of food insecure people in program targeted areas (Percentage)	
Description	Food security data from the <i>Cadre Harmonisé</i> (Harmonized Framework -CH) in project areas will be used to measure food insecurity reduction in project areas.
Frequency	Twice a year
Data source	Subnational food security survey data that feeding into CH
Methodology for Data Collection	As outlined in CH manual and the technical documents provided by Akademiya2063
Responsibility for Data Collection	Executive Secretariat of the National Food Security Council, PIU (MAERSA)
Program Beneficiaries (Number)	
Description	This indicator measures the number of beneficiaries who were provided with agricultural assets or services as a result of World Bank project support in Component 1,2 and 3.
Frequency	Twice a year
Data source	Project reports
Methodology for Data Collection	Baseline study and subsequent studies twice a year.
Responsibility for Data Collection	PIU (MAERSA)
Program beneficiaries - Female (Number)	
Description	This indicator measures the number of female beneficiaries who were provided with agricultural assets or services as a result of World Bank project support in Component 1,2 and 3.
Frequency	Twice a year
Data source	Project reports
Methodology for Data Collection	Baseline study and subsequent studies twice a year.
Responsibility for Data Collection	PIU (MAERSA)
Improve Resilience of Food Systems in Participating countries	
Food system actors accessing hydro and agrometeorological advisory services (Number)	
Description	This indicator measures the number of food system stakeholders who access hydro and agrometeorological advisory services supported by the project.
Frequency	Bi-annual
Data source	Relevant national agencies (NMS) conduct systematic surveys in collaboration with PIUs in selected project areas.
Methodology for Data Collection	Countries will track the number of new users provided access to hydro and agrometeorological advisory services with project support.



Responsibility for Data Collection	M&E specialist of PIU (MAERSA), National Agency for Meteorology and Civil Aviation, National Agency for Agricultural and Rural Advisory Services
Of which women (Number)	
Description	This indicator measures the number of female food system stakeholders who access hydro and agrometeorological advisory services supported by the project.
Frequency	Bi-annual
Data source	Relevant national agencies (NMS) conduct systematic surveys in collaboration with PIUs in selected project areas. PLEASE SPECIFY
Methodology for Data Collection	Countries will track the number of new users provided access to hydro and agrometeorological advisory services with project support.
Responsibility for Data Collection	M&E specialist of PIU (MAERSA), National Agency for Meteorology and Civil Aviation, National Agency for Agricultural and Rural Advisory Services
Land area under sustainable landscape management practices (Hectare (Ha))^{CR1}	
Description	The indicator measures, in hectares, the land area for which new and/or improved sustainable landscape management practices have been introduced. Land is the terrestrial biologically productive system comprising soil, vegetation, and the associated ecological and hydrological processes; Adoption refers to change of practice or change in the use of a technology promoted or introduced by the project; Sustainable landscape management (SLM) practices refers to a combination of at least two technologies and approaches to increase land quality and restore degraded lands for example, agronomic, vegetative, structural, and management measures that, applied as a combination, increase the connectivity between protected areas, forest land, rangeland, and agriculture land.
Frequency	Annual
Data source	Integrated Landscape Management plans, matching grants to support integrated landscape management
Methodology for Data Collection	Total area (in hectares) on which SLM practices have been introduced during the reference period (year) thanks to the project under component 2.2.
Responsibility for Data Collection	PIU (MAERSA)
Producers adopting climate-smart agricultural technologies and services (Number)	
Description	This indicator measures the total number of program beneficiaries who have adopted technologies/practices that can lead to improve resilience to climate variability, increase productivity and/or mitigate the effects of climate change, as well as advisory services under the project.
Frequency	Annual
Data source	Country activity reports, survey report
Methodology for Data Collection	Project reports on number of beneficiaries supported by ILM matching-grants, and supplementary studies to be conducted on a regular basis (annually) in the program's targeted areas in each country to measure the uptake of climate-smart agricultural technologies and services by program beneficiaries.
Responsibility for Data Collection	PIU (MAERSA)
Of which women (Number)	
Description	This indicator measures the total number of female program beneficiaries who have adopted technologies/practices that can lead to improve resilience to climate variability, increase productivity and/or mitigate the effects of climate change, as well as advisory services under the project.
Frequency	Annual
Data source	Country activity reports, survey report
Methodology for Data Collection	Project reports on number of beneficiaries supported by ILM matching-grants, and supplementary studies to be conducted on a regular basis (annually) in the program's targeted areas in each country to measure the uptake of climate-smart agricultural technologies and services by program beneficiaries.
Responsibility for Data Collection	PIU (MAERSA)

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Digital Advisory Services for Agriculture and Food Crisis Prevention and Management
Satisfaction of farmers having access to usable weather, climate and ag-advisory services (Percentage)



Description	Percentage of beneficiaries/users expressing satisfaction with weather, climate and agricultural advisory services provided in project areas, based on formal surveys.
Frequency	Twice (at mid-term and end of project)
Data source	Survey Reports
Methodology for Data Collection	Online surveys supplemented by field surveys. It is planned that a survey to measure this indicator will be conducted twice during the project. The survey will be conducted in conjunction with PDO indicator #3 ("Number of food system actors with access to hydrological and agrometeorological advisory services"), targeting a subset of the beneficiary population through random sampling. The development of the questionnaire will be conducted by AGRHYMET in consultation with the countries.
Responsibility for Data Collection	PIU (MAERSA)
Improved access to local climate information services with digital information platforms (Yes/No)	
Description	This indicator aims to track the use of digital platforms for the provision of climate information services (CIS) to project beneficiaries, including policy makers, agricultural extension agents, and local farmers.
Frequency	Annual (from year 2)
Data source	Project Reports / Monitoring and Evaluation Reports
Methodology for Data Collection	The existence of digital information platforms will be verified by testing their online accessibility after their launch.
Responsibility for Data Collection	PIU (MAERSA)
Agreements involving co-production of agro-hydro-meteorological services between the public and private sectors (Number)	
Description	This indicator aims to measure the degree of collaboration between the public and private sectors to develop and deliver agro-hydro-meteorological services supported by the FSRP. It does this by counting the number of agreements signed.
Frequency	Annual
Data source	Project report
Methodology for Data Collection	Review of the activity report
Responsibility for Data Collection	PIU (MAERSA), National Agency for Meteorology and Civil Aviation
Sustainability and Adaptive Capacity of the Food System's Productive Base	
Area provided with new/improved irrigation or drainage services (Hectare(Ha)) ^{CRI}	
Description	This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).
Frequency	Annual
Data source	Project report
Methodology for Data Collection	Review of the activity report
Responsibility for Data Collection	PIU (MAERSA)
Research sub-projects funded with competitive funds (Number)	
Description	Number of research sub-projects funded with competitive funds
Frequency	annual
Data source	Project report
Methodology for Data Collection	Review of the activity report
Responsibility for Data Collection	PIU (MAERSA)
Sub-projects of transfer of improved technologies funded with competitive funds (Number)	
Description	Number of Sub-projects of transfer of improved technologies funded with competitive funds
Frequency	annual
Data source	Project report



Methodology for Data Collection	Review of the activity report
Responsibility for Data Collection	PIU (MAERSA)
Sub-projects of regional transfer of improved technologies (Number)	
Description	Number of Sub-projects of regional transfer of improved technologies
Frequency	annual
Data source	Project report
Methodology for Data Collection	Review of the activity report
Responsibility for Data Collection	PIU (MAERSA)
Technologies made available to farmers by the consortium of NCoS, CGIAR and other international research institutes (Number)	
Description	This indicator counts the number of technologies that are developed by the consortium of National Center of Specialization (NCoS), Regional Center of Excellence (RCoE), CGIAR and other international research institutes and that are made available to farmers with the support of FSRP.
Frequency	Biannual
Data source	Activity report, NCoS, RCoE, and CGIAR institutions reports
Methodology for Data Collection	This will be a unique count of technologies developed by the consortium of NCoS, CGIAR and other international research institutes and made available to farmers through the extension system.
Responsibility for Data Collection	CORAF
Areas restored with sustainable land management practices in targeted 7 sites (Hectare(Ha))	
Description	This indicator measures the total area of land restored by the project in pilot sites managed by the National Pedology Institute, expressed in hectare (ha)
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA)
Sub-projects selected from the integrated landscape management plans with climate-resilient measures implemented (Percentage)	
Description	Share of sub-projects selected from the integrated landscape management plans with climate-resilient measures implemented out of the total sub-projects
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA)
Spatial information system established and operational for designing and planning climate-resilient land management practices (Yes/No)	
Description	Existence of an operational spatial information system for designing and planning climate-resilient land management practices
Frequency	annual
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA)
Regional Food Market Integration and Trade	
Small investments sub-projects financed by Matching Grant (MG) inferior US\$ 10,000 (Number)	
Description	This indicator counts the number of sub-project financed by Matching Grant by the project having a total budget under US\$ 10.000



Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA and MEPA)
of which led by women (Number)	
Description	This indicator counts the number of sub-project financed by Matching Grant led by women by the project having a total budget under US\$ 10.000
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA and MEPA)
of which led by youth (Number)	
Description	This indicator counts the number of sub-project financed by Matching Grant led by youth by the project having a total budget under US\$ 10.000
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA and MEPA)
Medium investment sub-projects financed by MG from US\$ 10,000 to 50,000 (Number)	
Description	This indicator counts the number of sub-project financed by Matching Grant by the project having a total budget between US\$ 10.000 and 50.000
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	MAERSA and MEPA
Large investment sub-projects financed by MG over US\$ 50,000 to US\$ 500,000 (Number)	
Description	This indicator counts the number of sub-project financed by Matching Grant by the project having a total budget between US\$ 50.000 and 500.000
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	MAERSA and MEPA
Private-sector actors (SMEs, producers and other value chains organizations) involved in regional agriculture trade that are supported by the Program (Number)	
Description	This indicator measures the number of private-sector led initiatives involved in regional agriculture products, inputs and output trade that are supported by the Program.
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA and MEPA)
Women farmers reached with assets or services to improve commercialization in selected value chains (Number)	



Description	This indicator measures the number of farmers reached with assets or services to improve the commercialization of agricultural products as a result of project activities. It is to note that while the word "farmer" includes for the purposes of this indicator livestock, herders and fishermen and primary agro-processors.
Frequency	Every 6 months
Data source	FSRP progress, M&E system
Methodology for Data Collection	Sub-projects database
Responsibility for Data Collection	PIU (MAERSA and MEPA)
Contingent Emergency Response	
Project Management	
Grievances registered and addressed by the Program (Percentage)	
Description	This indicator measures the percentage of grievances relayed through the Grievance Mechanism (GM) system that are adequately addressed.
Frequency	Semi-annual
Data source	GM Activity Reports
Methodology for Data Collection	Review of GM Activity Reports
Responsibility for Data Collection	PIU (MAERSA and MEPA)
Beneficiaries satisfied with the Program's interventions (Percentage)	
Description	This indicator measures the percentage of beneficiaries who report satisfaction with services provided in project areas based on formal surveys. It is expected that a survey to measure this indicator will be conducted twice during the project. The sample size should be representative of the total number of beneficiaries.
Frequency	At mid-term and at the end of the project
Data source	Activity reports
Methodology for Data Collection	Survey to be carried out during the different evaluations (mid-term and final). The survey development will be led by the Regional Coordination Unit.
Responsibility for Data Collection	PIU (MAERSA and MEPA)



ANNEX 1: Implementation Arrangements and Support Plan

1. The implementation arrangements and implementation support plan of Phase 3 mirror the approach of Phases 1 and 2, ensuring the consistency across of the three phases. For the IFAD co-financing part, the World Bank will act as a cooperating institution. A letter of Assignment (as a co-financing agreement) will detail the agreed arrangement between the two parties. Funding from IFAD would go directly to the client as in direct co-financing arrangements. WB will administrate and supervise technical, procurement, financial management, disbursement, and environmental and social aspects of the project in line with its policies, procedures, and requirements. IFAD co-financing is expected to be approved by April 2024.

