



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

October 05, 2015

Dear LDCF/SCCF Council Member:

FAO as the Implementing Agency for the project entitled: ***Senegal: Mainstreaming Ecosystem-based Approaches to Climate-resilient Rural Livelihoods in Vulnerable Rural Areas through the Farmer Field School Methodology***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with FAO procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by LDCF/SCCF Council in February 2014 and the proposed project remains consistent with the Instrument and LDCF/SCCF policies and procedures. The attached explanation prepared by FAO satisfactorily details how Council's comments have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee



REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: FULL-SIZED PROJECT

TYPE OF TRUST FUND: LDCF

PART I: PROJECT INFORMATION

Project Title: Mainstreaming ecosystem-based approaches to climate-resilient rural livelihoods in vulnerable rural areas through the Farmer Field School methodology			
Country(ies):	Senegal	GEF Project ID:¹	5503
GEF Agency(ies):	FAO	GEF Agency Project ID:	625461
Other Executing Partner(s):	Ministère Agriculture et Equipement Rural (MAER); Ministère de l'Environnement et du Développement Durable (MEDD); Agence Nationale de l'Aviation Civile et de la Météorologie du Sénégal (ANACIM); Centre de Suivi Ecologique (CSE)	Submission Date:	28/08/2015
GEF Focal Area (s):	Climate Change	Project Duration(Months)	50
Name of Parent Program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/> ➤ For SGP <input type="checkbox"/> ➤ For PPP <input type="checkbox"/>	N/A	Project Agency Fee (\$):	591,755

A. FOCAL AREA STRATEGY FRAMEWORK²

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$)	Cofinancing (\$)
CCA – 1	Outcome 1.1	Output 1.1.1	LDCF	900,000	3,555,000
CCA – 2	Outcome 2.1	Output 2.1.2	LDCF	898,377	3,555,000
CCA – 2	Outcome 2.2	Output 2.2.1	LDCF	1,500,000	5,925,000
CCA – 2	Outcome 2.2	Output 2.2.2	LDCF	1,400,000	5,530,000
CCA – 3	Outcome 3.1	Output 3.1.1	LDCF	534,000	2,109,300
CCA – 3	Outcome 3.2	Output 3.2.2	LDCF	700,000	3,953,085
		Subtotal		5,932,377	24,627,385
		Project Management Cost		296,618	
Total project costs				6,228,995	24,627,385

¹ Project ID number will be assigned by GEFSEC.

² Refer to the Focal Area Results Framework and LDCF/SCCF Framework when completing Table A.

B. PROJECT FRAMEWORK

Project Objective: To enhance the capacity of Senegal's agro-pastoral sector to develop more climate-resilient production systems and mainstream integrated Climate Change Adaptation (CCA) strategies into on-going agro-pastoral and agricultural development policies and programmes.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Cofinancing (\$)
1. Developing /fine-tuning of CCA strategies and tools based on improved knowledge and information management of CCA practices in agro-sylvo-pastoral systems.	TA	1.1: Increased understanding and capacities to systematically gather and disseminate agro-climatic data to identify and improve best CCA practices and innovations in targeted agro-ecological zones.	1.1.1: ANACIM and CSE have analyzed CC related threats, opportunities and constraints and proposed an integrated strategy for CCA by specific project area. 1.1.2: Information management systems and tools used by the national GTP are strengthened and updated to include information related to climate change and, local GTPs are established and participate in the agro-climate advisory system.	LDCF	923,750	3,905,696
2. Capacity building and upscaling of CCA strategies, technologies, and best practices for small agro-sylvo-pastoral producers through a growing network of Farmer Field