2. The project is also expected to leverage a parallel financing from IsDB to be approved by December 2024 to finance the modern slaughter infrastructure for the Dakar/Rufisque/Thies area. The technical feasibility study as well the social and environmental studies will be conducted by FSRP-SN to allow easy start of the construction by IsDB in coordination with MEPA and its PIU. No administrative and technical service is expected from WB team.

IMPLEMENTATION ARRANGEMENTS

3. At the regional level, ECOWAS will monitor and coordinate the overall implementation of the program, including all FSRP phases. Implementation is structured as follows: (i) CILSS/AGRHYMET coordinates overall implementation efforts under Component 1; (ii) CORAF under Component 2; and (iii) ECOWAS under Component 3. The regional institutions will utilize the resources they have received under Phase 1 to fulfill this task. Oversight will also be provided through a Regional Steering Committee (RSC) that reviews progress and provides strategic guidance at program level. Further details on the regional implementation arrangements can be found in the PAD of FSRP Phase 1.

4. In Senegal, activities to be supported by the project fall under MAERSA and MEPA's mandates.³⁹ The need for clear accountability and direct management of respective activities by the two ministries underlies the decision to establish two PIUs. This also considered lessons learned from past experiences where coordination of activities including livestock were under MAERSA's sole oversight, which led to coordination issues and suboptimal results in the livestock sector. This arrangement is like two other WB financed projects in Senegal (the Natural Resources Management Project, P175915, and the Senegal Digital Economy Acceleration Project, P172524).

5. To provide guidance and oversight to the project, a joint MAERSA/MEPA FSRP National Steering Committee (NSC) and a National Technical Committee (NTC) will be established. The NSC will be co-chaired by the two ministries and meet at least once a year to undertake the following main functions and responsibilities: (i) advise the project on strategic directions and supporting activities; (ii) review the PIUs' reports on implementation progress, advise on the effectiveness of ongoing activities and on any adjustments needed in the AWPB from both PIUs; (iii) approve the AWPBs; and (iv) ensure effective collaboration and cooperation between all key stakeholders. The PIU within MAERSA shall be responsible for the consolidation of financial, monitoring and evaluation, AWP&Bs and Project reports and submission of Project reports to the NSC in accordance with the PIM. The NTC will be co-chaired by the two Permanent Secretaries or their designated representatives and meet at least four times a year to review project progress, ensure synergies with other relevant programs and projects, advise on adjustments to the AWPB. It will comprise senior officials from the directorates of the various ministerial departments and

³⁹ See the Decree 99.909 dated September 14, 1999, on the organization of the Ministry of Agriculture and the Decree 2013-1225 dated September 04, 2013, on the organization of the Ministry of Livestock and Animal Productions.



partners involved. The PIUs will send representatives to the RSC.

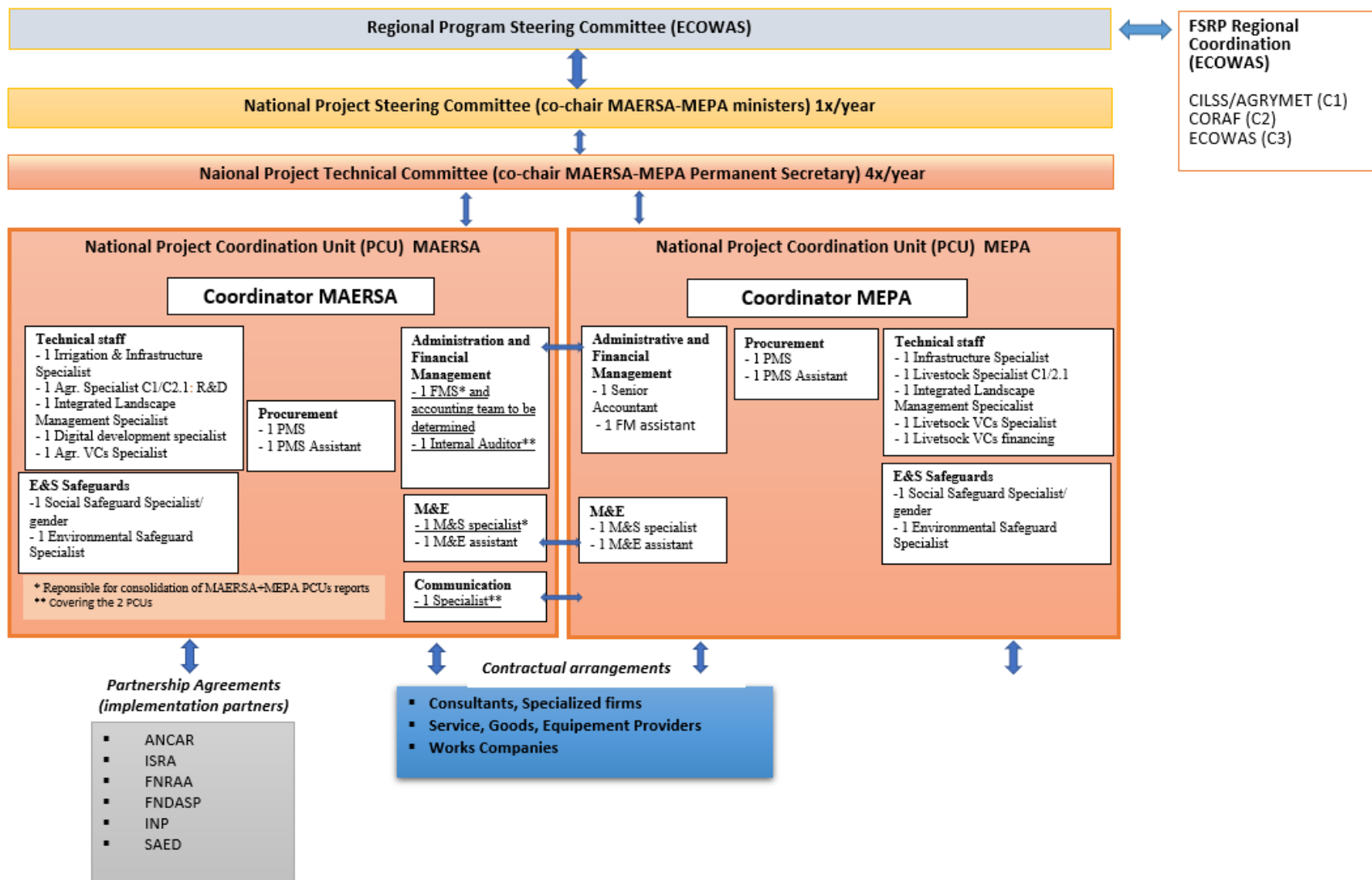
6. The two PIUs will be anchored at the respective Secretariat General of MEPA and MAERSA and established at central level in a common location to facilitate day-to-day coordination and exchanges. Each will be headed by a Coordinator (civil servant or hired consultant). The core team of MEPA and MAERSA PIUs will be recruited on a competitive basis and financed through IDA funding. Each PIU will comprise: a procurement specialist and a procurement assistant, an environmental specialist, a social safeguards specialist -also in charge of gender-, an M&E specialist, a digital development specialist, and technical specialist(s). MAERSA PIU will include an FM specialist, in charge of the overall project FM management and reporting, and an accounting team. For FM management at MEPA level, the PIU will include a chief accountant (see also FM arrangements in Annex 2). An internal auditor and communication specialist recruited by MAERSA PIU will also provide support to both PIUs (See Fig. A1.1). Where needed, PIUs will be strengthened through the recruitment of additional staff/consultants. At subnational level, PIUs will rely on the existing regional and departmental offices and teams of MAERSA and MEPA to supervise activities. The PIUs will enter into partnership agreements with governmental agencies or specific units in charge of implementing predefined activities of the project. These agreements will clarify the respective roles and responsibilities of the PIUs and each agency, including financial and procurement management as well as compliance with safeguards standards. Other activities will be delegated to contracted private firms, professional organizations, or NGOs. The agencies with which MAERSA and MEPA PIUs will enter into partnership agreements to implement selected activities on their behalf are listed below:

Table A1.1: Overview of Implementation Responsibilities

Agencies Under Contract with MAERSA	Interventions under Components	Key activities	Amount (US\$ million)
ANCAR	1.2 and 2.1	Management of advisory and extension services	12.4
ISRA	2.1	Management of RCE on dry cereals activities	8.7
FNRAA	2.1	Management of innovation and technology research grants	11.9
FNDASP	2.1 and 2.2	Management of innovation and technology dissemination grants and ILM grants for public investments the 12 selected communes	21.3
INP	2.2	Soil characterization; Soil information system; Rehabilitation of selected landscapes (in Bushra, Koussanar, Diatock, Djilacounda, Simal, Keur Moussa, Djender, Notto Diobass, Toubatoul)	5.2
SAED	2.2	Management of irrigation activities (on the Senegal river and Dioulol basin)	25.7



Figure A1.1: Institutional and implementation arrangements





7. **FM and procurement management.** Details are provided in Annex 2.

STRATEGY AND APPROACH OF THE IMPLEMENTATION SUPPORT PLAN

8. The objective of implementation support is to ensure that the regional and government agencies implement the program properly. It also ensures that the resources and staff allocated by the WB are sufficient to supervise and support implementation. The strategy focuses on the principal risks identified and the agreed risk mitigation measures to be undertaken as described in the in the risk section.

Implementation Support Plan

9. **As for FSRP phase 1, and 2, implementation support** will consist of: (i) semi-annual implementation support missions carried out jointly by the WB, the participating countries, ECOWAS, CILSS, and CORAF, as well as technical partners; and (ii) TA (tailored to Senegal needs or provided jointly with other FSRP countries) in areas of weaknesses and where new approaches/procedures have been introduced. A mid-term review (MTR) will be carried out midway in the implementation phase. It will include a comprehensive assessment of the progress in achieving FSRP objectives as laid out in the RF. The MTR will also serve as a platform for revisiting design issues that may require adjustments to ensure satisfactory achievement of the program's objective. At the close of the FSRP-SN, the government (in collaboration and coordination with ECOWAS, CILSS, and CORAF), as well as the WB will carry out separate implementation completion reviews to assess the success of the project and draw lessons from its implementation.

10. **Technical support.** FSRP-SN will require significant support and close follow-up from the WB team especially during the first two years of implementation to reduce delays in operationalizing new mechanisms. A particular attention will be paid to multi-year programming, and tackling proactively any issues that may arise. Ensuring a good coordination with other WB teams and partners will also be key to optimize staff time and resources. FSRP-SN will benefit from the technical support provided at the regional level by ECOWAS, CILSS and CORAF, as well as WB managed TA.

11. **Fiduciary support.** The WB fiduciary team will closely supervise the program's fiduciary management. They will participate in the country implementation support missions and facilitate capacity building for the program's fiduciary staff. At least once a year, the procurement staff will organize a post review of procurement activities.

12. **Safeguards.** The WB specialists in social and environmental safeguards will have responsibility for supervising safeguard activities. In each implementation mission, they will conduct supervision of safeguard activities, participate in regional meetings to discuss findings, and draft action plans to improve implementation.

13. **Skills mix required.** Table A1.2 summarizes the proposed skill mix and number of staff weeks during project implementation.



Table A1.2: Proposed Skill Mix (average, per year)

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Regional TTL (ADM)	2	-	Washington DC-based
Co-TTLs (2)	12	2	Country office-based
Agricultural Research/extension	2	1	Consultant
Agriculture Financing expert	4	-	Consultant
Agribusiness/ Natural Resource Management specialist	6	-	Country office-based
Livestock specialist	4	-	Consultant
Procurement specialist	2	-	Country office-based
FM specialist	2	-	Country office-based
Environmental safeguard specialist	2	-	Country office-based
Social safeguard specialist	2	-	Country office-based
M&E specialist	1	2	Region-based
Gender specialist	1	-	Country office-based
Total	40		



ANNEX 2: Financial and Procurement Management

Financial Management

1. **The project will be implemented by two PIUs, namely PIU MAERSA and PIU MEPA, with a single financial management team.** It has been agreed that the overall project's FM responsibility will be entrusted to the PIU MAERSA, to which the FM team will be attached. A member of this team will be seconded to the MEPA PIU and will carry out some specific FM tasks, including payment management. As part of the project preparation, an assessment was conducted to determine whether MAERSA has adequate FM arrangements to ensure that (a) Project funds will be used for purposes intended in an efficient and economical way; (b) Project financial reports will be prepared in an accurate, reliable and timely manner; (c) Project assets will be safeguarded; and (d) the Project is subjected to a satisfactory auditing process. The assessment included budgeting, staffing, financial accounting, financial reporting, funds flow, disbursements, and internal and external auditing arrangements.⁴⁰ The assessment revealed that MAERSA is familiar with World Bank-funded projects and is currently implementing the ongoing PCAE (P164967, IDA 66160: Euro 137 million), and PARISS-SN (P154482 IDA 61590 US\$25 million). The FM performance of these projects was found to be respectively moderately satisfactory and satisfactory following the latest supervision missions. However, due to certain public finance management constraints that have yet to be resolved in Senegal, implementing these projects has required ad hoc PIUs with specific FM arrangements. The proposed project will use the same approach to proactively address the risks associated with weak internal control mechanisms, hiring unqualified FM staff, and potentially misappropriating project funds. Furthermore, to align with the World Bank's minimum requirements outlined in the World Bank Policy and Directive on IPF, in effect since 2017, the project will need to implement the FM action plan described in Table 3 in the main text. Subject to the implementation of the agreed action plan, **the overall residual FM risk of the project is rated as Moderate.**

Financial Management Arrangements

2. **Planning and Budgeting:** The MAERSA PIU will prepare a consolidated annual budget based on the agreed annual work program of the 2 PIUs and the procurement plans cleared by the World Bank. The budgets, which should be adopted before the beginning of the year, will be prepared in enough detail by disbursement categories, activities, and account codes and broken down by quarters.
3. **Accounting and records:** The SYSCOHADA current accounting standards for ongoing Bank-financed projects will be applied.
4. **Project Financial Reports:** MAERSA will be responsible for submitting the project's IFRs. The reports will include Statement of Sources and Uses of Funds by disbursement categories, Uses of Funds by Project activities, project Balance Sheet, and Statements of Designated Accounts (DA). The report will be submitted to the World Bank within 45 days of the end of each quarter.
5. **Internal Control and Audits:** Detailed internal control procedures, including specific instructions for the execution of matching grant activities, will be described in the Project Operations Manual. The project will be subject to an annual audit by an independent auditor. The annual audit reports will be submitted

⁴⁰ FM assessment was carried out in compliance with Bank Directive: Financial Management Manual for World Bank Investment Project Financing Operations issued February 4, 2015, and effective from March 1, 2010; and the Bank Guidance: Financial Management in World Bank Investment Project Financing Operations Issued and Effective February 24, 2015



to the World Bank within six months of the end of each fiscal year.

Project Financing

Table A2.1 summarizes the different financing sources allocated to the different project components and sub-components. Beneficiaries contribute to match the grant provided by the project to finance the selected ILM and agribusiness sub-projects.

Table A2.1: Project financing

Projects Components and Sub-Components	Project budget allocation (US\$ million)			
	IDA	IFAD	Beneficiaries	Total
Digital Advisory Services for Agriculture and Food Crisis Prevention and Management	8	0	0	8.0
Upgrading Food Crisis Prevention & Monitoring Systems	4.5	0	0	4.5
Digital Hydromet and Agro-Advisory Services for Farmers	3.5	0	0	3.5
Sustainability and Adaptative Capacity of the Food System’s Productive Base	96.7	0	1	97.7
Consolidate Regional Agriculture Innovation System	48.3	0	0	48.3
Strengthen Regional Food Security through Integrated Landscape Management	48.4	0	1	49.4
Regional Food Market Integration and Trade	76.3	30	35	141.3
Trade across Key Corridors and consolidate Food Reserve System	3.3	0	0	3.3
Support to Development of Strategic and Regional Value Chains	73	30	35	138.0
CERC	0	0	0	0
Project Coordination	19	0	0	19.0
TOTAL	200	30	36	266.0

PROCUREMENT

Applicable Procurement Rules and Procedures

6. Procurement for goods, works, non-consulting, and consulting Services for the project will be carried out in accordance with: (i) procedures specified in [the WB Procurement Regulations for Investment Project Financing \(IPF\) Borrowers](#), Fifth edition dated September 2023; (ii) the Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006 (revised in January 2011 and as of July 1, 2016); and (iii) other provisions stipulated in the Financing Agreement, using the Standard Procurement Documents accompanying the Procurement Regulations.

7. All procuring entities, as well as bidders and service providers (namely suppliers, contractors, and consultants) shall observe the highest standard of ethics during the procurement and execution of contracts financed under the project in accordance with paragraph 3.32 and Annex IV of the Procurement Regulations. When procurement is done in the national market, as agreed in the Procurement Plan, the country’s own procurement procedures may be used, with the requirements set forth or referred to in paragraphs 5.3 to 5.6 related to National Procurement Procedures. All Works procurements that apply standard procurement documents will adopt WB provisions related to environmental, social (including gender-based violence and SEAH), health, and safety risks and impacts. These provisions include: (i) a code of conduct that prohibits sexual exploitation, abuse, and harassment; (ii) training on the code of conduct; and (iii) clear remedies (disciplinary sanctions) for noncompliance.



8. The Systematic Tracking of Exchanges in Procurement (STEP) will be the platform for preparing, submitting, reviewing, and clearing Procurement Plans and prior review procurement activities. STEP will also be used for uploading the documents and evaluation reports for Post Review Contracts. The PIM will provide details on the procurement procedures, Standard Procurement Documents, and model contracts associated with the market approaches and selection methods for various procurement categories. The details of the Procurement Plans are in STEP.

Procurement Capacity and Risk Assessment

9. **Capacity and risks.** A WB Procurement Specialist will conduct a procurement risk assessment of each PIU during the Appraisal mission. Anchored in MAERSA and MEPA, each PIU will be responsible under the Project for: (i) finalizing procurement documents prepared by their PIU or technical structures; (ii) preparing the advertisement notices; and (iii) presiding over tender committees and drafting contracts for approval. The tender committee comprises both internal and external members.

10. The overall procurement risk is rated Substantial, but after the implementation of the proposed mitigation measures, the residual risk is deemed to be “Moderate”.

11. **Procurement risk mitigation measures.** Several measures are proposed to mitigate the various procurement risks identified for the project. With the implementation of these corrective measures, the residual risk can be downgraded to Moderate.

Table A2.2: Procurement risk mitigation measures

Implementing agency	Risk mitigation measures	By when
PIU/WB	Ensure that provision of procurement documents (bidding documents, requests for quotations, contracts) comply with the WB anti-corruption policy, the WB right to sanction, and the WB’s inspection and audit rights, as well as relevant WB SEAH requirements.	Throughout implementation
PIU/WB	Recruit (or attach from the Ministry) a procurement specialist.	Latest 3 months after effectiveness
WB	Train staff in the new procurement framework (online and/or in person) and STEP, which will be used to manage all contract transactions and related documents	Throughout implementation
PIU	Develop a contract management system to ensure that all contracts identified in the PPSD are managed effectively	Throughout implementation

12. **Procurement documents.** For international competitive procurement for works, goods, non-consulting services, and consulting services, the Borrower shall use the WB’s Standard Procurement Documents with minimum changes, acceptable to the WB, as necessary to address any project-specific conditions.

13. **Procurement information and documentation—filing and database.** Procurement information will be recorded and reported as follows:

- (a) Complete procurement documentation for each contract, including bidding documents, advertisements, bids received, bid evaluations, letters of acceptance, contract agreements,



securities, and related correspondence will be maintained at the level of the respective ministries in an orderly manner, readily available for audit.

(b) Contract award information will be promptly recorded and contract rosters, as agreed, will be maintained.

(c) Comprehensive quarterly reports will be prepared, indicating: (i) revised cost estimates, where applicable, for each contract; (ii) status of ongoing procurement, including a comparison of originally planned and actual dates of the procurement actions, preparation of bidding documents, advertising, bidding, evaluation, contract award, and completion time for each contract; and (iii) updated Procurement Plans, including revised dates, where applicable, for all procurement actions.

14. **Procurement notices and contract awards.** General Procurement Notice, Specific Procurement Notices, Requests for Expression of Interest, and results of the evaluation and contracts award should be published in accordance with advertising provisions in the Procurement Regulations. For request for bids and request for proposals that involve international bidders/consultants, the contract awards shall be published in United Nations Development Business, in line with the provisions of the Procurement Regulations.

15. **Training, workshops, study tours, and conferences.** Training (including training material and support), workshop, and conference attendance (based on individual needs as well as group requirements), as well as on-the-job training, will be carried out based on an approved annual training and workshop/conference plan that will identify the general framework of training activities for the year. A detailed plan and terms of reference specifying the nature of the training/workshop, number of trainees/participants, duration, staff months, timing, and estimated cost will be submitted to IDA for review and approval before initiating the process. The appropriate methods of selection will be derived from the detailed schedule. After the training, each beneficiary will be requested to submit a brief report indicating what skills have been acquired and how these skills will contribute to enhance his/her performance and contribute to the attainment of the PDO. Reports by the trainees, including completion certificate/diploma upon completion of training, will be provided to the project coordinator, retained in the records, and shared with the WGB if required.

16. **Procurement Manual.** Procurement arrangements, roles and responsibilities, methods, and requirements for carrying out procurement will be elaborated in detail in the Procurement Manual, which will be a section of the PIM. The PIM will be prepared by the Recipient and agreed with the WB before effectiveness.

17. **Operating costs.** Operating costs financed by the project are incremental expenses incurred by each PIU, as approved by the WB, on account of project implementation, management, and M&E, including utilities; office space rental; office supplies; bank charges; vehicle operation, maintenance, and insurance; maintenance of equipment and buildings; communication costs; travel and supervision costs (that is, transport, accommodation, and per diem); and salaries of contracted and temporary staff. They will be procured using the procurement procedures specified in the project's manual of administrative, financial, accounting, and procurement procedures accepted and approved by the WB.

18. **Procurement implementation.** Procurement for the Project will be executed by the two PIUs anchored in MEPA and MAERSA, which will carry out the following activities: (i) managing the overall procurement activities and ensuring compliance with the procurement process described in the relevant manuals; (ii) ensuring compliance of bidding documents, draft requests for proposals, evaluation reports,



and contracts with WB procedures; (iii) preparing and updating the Procurement Plan; (iv) monitoring the implementation of procurement activities; (v) developing procurement reports; and (vi) seeking and obtaining approval of internal designated entities and then of IDA on procurement documents, as required. The PIUs will participate in the process of all these procurement activities and will notably support: (i) preparation of terms of reference and the bidding documents; (ii) preparation of evaluation reports and contracts related with WB procedures; and (iii) participation in procurement commission activities and all related meetings.

19. **National Procurement procedures.** When approaching the national market, the country’s own procurement procedures may be used with the requirements set forth or referred to in paragraphs 5.3 to 5.6 related to National Procurement Procedures and subject to certain requirements for national open competitive procurement. Other national procurement arrangements (other than national open competitive procurement) that may be applied by the Recipient (such as Limited/Restricted Competitive Bidding, Request for Quotation -RFQ, Local Bidding, and Direct Contracting) will be consistent with the WB’s core procurement principles and ensure that the WB Anticorruption Guidelines and Sanctions Framework and contractual remedies set out in its Legal Agreement apply. This includes codes of conduct that contain prohibitions against SEAH, clear disciplinary sanctions against SEAH, and remedies for non-compliance.

20. **Frequency of procurement supervision.** In addition to the prior review supervision which will be carried out by the WB, semi-annual supervision missions are recommended. Annual WB procurement post review will be conducted by the WB Procurement Specialists. The sample size will be based on the procurement risk rating for the Implementing Agency. The prior review procurements will be reviewed and cleared in STEP by the WB Procurement Specialist.

21. Thresholds for market approaches, procurement methods, and WB prior review are indicated in the Table below.

Table A2.3: Procurement Selection methods and Prior review thresholds

Category	Prior review threshold (US\$ millions)	Procurement method thresholds (US\$ millions)				
		Open International	Open National	RFQ	Short list of consultants	
					Consulting services	Engineering and construction supervision
Works	≥10	≥3	<3	≤0.2	N/A	N/A
Goods, IT, and non-consulting services	≥ 2	≥0.3	<0.3	≤0.1	N/A	N/A
Consultants (firms)	≥ 1	N/A	N/A	N/A	≤0.2	≤0.2
Individual consultants	≥0.3	N/A	N/A	N/A	N/A	N/A

22. **Contract management and administration.** For all prior review contracts, contract management plans (in line with the provisions of the Annex XI of the World Bank Procurement Regulations) will be developed during contract creation and completed at the time the contracts are signed.

23. **Summary of the PPSD.** The PPSD and Procurement Plan detailing the first 18 months of implementation have been prepared by the Borrower, submitted and cleared by the WB.



ANNEX 3: Economic and Financial Analysis

1. **This annex presents the preliminary economic and financial analysis (EFA) for the proposed West Africa Food System Resilience Program-Phase 3 (FSRP-3).** The program interventions to enhance food security and resilience of the food system in Senegal are economically justified, generating an indicative net present value (NPV) of the net additional benefits (NPV, using a social discount rate of 6%) of US\$209.9 million and an economic internal rate of return (EIRR) of 22.8% (over a 20-year period and on an IDA budget of US\$200 million).

Identification of Benefits

2. **The program's development objective of increasing preparedness against food insecurity and improving resilience of food system actors, priority landscapes and value chains in Senegal is expected to lead to three main quantifiable, mutually reinforcing benefits.** First, the FSRP-3 will lead to *increased agricultural income* thanks to increased productivity and to the sale of the surpluses. The higher productivity will directly result from several program outcomes, such as higher availability of improved climate- and nutrition-smart technologies and innovations or widespread provision of improved research and extension services. Second, by enhancing national and regional systems for agriculture and food crises prevention and management, the FSRP-3 will *increase climate change resilience and adaptation*. Third, the program will stimulate agricultural growth and transformation through *broader and more effective regional agricultural integration between ECOWAS member countries*.

Methodology and Assumptions

3. **This CBA analysis follows the standard methodology recommended by the World Bank, as described in Gittinger (1982), Belli et al. (2001) and is aligned to the recent guidelines for economic and financial analysis.** This methodology is applied differently depending on the type and scope of the program activities. First, the present analysis quantifies the estimated benefits from public and private activities related to the targeted value chains under subcomponent 2.2 and subcomponent 3.2 through a financial analysis. Hence, where data availability allowed, twenty (20) models have been prepared with computed costs and benefits experienced by the beneficiaries, using market prices. The opportunity cost of capital used in the financial analysis is in line with the World Bank guidelines, i.e., 7%. Moreover, the financial models for the present analysis are mostly developed over either a 10 or 20-year period, depending on the nature of the investment.

4. **The economic analysis follows a similar approach, aggregating the results at the level of the program and from the society viewpoint.** The economic analysis uses the incremental benefits, aggregated across the expected total number of beneficiaries, and assumes a different adoption rate depending on the activity. Conversion factors have been calculated for different product categories and have been used to convert financial prices into economic ones. The total project economic costs have been adjusted to avoid double-counting and are subsequently subtracted from the additional benefits to determine the overall economic viability of the project. The discount rate used for the economic analysis, that is 6%, is in line with the World Bank guidelines and the practice of recent projects.⁴¹ Given the nature of the investments of the program, their benefits have been evaluated over a 20-year period.

⁴¹ World Bank (2016): Discounting of Costs and Benefits in Economic Analysis of World Bank Projects, The World Bank, Washington DC, 11 p.



Results

5. **All financial models demonstrate the profitability of the proposed investments.** All directly supported production activities generate positive additional benefits, ranging from US\$157/ha for millet seed multiplication to US\$3,995/ha for irrigated horticulture. As for sub-project (SP) financing, the estimated additional benefits generated range from US\$1,455 for one SP related to cattle fattening to US\$131,317 for one SP in dairy processing (Table A3.1 below shows the returns for the SPs under subcomponent 3.2). Looking at the NPV at a discount rate of 7%, the results are more than satisfactory, ranging from US\$535/ha for rain-fed maize production to US\$915,674 for dairy processing SPs.

Table A3.1. Indicative financial returns for SPs under Sub-component 3.2

Sub-project category	Sub-project type	Net additional revenue* (US\$/SP/year)	Net present value (@7%, 10 or 20 year, US\$)
Category 1	Millet/sorghum production	5,119	19,823
	Maize production	5,394	22,563
	Sheep fattening	2,133	8,628
	Cattle fattening	1,455	5,379
	Pig fattening	1,774	6,797
	Local poultry production	1,515	3,259
Category 2	Dry grains processing	91,322	327,814
	Poultry slaughtering unit	26,181	113,380
Category 3	Dairy processing unit	131,317	915,674

* At full realization of benefits

6. **The FSRP-3 economic results are positive, generating a NPV (at 6% social discount rate) of US\$ 209.9 million and an EIRR of 22.8% (over a 20-year period and for an IDA budget of US\$200 million),** not accounting for environmental externalities. These economic results are satisfying, given that several other project benefits could not be quantified due to the difficulty of assigning them a monetary value. Moreover, these economic results have been tested against several risk scenarios. The sensitivity analysis indicates that results are robust for small to moderate delays, cost overruns, and reduction in benefits. Yet, larger changes in these parameters can affect the project’s economic justification.

7. **As described in Annex 4, the program will also generate a positive carbon balance of about 53,258 tCO2-eq/year over a period of 20 years.** This result is driven by the additional emissions generated by the interventions related to livestock (83,985 tCO2-eq/year) that offset and surpass the reduction in emissions (- 30,727 tCO2-eq/year) due to the agricultural interventions of the program. Using the World Bank’s Guidance note on shadow price of carbon in economic analysis (2022 update), the social price of carbon has been also included in the overall economic results, using the low and high estimate range for the social price of carbon. As a result, the economic indicators decrease. Assuming the low estimate range of carbon social price, the EIRR is 19.4% and the NPV is US\$37.8 million lower; assuming the high estimate range, the EIRR becomes 16.3% and the NPV is US\$75.4 million lower. Despite this decrease, these indicators are high enough to confirm the economic validity of the program.



ANNEX 4: Greenhouse Gas Accounting

1. This annex presents the preliminary greenhouse gas (GHG) accounting for the proposed West Africa Food System Resilience Program (FSRP)-Phase 3, focusing on Senegal as the beneficiary country of this phase. In its Climate Change Action Plan (2021-2025), the World Bank Group committed to support countries toward the lower-carbon development paths. To this end, the ex-ante GHG emission quantification is an essential step to assess the climate impact of development projects and manage actions reducing GHG emissions and sequestering carbon. As the FSRP-Phase 3 in Senegal focuses on both agriculture and livestock, the present analysis applies a combination of methodologies reflecting their different characteristics so to ensure GHG estimation accuracy.

2. The results indicate that the FSRP3-SN will lead to a **positive carbon balance of about 53,258 tCO₂-eq/year over a period of 20 years** starting from program implementation. This result is driven by the additional emissions generated by the interventions related to livestock (**83,985 tCO₂-eq/year**) that offset and surpass the reduction in emissions (**- 30,727 tCO₂-eq/year**) due to the agricultural interventions of the program.

GHG Accounting of the agricultural activities of the FSRP-Phase 3

3. In line with the World Bank's corporate guidelines, the present analysis is using the Ex-Ante Carbon-balance Tool (EX-ACT) version 9.4.1 developed and updated by FAO since 2010, to assess a project's net carbon-balance of the agricultural components.⁴² The carbon balance is defined as the net balance from all GHGs expressed in CO₂ equivalents (CO₂e) that are to be emitted or sequestered due to project implementation (WP) as compared to a business-as-usual scenario (WOP). EX-ACT is a land-based accounting system, estimating CO₂e stock changes (i.e. emissions or sinks of CO₂) expressed in equivalent tons of CO₂ per hectare and year.

4. For the present program, the calculations have been based on agro-ecological characteristics of the project area in Senegal (tropical dry climatic conditions with low-activity clay (LAC) soils) and on the parameters of land use and crop management practices aligned to the economic and financial analysis (EFA). The changes brought about by the program have been included in the tool's different modules and include: (i) land change use to account for the restoration activities of Sub-component 2.2 (5,192 ha); (ii) improved crop productivity and production with less GHG emissions on a total of about 25,319 hectares under different crops (rice, maize, millet/sorghum, horticulture); and (ii) increased use of fertilizers⁴³ and development of irrigation infrastructure (hand-moved sprinklers⁴⁴ covering 4,938 ha).

5. The carbon balance results indicate that **the program activities will lead to a carbon sink of about 614,542 tCO₂-eq over a period of 20 years⁴⁵ starting from program implementation or about 30,727 tCO₂-eq/year**. Per year, the mitigation potential is roughly 21.5 tons of CO₂-eq, or 1.1 tons of CO₂-eq per hectare. Overall, the additional emissions generated by the increase in input use are offset and surpassed by the reductions in emissions due to land restoration and crop production, ensuring the carbon neutrality of the program's agricultural activities.

6. For reducing **food loss and waste**, there is no World Bank accepted GHG accounting methodology, however, the FLW-related activities of this project will lead to substantial GHG reductions. Innovative

⁴² <http://www.fao.org/tc/exact/ex-act-home/en/>

⁴³ It has been assumed that crops uses NPK 15-15-15 and Urea 46%.

⁴⁴ The type of irrigation infrastructure is a hypothesis, it needs to be confirmed at a later program stage.

⁴⁵ Aligned to the EFA analysis period and assuming 6 years of implementation and 14 years of capitalization.



solar-powered cold chain facilities will contribute to substantially reduced food loss and waste. Alternative conventional cooling systems would cause increased GHG emissions, and storage without cooling would increase food loss and waste.

GHG Accounting of the livestock activities of the FSRP-Phase 3

7. The Global Livestock Environmental Assessment Model-interactive (GLEAM-i) developed at FAO is used to estimate the GHG emissions generated by the FSRP3-SN. Differently from Ex-Act, which considers the livestock and manure management sector mainly under the Tier-1 approach methodology, GLEAM-i uses the Tier-2 approach methodology. Hence, it allows a more precise estimation of the emission factors and sources from livestock production as it considers improvements in animal herd dynamics and in feed production. The carbon balance is estimated as the difference between the annual average over the 20 years of baseline (without project) and the annual average over the 20 years with project. The details regarding the background calculations in GLEAM-i can be found in the GLEAM manual (FAO, 2017).

8. **Activity data.** The same assumptions of the EFA conducted with the Livestock Sector Investment and Policy Toolkit were considered to define the parameters in situations with the project and used for activity data. With the project, the animal numbers are expected to increase and the systems to be more productive. For ruminants, protein production is expected to increase resulting from decreased death rates of adult and young animals and increased fertility rate, milk production and live weight. For poultry and pigs, production is expected to increase mainly due to the improvement of animal health and the dissemination of good breeding practices. Feed improvements were assumed to result in an increase of the proportion of more digestible feed in the ration. The project also aims to improve manure management for cattle through biogas production. Manure management for sheep, goats, poultry, and pigs remained unchanged with project.

9. **Results.** The ex-ante analysis shows a **net positive balance of 83,985 tCO₂-eq/year for the project**, or an increase of 9.02% compared to the situation without project. This is mainly due to the reduction of 7.57% of methane enteric that represents 43.9% of all GHG emissions in the project. The drivers of the increase in emissions are related mainly to chicken and pigs, and partially, to cattle. In particular, there was increase in emissions from other sources like feed production mainly from the non-ruminants that represents 98% and 45% of the total emissions for poultry and pigs respectively. The increase in animal emissions is mostly the result of better feed quality by including more grains and protein sources for the non-ruminants and improvements of system productivity.

10. The emission intensity representing the quantity of GHG emitted by kilogram of protein produced (CO₂ eq./kg protein) showed a decrease of 41.65% due to the improvement of the total protein production (18.4%). The reduction of emission intensities for all ruminant and poultry systems reflects the efficiency improvement resulting from the project. As the FSRP project focuses mainly on improving system productivity increasing animal head and protein production, the decrease in emission intensity reflects the better efficiency of all livestock systems.

Overall results

11. The carbon balance results indicate that the FSRP3-SN will lead to a **positive carbon balance of about 53,258 tCO₂-eq/year over a period of 20 years** starting from program implementation. This result is driven by the additional emissions generated by the interventions related to livestock that offset and surpass the reductions in emissions from the agricultural interventions of the program.



Summary of Adaptation and Mitigation Activities under the Project

12. Presented in the table below is a summary of each of the sub-components and activities and the specific adaptation and mitigation benefits that they would achieve. The table also identifies the **approximate IDA funding levels under each of the activities under the sub-components. The approximate IDA funding is provided in brackets (abbreviated as “F”).** Activities being part of the Senegal NDC are identified with the acronym **NDC**.

Table A4.1: Summary of Adaptation and Mitigation Activities

Sub-components and Activities	Climate Adaptation Activities	Climate Mitigation Activities
Component 1: Digital Advisory Services for regional agriculture and food crisis prevention (Total US\$8 million, all IDA)		
<p>Sub-component 1.1: Upgrading Regional Food Crisis Prevention and Monitoring System (IDA US\$4.5 million) Strengthening national capacity to provide reliable information on vulnerability, nutrition and food security (meteorological information and forecasts, satellite monitoring of crops and pastures (45% F) Strengthening the crop pest monitoring and early warning system (50% F) Supporting regional collaboration to prevent food crises (5% F)</p>	<p>Prevention and monitoring (Early Warning) systems (NDC) will provide useful data to build adaptation interventions. It will feed public policies and interventions: agricultural and livestock policies, pest and disease interventions, food security interventions.</p>	
<p>Sub-component 1.2: Strengthening Digital Hydromet and Agro-advisory Services (IDA US\$3.5 million) Strengthening means and capacities for agro-climatic data production and dissemination (2% F) Support for the provision of agricultural warning and advisory services to key users (92% F) Strengthening institutional and financial sustainability and supporting public-private collaboration among hydromet service providers (6 % F)</p>	<p>Digital hydromet and agro-advisory services will guide producers and other value-chain actors in their adaptation process. Climate Smart practices will be promoted such resilient seeds and breeds, efficient water use. (NDC)</p>	<p>Climate Smart practices (low GHG emission and carbon sink) will be promoted.</p>
Component 2: Sustainability and adaptive capacity of the food system’s productive base (IDA funding US\$100 million)		
<p>Sub-component 2.1: Consolidate Regional Agricultural Innovation Systems (IDA US\$50.5 million) Capacity building for regional and national research systems (e.g., research center construction and renovation, lab equipment, running costs, PhD scholarship, ISO (23% F)</p>	<p>Agroecological transition will be a key driver for adaptation. Research and innovation A permanent process of capitalization of agro-ecological practices will be fed by best farming practices and scientific research. Extension services promoting these practices will be enhanced and modernized, and farmers will have a</p>	<p>Agro-ecological transition will also be a key driver for mitigation: research and innovation, extension services will be conducted in that direction.</p>



Sub-components and Activities	Climate Adaptation Activities	Climate Mitigation Activities
<p>Intensification and extension of innovative R&D and technology transfer networks (funding innovative R&D and technology transfer SP) (58 % F)</p> <p>Modernization of national agricultural advisory and extension services (e.g., agro-ecological practices capitalization and dissemination, construction of a national center, quality process, informatics and transport, communication) (12% F)</p> <p>Facilitating access to and exchange of technologies (e.g., Technologic parks, Field Farmer Schools) (7% F)</p>	<p>better access to finance to support their adaptation projects. Good practices such natural fertilization, crop combination (e.g., cereal/legume), use of climate-adapted varieties (developed through the RCE), water-use efficiency, and agroforestry will be supported. (NDC)</p>	
<p>Sub-component 2.2: Strengthen Regional Food Security through Integrated Landscape Management (IDA US\$49.5million)</p> <p>Rehabilitation of irrigation scheme and watershed management (50%F)</p> <p>Soil restoration (20% F)</p> <p>Integrated Landscape management (30%F)</p>	<p>Water availability and management (NDC) will be of particular importance as well as the costs thereof (incl. provision of alternative water sources for food production and the development of irrigation potential). The project will sustain irrigation efficiency with rehabilitation of irrigation perimeter and watershed management in selected territories. It will also sustain recovery of saline lands (NDC).</p> <p>Restoring and managing soil fertility will be sustained with the development of pilots in every agroecological areas, first implementation step of the national strategy. (NDC)</p> <p>Finally, 12 communes will develop ILM supporting food systems. These will look at the interface between agriculture (incl. livestock) and forested landscapes at ways to intensify agriculture to reduce pressure on forested landscapes or to promote agroforestry, given the multiple benefits of keeping and restoring forested land cover (e.g., erosion control, sedimentation control, higher water retention capacity in soils for vegetation and flood regulation). (NDC)</p> <p>It will promote diversification of production systems (NDC)</p>	<p>The global footprint of the irrigation scheme will be reduced by using renewable energy.</p> <p>The development of low carbon food systems will be promoted by matching grants in 12 Communes. Matching grants will be conditioned on access to credit and contribution to agroecological transition (i.e., social and environmental progress). TA will also be provided to the beneficiaries. This will contribute both to adaptation and mitigation</p>
<p>Component 3: Regional food market integration and trade (IDA US\$73 million)</p>		
<p>Sub-component 3.1- Facilitate trade across Key Corridors and Consolidate Food Reserve System</p>		



Sub-components and Activities	Climate Adaptation Activities	Climate Mitigation Activities
Participating in regional trade policy negotiations and implementation (45% F) Improving the regional food security reserve system (55% F)		
Sub-component 3.2: Support the development of strategic regional VCs (IDA US\$69.7 million): Livestock (80% F) Cereals (20% F)	<p>The financing scheme for agriculture and food investment will include matching grants conditioned on access to credit and contribution to agroecological transition (i.e., social, and environmental progress). TA will also be provided to the beneficiaries. Use of stress tolerant and resilient inputs adapted varieties (short cycle and temperature), appropriate climate smart production technologies for production, processing, storage, and distribution. (NDC)</p> <p>Under the livestock sector, the project promotes the use of enhanced animal health services to increase resilience to climate change risks and invests on food safety measures for livestock threatened by climate change. It will sustain livestock species genetic improvement. It will also promote climate-smart pasture management, conservation of pastoral resources, strengthening of Pastoral Units, integration of fodder crops and partial stabilization (NDC). And it will support farmers and institutions to adapt to climate change impacts on the livestock sector through training, capacity building, and information dissemination. The project will promote integrated agriculture-livestock-agroforestry production systems (NDC)</p>	<p>Agriculture and livestock: climate-smart practices will be promoted, such soil carbon sequestration, combined livestock and agriculture system, crop association or rotation with legume.</p> <p>The GHG emission reduction interventions in Livestock husbandry will include activities that reduce methane emissions (manure management with biodigester, improved breeding practices and improved health services. Industry modernization will be sustained. An important effort to modernize selected food VCs (dry cereals, meat and dairy products) will be made, to reduce losses, increase value added, and improve the carbon footprint of post-harvest operations (energy efficiency and renewable energy).</p>



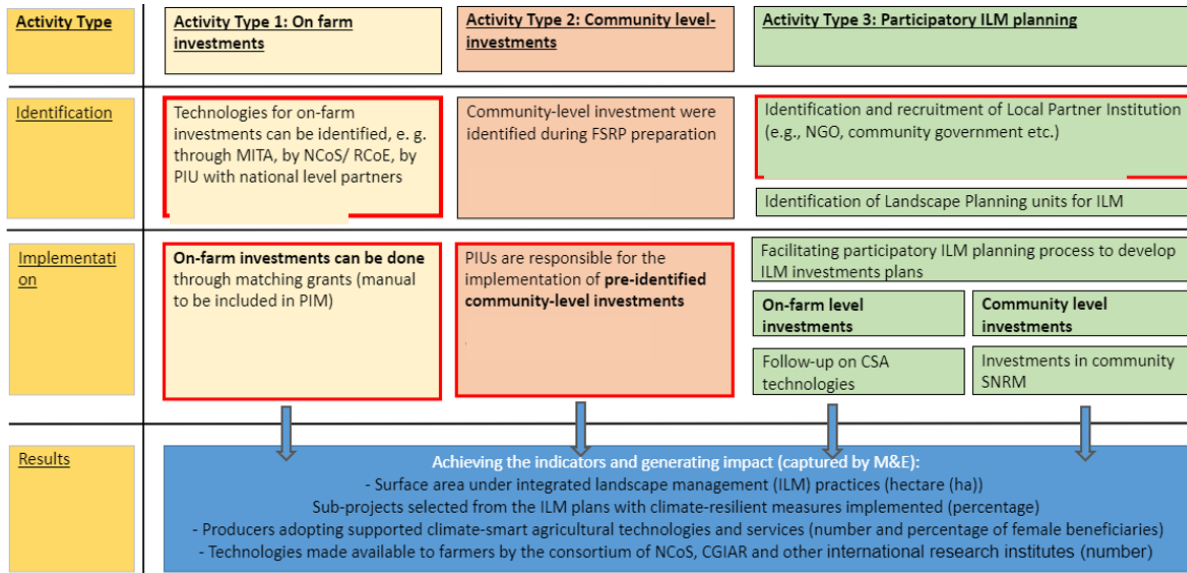
ANNEX 5: FSRP Learning Agenda

1. **As an MPA, learning is an integral part of FSRP.** The FSRP Phase 1 developed a Learning Agenda with four mechanisms to generate and disseminate knowledge and learning. The following four mechanisms inform FSRP-SN: (i) analytical studies with policy and strategy notes developed on topics highly relevant for FSRP; (ii) capacity building provided to the regional organizations to overcome operational and technical capacity gaps; (iii) region-wide learning events will be organized to disseminate and mainstream knowledge in response to needs voiced by Borrowers; and (iv) an impact evaluation will be conducted in order to refine delivery mechanisms.
2. **Progress on the Learning Agenda has been achieved under all four mechanisms.** Under the first, the program has created public policy notes on: (i) regional risk management architecture, (ii) the conflict-climate nexus, (iii) mechanisms for the delivery of digital climate information, and (iv) the scorecard methodology allowing to monitor countries' performance in implementing regional trade regulations to facilitate the region's intraregional food trade. This analytical work will be streamlined into the implementation of the FSRP-SN. Under the second, capacity gap assessments and support has been provided to the regional organizations to better fulfill their respective roles in the program. Under the third, the regional organizations and the WB team organize monthly townhall meetings, multiple monthly capacity building workshops on various topics and regional wrap-up meetings twice per year. Related to the fourth, the program has also developed a guide for a rigorous impact evaluation methodology to measure changes in food insecurity in areas targeted by FSRP, and to assess the impact of program's interventions on key food security and other development indicators in the region. It is currently working with the WB's Development Impact Evaluation group to operationalize the impact evaluation in countries. The impact evaluation will help learning to be further promoted throughout the lifetime of the MPA.
3. **Key lessons from FSRP Phase 1 and 2 include:**
 - (a) **Interventions must be carefully selected and designed with a strong technical focus to maximize investments in cost-effective activities providing mutually reinforcing benefits.** Interventions must prioritize areas that are most critical to increase food system resilience, such as risk management, climate-smart agriculture, and ILM as well as trade and VC promotion in West Africa. Within the intervention areas, a cost-effective mix of different kinds of activities must be selected. Moreover, activities must be well linked so that they can provide mutually reinforcing benefits (e.g., decision-support systems helping both farmers make smarter on-farm decisions to improve yields and better manage climate risks despite rising weather variability and enable food traders to make informed decisions based on more accessible and reliable market information).
 - (b) **Investing in regional institutional infrastructure and capacity is important for program sustainability.** Across the region, programs suffer from lack of long-term sustainability after project financing ceases. Regional organizations benefit from support and cash-flow during the duration of projects but lack the core staff and operational abilities to sustain program activities after closing. To overcome this issue, the FSRP will invest in regional organizations, all of which are committing to contribute an increasing share of counterpart financing as the program progresses.
 - (c) **Feasibility studies must be launched early.** Many investments under Components 2 and 3 require feasibility studies, and these must be launched immediately following project effectiveness to not delay implementation.



(d) **ILM and climate-smart agriculture activities must be implemented together and in parallel.** The below graphic shows the parallel process to be followed for the implementation of the Component 2.2.

Figure A5.1: Overview of three activity types of Component 2.2



4. In addition, the FSRP-SN has internalized lessons from the following projects:

- (a) WAAPP, by strengthening the established Regional Research Centre of Excellence (RCoE) for dry cereals and associated crops in Senegal and other RCoEs and National Centers of Specialization (NCoS), as well as extension services, accelerating the adoption of climate smart practices and the use of digital technologies to support the development of the project targeted values chains;
- (b) Agriculture and Livestock Competitiveness Program for Results (PCAE, P164967), to further improve productivity and competitiveness;
- (c) PARIIS (P154482) to further expand and improve water use for irrigation purposes, while ensuring the adoption of broader landscape management/agro-ecological practices;
- (d) PRAPS-2, (P173197), to also support sedentary, more intensive, crop-livestock production systems focusing on dairy and meat VCs. Broad adoption of sanitary, environmental, and public health standards along the livestock VC will also be critical and supported by the project under a One-Health approach;
- (e) Senegal Jobs, Economic Transformation and Recovery Program (PRES, P174757), supporting access to finance to boost investments from the private sector (small to medium size ventures), selecting the most adapted instruments and approaches to enhance financial inclusion of agriculture crop and livestock VC actors; and
- (f) AICCRA (P173398), scaling-up CGIAR innovations and approaches on climate services and scale climate-smart agriculture.



ANNEX 6: Gender Gap Analysis and Gender Action Plan

Overview and Background

1. Women in Senegal play an enormous role in the production of food and in the countries' food security, however gender gaps hinder the possibility of the sector to achieve its full potential. The FSRP in West Africa in its first two phases has paved the way for strong gender focus with tested approaches and regional service. Phase 3 in Senegal will continue to build upon the strong gender program of the previous phases, including on gender-smart technologies, seed business incubation, knowledge transfer, financing and capacity building.

2. In Senegal, agriculture is the main engine of growth in the primary sector with women making a significant contribution, estimated at 27.3 percent of agricultural wealth⁴⁶. However, despite their major contribution to the Senegalese economy, women farmers do not access productive inputs at the same level as male farmers.

Gender Gaps

Access to Productive Inputs

3. Both in the agriculture and livestock sectors, women have less access to inputs than men. This includes but is not limited to fertilizer, seeds, irrigation, financing, advisory information. They also have more restricted use and ability to access markets and enterprise support to scale up their enterprises. A recent study trying to quantify the impact of land security⁴⁷ revealed that in agricultural households where women own land and are the head of household, there is an average decrease of production of 696.5 kilos. The study shows significant lower levels on inputs such as fertilizer and better seeds resulting in this yield differential.

4. The economic evidence shows that women are almost half as productive as men and are more involved household or lower value crops. Investment choices in research and technologies may be gender targeted when they consider crops such as non-irrigated rice, bissap, and certain types of millet. Women also have lesser access to production and mechanical tools. This in turn may affects their crop choices and productivity with impacts on soil preparation, threshing, and weeding.

Roles in Decision-making: communities and households and presence in Data

5. A recent evaluation of an NGO program⁴⁸ revealed that women's financial and agricultural behaviors are influenced by three main gender norms around household decision-making, agricultural responsibilities, and financial behaviors. These three norms identified were i) perceptions on women and their means of saving money, ii) the types of crops and the purposes for which women grow food (and thereby need for inputs) and iii) household decision making and financial provision. This insight into the reasons for poor uptake of agricultural input packages is crucial information for programs to effectively reach women and efforts to harness the production of women into food security.

⁴⁶ ANSD, *Entreprenariat et leadership féminin*, 2022).

⁴⁷ To analyze the economic impact of women's land rights in Senegal, the research used the Agricultural Policy Support Project (PAPA) survey database and USAID's Naatal Mbaye Database. In the Naatal Mbaye database, we focused on the exploitation of the Baseline, Gender and Women's Empowerment and Nutrition (PRO-WEAI) component to identify variables relevant to the definition of access to land according to the type of title and farming system in Senegal.

⁴⁸ <https://www.cgap.org/blog/in-senegal-supporting-rural-women-starts-with-reshaping-gender-norms>



6. The research in the MyAgro communities revealed that gender norms around decision-making and around the purpose of women’s agricultural activities hinder participation in agricultural support programs: “Interviews with women farmers and other community members revealed that decision-making over agricultural and financial matters is seen as the domain of men”. Even when women are specifically targeted, reviews demonstrate that decisions over agricultural and livestock are often referred to male family members. Women’s Empowerment in Agriculture Index baseline studies confirm low levels of decision-making at the household level.

Land tenure security and availability

7. While land ownership and titles are generally difficult to access in Senegal, the figures for women are even lower, only 9.1 percent of agricultural land is owned by women⁴⁹. Most women gain access to land through their husbands. While the legal text recognizes gender equality and parity under the law, the customs and norms do not always reflect this in terms of access to land tenure and rights. The need to demonstrate use and productivity of the land discriminates against women who may not be able to use the land for agricultural purposes up-front, and whose access to productive resources in agriculture may be weak. Women, when they do use land, are often given marginal plots and have poor bargaining techniques or lobbying power to support their requests. In Senegal, productivity support and agricultural input programs are one of the more effective ways of supporting women’s land claims; investing in the means for women to secure the plots contributes to closing a gender gap in land titling and security.

Women and Value Chains, Agribusinesses and Finance

8. Much of agricultural investment is considered in policy and strategy through the lens of production as it is male-dominated and less in the transformation sub-sector which is favored by women’s traditional roles. The dairy-milk chain is in particular quite gendered in Senegal with post-production getting little investment attention. Of note is the need to make milk production and commercialization sustainable for women and the collection/processing centers more durable (they suffer from inevitable power outages which make scale-up impossible). Where they do exist as centers (mostly headed and used by women) they suffer from very weak capacity, no capital and little training. Furthermore, mobility and transport are factors for these producers to meet industrial demands and needs as they are sometimes isolated and have not benefitted from networking and business management planning. Value chain planning for them and scale-up is non-existent.

9. Financing is in general very low in Senegal; but discriminatory. Women’s much lower access is mostly due to appetite, knowledge, collateral conditions, capacity for absorption and lack of options available to meet women’s specific needs for accompaniment. Women’s savings groups are widespread but are not regularized or considered for agricultural activities. In terms of financing for agricultural projects, households headed by men take out this type of loan more (7 percent) than those headed by women (4 percent). However, the use of financing for women is critical “to access agricultural materials and long-term credits for working capital (acquisition of other inputs) to develop production, processing and commercialization activities in all sectors”⁵⁰.

⁴⁹ <http://www.fao.org/gender-landrights-database/data-map/statistics/en/>

⁵⁰ From USAID assessment: <https://www.msiworldwide.com/sites/default/files/additional-resources/2018-12/Gender%20Assessment%20in%20Agricultural%20Sector%20Senegal.pdf>



Gender activities

10. The Senegal FSRP will ensure that in all activities it maintains a focus on creating women and men's equitable access to services and benefits. This will mean in certain cases that activities will be tailored specifically for women to account for gender gaps and designed in different ways to meet differentiated access potential and needs. The gender activities were informed by detailed discussions with the government partners, and then proposed in a national gender stakeholder workshop. The below activities, outlined by component, have therefore been the object of reflection with relevant stakeholders and reflect the most circumstantially effective of solutions to the presented gender gaps.

11. Within the World-Bank funded AICCRA project, women researchers and in agricultural science employment are supported and trained for leadership; this has been extended to the FSRP in Africa West successfully and will be included in Senegal as well. A cohort of women employees from the research, technology and meteorology institutions will be eligible for leadership training and regional support program which is led by the Gender Group at CORAF. Research in innovation systems will target gender gaps. Focused Gender-Smart technologies will be promoted in research and a quota will be set in place for ensuring that research considers the needs, time and labor constraints of women farmers and producers. Research into supporting crops that are favored by women will also be considered as Gender Smart. Gender-Smart technologies will also benefit from regional investor marketplaces led by CORAF.

Box 5.B: The Canadian TF for Women's Land Rights in Senegal managed by the World Bank has committed to supporting the work on harmonizing of databases, datasets and analytical information which will support activities planned for Gender under Component 5. This activity will take place within Phase 2 of the Trust-Funded analytical activities, and is deeply in tune with the needs of government partners working on Gender, to include the Ministries of Agriculture and Livestock. Leveraging a unique position between donors, civil society and government partners, the TF will support the production of this data assembly from various entities and partners and in the context of FSRP Senegal.

Table A6.1: Gender Actions Per Component

Category	Gender Actions
DIGITAL ADVISORY FOR REGIONAL AGRICULTURE AND FOOD CRISIS PREVENTION AND MANAGEMENT	
Monitoring and delivering information services	Better inclusion of women in national statistics, to improve gender data coverage and the quality of support offered to women from institutions relying on this data; this will include harmonization from existing and outside data sets.
	Gender-Smart climate information models following the AICCRA model on making climate information climate-smart will be leveraged (as in all FSRP countries)
	Drafting and implementation of a national Gender Strategy for ANCAR. This will include the mapping of better, and digital entry points, planning for staffing, and outreach, institutionalizing tailoring, and consultative processes.
Extension services and resource allocation	A plan for oral extensions services (either in digital format or via radio) will be planned to tackle non alphabetization for women; more innovations on successful sharing and uptake will be brought into this programming as well. Specific tools to tackle women's numeracy difficulties will be included
	A note on Staffing to sustainably increase female extension service providers with a national strategy for extension.
	Establishing and strengthening existing connectivity Hubs for Women to access digital information.
SUSTAINABILITY AND ADAPTIVE CAPACITY OF THE FOOD SYSTEM'S PRODUCTIVE BASE	



Research	Research will include a target number on crops that are favored by women. Focusing on women’s crops and roles in agriculture value-chains with a quota of 20% toward the production and dissemination of gender-focused tools and technologies.
Sustainable Agriculture Production and integrated land management	Ensuring any community group set up will have a target of 40 percent female representation. This will be a significant feature in the ILM processes including creating and implementing the POAS. Groups will be structured for women to be an integral part of the discussion and decision-making and land for women’s use to farm will be a priority.
	Plots owned and farmed by women will be singled out under the irrigation rehabilitation schemes and under the matching grants for better commercialization of production.
REGIONAL MARKET INTEGRATION AND TRADE	
Value chain development and capacity development	Women’s roles and products have been reflected in the choice of value chains being fixed in advance (such as in dairy and in horticulture being retained)
	There will be a preferential treatment in a specific window for women’s access to financing. The personal contribution to the grant finance will be much less for women’s organizations and a select number of youth groups (who will need to meet other youth-specific criteria). Women and women’s groups can access a specific window for financing reserved to meet their specific personal contribution constraints and capacity to apply and manage the funding.
	Capacity building for private Business Development Service providers to include gender-responsive awareness modules in curriculum and capacity building for government investment facilitation entities to implement women specific support mechanisms
	Accelerators for a small cohort of women-led SMEs to build capacities on business model, investment readiness, access to finance
PROJECT MANAGEMENT	
Monitoring and delivering information services	Ensuring that women producers and famers are properly captured in surveys, research and national enquiries. A strategy for standardizing data collection, surveys and inputs from other projects Gender Strategy, Monitoring and Coordination with relevant partners on Women and Agriculture.

Indicators and Measurement

12. All person-level indicators will be sex-disaggregated. The specific indicator dedicated to measuring the projects’ successful closing of identified gender gaps that are envisaged for FSRP-3 Is and in the Results Framework is: *Women reached with assets and dedicated services to support their increased commercialization in the selected value chains (Number)*

13. Feeding into this specific indicator are a few different targeted activities that include the beneficiaries of the women’s finance window, women’s dedicated advisory sessions, and the women beneficiary of priority irrigation plots and matching grants. Furthermore, the project will capture: the number of women accessing the women’s Finance-Window with support, the Number of Women-headed SPs supported by the matching grant facility. Additionally, the project will monitor the Percentage of Jobs created for which there was a female quota, the percentage or # of ha of land managed by women supported through the project’s land-governance mechanisms and the number of Gender-Smart technologies disseminated by the project.



Gender Tag Results Chain

Gender Gap	Gender Activity	Indicator
Women’s land plots are of lesser quality than men’s, they can suffer from lesser irrigation and their occupancy of workable land is tenuous	Women will be preferentially selected for rehabilitation and land preservation techniques under Component 2 and will have a focus in any consultative community work on land management	Percentage or # of ha of land managed by women supported through the project’s governance mechanisms
Women have less access to productive inputs for commercial agriculture and livestock	Women farmers and livestock herders will be specifically targeted with financial and information program offering dedicated support. Women will be able to use adapted channels	Women reached with assets or services to improve commercialization in the selected VCs (Number)
Women’s needs and abilities are frequently absent from the advisory system strategies and approaches and women are not well represented in policy and data	Extensive work will be undertaken to fashion better data gathering tools, to harmonize data sets and to prepare gender strategy and action plans for relevant government agencies. National Data assembly and Manual for Surveys is designed	Gender Strategy for ANCAR Gender Data collected and Harmonized Number of jobs created in advisory institutions taken up by women
Women’s roles in land governance bodies and community decision-making is limited, affecting agriculture production	Women Groups and plots are singled out for irrigation and land management. All committees established will have female quotas with accurate representation.	Percentage or # of ha of land managed by women supported through the project’s governance mechanism.



ANNEX 7: FSRP Matching Grant Scheme

1. Incentive subsidies such as MGs support private-sector projects that improve economic, social and environmental performance of value chain actors. They support investment in modernizing production equipment, processing, marketing or reducing the costs of implementing quality and good environmental practices. Finally, they contribute to the transition towards agro-ecology, which according to the FAO is "*an integrated approach that applies ecological and social concepts and principles to the design and management of food and agricultural systems*".⁵¹
2. They will be used to sustain private sector projects under the subcomponent 2.2 in selected communes and under subcomponent 3.2 for the selected VCs (dry cereals, dairy products, and meat with funds from IDA and horticulture with funds from IFAD).
3. These MGs will be limited in volume and time, to ensure that they are sustainable and do not distort the market, while remaining incentives for players in the various VCs to implement. The Project will ensure that they do not replace profitable investments, but serve as catalysts to enable investors benefit from existing guarantee funds or subsidy funds.
4. Examples of private investment that can be supported by these subsidies through SPs include, for livestock, fattening workshops, investment in improved breeds, fodder crops, as well as improved infrastructure such as milk collection centers and conservation infrastructure livestock feed warehouses, transport facilities and processing and distribution facilities, access to high-quality veterinary and artificial insemination services. For dry cereals and horticulture, examples include storage facilities to reduce post-harvest losses and harvesting equipment, warehouse receipt systems for both dry cereals and horticultural produce, input supply mechanisms and horticultural seed production. For ILM communes it will sustain any private project contributing to the resilient development of the local food system.
5. MGs under FRSP-SN, used as incentives are intended to support individual and collective SPs while encouraging the participation of beneficiaries and SP holders in investments and liaising with financing institutions to ensure the sustainability and profitability of investments.
6. **The financing of SPs will be achieved through a combination of several mechanisms:** They will be funded by a combination of: (i) own resources from SP promoters; (ii) and/or short to medium-term working capital and investment loans extended by (FIs) such as banks and Microfinance Institutions or credit refinancing funds such as FADSR for agriculture or *Fonds d'Appui à la Stabulation* (FONSTAB) for livestock; and (iii) a MG from the project resources.
7. **It will be made conditional on an evaluation showing the economic, social, and environmental improvements generated by the project adapted to the size of the project.** Access to the financial facility will be prioritized for viable SPs that will have demonstrated their eligibility through a transparent and open process. A preferential point system will be set up to enable constrained women and young farmers and groups to facilitate access to the MG.
8. To make this scheme work, it is critical to set up a TA for economic project owners: one or more service providers per geographical department will be responsible for supporting project owners. The service providers will be tasked with helping SP promoters build and formulate their projects, identifying economic, social, and environmental progress (conditions for entry into the scheme), as well as drawing up bankable business plans, preparing credit applications, putting them in touch with financing

⁵¹ <https://www.fao.org/3/i9037fr/i9037fr.pdf>



institutions and then providing technical support for the implementation of their business plans. They will be trained and provide gender-sensitive business support.

9. The scheme will also include support for banking operators, decentralized financing institutions, and funding partners to improve their knowledge of business models in the agricultural and livestock sectors. The Matching Grant Project Implementation Manual will specify the mechanism. Its approval by the clients and the WB will be a condition of effectiveness. A national selection committee will be established and will include members of PIUs, ministries, financing institutions and civil society. It will approve funding for sub-projects.

Table A7.1: Overview

SP Category	Cost of SPs (US\$)	Number of SPs	MG Subsidy rate (in %)	Bonus rate (%)	Maximum amount MG (US\$)	Private contribution (holders and credit) (%)	Amount of private contribution by SP (US\$)	Total amount of private contributions (US\$)
Small SP	10,000	2861	70	0	7,000	30	3,000	8,583,000
Small SP (less than 35 years old and women)	10,000	2818	70	10	8,000	20	2,000	5,636,000
Medium SP	50,000	690	50	0	25,000	50	25,000	17,250,000
Large SP Category	500,000	14	30	0	150,000	70	350,000	4,900,000
		6383						36,369,000



ANNEX 8: Senegal's Contributions to the Regionality of the Program

Regional Coordination

1. The ECOWAS provides coordination and oversight for the entire FSRP. The advantage of having ECOWAS at the helm is that the FSRP's implementation is directly informed by ECOWAS priorities in real-time, and ECOWAS countries can use FSRP resources to contribute to joint ECOWAS programs. An example of this is the recent fertilizer dialogue. The WB has supported the development of a 10-year Fertilizer and Soil Health Roadmap for West Africa to increase supply, accessibility, and affordability of fertilizers across the region in a consultative process with technical partners including IFDC. The roadmap has been elevated to a legally binding document for ECOWAS member states during the ninetieth ordinary session of the ECOWAS Council of Ministers on July 7, 2023. FSRP resources will support Senegal to contribute to the implementation of fertilizer road maps, as well as allow Senegal to benefit from the ongoing dialogue at the regional level.
2. Each Regional Organization leads one of FSRP technical components. Leadership involves providing guiding principles, overall coordination, and regional integration of all countries towards the collective goals under each component. Under the guidance of the regional organizations, Senegal will benefit from, as well as contribute to, regional-level data sharing, strengthening the regional innovation and research system and improved trade across countries.
3. The regional leadership and mandate of ECOWAS, CILSS and CORAF that is critical to support resilient regional food systems can only thrive if most member countries fully play their part: as other FSRP countries, Senegal will not only benefit from the higher level political and technical added value from these organizations but will also directly contribute to boost the relevance and impact of their regional activities, following the subsidiary principle.

Complementarities between countries

4. Regional food security: The program needs some stable and less crisis-prone countries to contribute to more resilient, integrated regional food systems. Like the European Union Common Agriculture Policy, each individual country needs to be supported to increase its production and productivity benefiting the entire region through an open market, common external tariffs, common quality requirements etc. Senegal, by its size, its diverse agro-ecological systems, its dynamic pool of experts and research/training institutions, and its strategic geographical position, expected to be a key actor to achieve the program's goals. New and innovative activities that take place in Senegal will be scaled to other FSRP countries through coordination by the regional organizations. Given that Senegal is acceding to the FSRP only in Phase 3, Senegal will benefit from the groundwork laid by the regional organizations and learnings generated by Phase 1 and 2 countries.

Leveraging resources

5. The regionality of the program helps to leverage other donor resources. To date, regional resources have been received from the Dutch Government to conduct analytical work and support the regional organizations (US\$24 million, both Bank and Recipient-executed), resources from the Global Risk Financing Facility have been received to support ECOWAS's regional food reserve (US\$25 million, Bank and Recipient-executed), resources from the Korean Green Growth Trust Fund (TF) have been received to mainstream sustainable agricultural mechanization services in the program (US\$0.5 million, Bank-executed), Food Systems2030 resources have been received to support fertilizer dialogue led by ECOWAS across all countries (US\$0.2 million, Bank-executed), and PROGREEN resources have been received to



support soil fertility and mapping across FSRP countries (US\$0.425 million, Bank-executed). Another US\$45 million from the Global Agriculture and Food Security Program was approved in July 2023 for Sierra Leone and Togo. FSRP-SN is also expected to leverage a co-financing from IFAD and parallel financing from IsDB. Senegal will benefit from the regional TF resources supporting FSRP, and in turn will contribute with Senegal-specific donor contributions.

Promoting donor coordination

6. The regionality promotes donor coordination across the ECOWAS region. Collaboration with other international financing institutions, bi-laterals and technical organizations has allowed the FSRP to create a true regional platform for coordination across countries. Senegal and the proposed operation will be part of this regional platform. An example of this is through coordination with donors on the ECOWAS strategic food reserve. FSRP is financing support to sustain the reserve, in coordination with the European Commission and the French Agency for Development. All countries in the ECOWAS region, including Senegal, will benefit from a strengthened regional food reserve.

Technical aspects

Component 1: Digital advisory services for regional agriculture and food crisis prevention and management

7. Key regional spill-over effects of investments in Senegal on this component include:

8. Agromet data. Senegal is one of the countries in the region with technical capacity in agro-meteorological information generation that will be supported by FSRP to directly contribute to climate intelligence in the region. CILSS will work closely with Senegal to contribute to building the capacity of other countries in the region, using the increased expertise and hands-on experience of Senegal in generating, analyzing, and exploiting agro-hydro-meteorological data.

9. Food security and market data. FSRP-SN will support Senegal in complying with its regional commitments to provide food security data feeding the regional Cadre Harmonisé, and data on market prices, feeding the regional databases monitoring food prices.

10. Regional pests and disease prevention and control. Enhancement of pests and disease surveillance and capacity to respond early is a critical activity that directly contributes to preventing and ensuring the early control of transboundary pests and diseases. The regional early warning system's efficiency depends on each country's surveillance and control. Senegal will contribute to regional pest and disease monitoring systems, as well as benefit from other countries' investments in the same area.

11. Digital systems. Digital capacities of Senegal will be supported and leveraged in the crop and livestock sector to disseminate best practices adapted to the various agro-ecological conditions and current and projects climate conditions, that will also be accessible to any country of the region, generating models and economies of scale for other countries of the region.

Component 2: Sustainability and adaptive capacity of the food system's productive base

The regional spill-over effects of investments in Senegal under this component include:

12. RCoE on Agriculture. Senegal hosts a RCoE on dry cereals (comprised of a consortium of Senegal research institutions) that FSRP-SN will finance. This will allow this center to fully play its leading regional role in developing seeds adapted to harsh climatic conditions, a critical aspect of adaptation to CC and resilience of food systems. Senegal will also benefit from support provided to other regional centers, as



well as regional resources on training and up-skilling centers.

13. RCoE on Livestock. Senegal also hosts the Interstate School of Veterinary Science and Medicine that trains students from all the region (master, PhDs) on livestock production (health, nutrition, genetics). Support to this regional school as well as the National Laboratory for Livestock and Veterinary Research of ISRA (LNER) and Agronomy National School of Thies to perform research and development of improved technologies and practices (including improved breeds, new vaccines, etc.) will benefit the entire region. These actions will benefit from Senegal's extensive research and training network.

14. Regional human capital building. FSRP-SN will offer masters and PhDs to other students from the region, that will benefit from the program and increase the regional pool of experts and community of practice. In turn, research centers in Senegal will benefit from masters and PhDs financed by the regional organizations and other countries.

15. Regional dissemination of research activities. Research activities financed by FSRP-SN will all be valued outside of Senegal to benefit the broader region, in close coordination with CORAF. Similarly, research activities financed in other countries by FSRP have the potential to benefit Senegal in coordination with CORAF.

16. Technology marketplace: As part of CORAF's role in the program, the organization hosts a technology marketplace. This marketplace brings together technologies from all FSRP countries for increased awareness and better technology dissemination. Senegal's participation in this regional marketplace will facilitate other FSRP countries' access to Senegal's innovations while allowing Senegal to access innovations developed across the former.

17. Model advisory services. The revamping of agriculture advisory system in Senegal will provide a tool to support investments under subcomponent 2.2 and subcomponent 3.2, and a regional model for other systems' development under CORAF coordination.

18. Soil mapping. At the regional level, ECOWAS is leading the implementation of the Fertilizer and Soil Health Roadmap for West Africa and the Sahel. In Senegal, the USAID-financed International Fertilizer Development center (IFDC) Engrais program has made advances related to soil mapping. Under Component 2 of the FSRP, digital soil mapping will be linked across FSRP countries, supported by resources from PROGREEN and with the support of CORAF. Senegal's collaboration will be critical to coordination of digital soil mapping for the region and in turn Senegal will benefit from the regional coordination of soil health and fertilizer production and distribution.

19. NBS. Senegal has been included in a global analytical work financed by the Global Environment Facility (GEF) to support the incorporation of NBS in the program. This work on NBS as part of ILM will be piloted in Senegal and then scaled to the remaining FSRP countries through support of CORAF.

Component 3: Regional Food Market Integration and Trade

The regional spill-over effects of investments in Senegal under this component include:

20. Regional food reserve system. The ECOWAS regional food reserve system depends upon national food reserves that will be monitored, supported, and managed to support specific countries' needs in the case of crisis. FSRP supports development and capacity building within ECOWAS to operate the strategic regional food reserve. FSRP-SN reserve system will also be embedded in this regional system, under the coordination of ECOWAS.

21. Regional trade facilitation. FSRP-SN will contribute to the regional policy dialogue and data



collection (observatories) on key regional VCs required for to boost trade facilitation mechanisms and develop regional policies and regulations that contribute to regional food system resilience. Senegal is a dynamic market and a regional hub for food trade (port of Dakar and road network from East to West and North to South supporting trade from and to Mali and Burkina Faso on the eastern side, and Mauritania to southern coastal countries from North to South, in particular Guinea, Guinea Bissau, Gambia).

22. Regional VCs development. To boost production, reduce productivity gaps and enhance value addition, the FSRP-SN will support VCs with a comparative advantage in both agriculture and livestock subsectors. The program will prioritize dry cereals (sorghum, maize, millet) and horticulture (onions, potatoes and bananas) on the agriculture side, and milk and meat (cattle, sheep, village poultry, pigs) on the livestock side. This will contribute to increasing regional food security.

23. EATM-S: FSRP supports ECOWAS to implement a performance measurement and tracking mechanism, namely the EATM Scorecard with the objective to identify and close gaps in the national implementation of regional agricultural and food trade policies. To achieve this goal, the EATM Scorecard promotes intra-regional trade in agriculture and food products in the region by i) spotlighting strengths and weaknesses of countries in the context of agri-food trade, ii) improving the reporting on agri-food trade data, and iii) raising awareness of policy implementation status and strengthen the implementation of existing policy frameworks at the national level. Component 3 finances countries' participation in the framework. Participation of Senegal as a key regional trade-hub will be critical to the success of this new tool and in turn Senegal will benefit from smoother, less costly trade across the ECOWAS region.



ANNEX 9: Map of Main Intervention Areas

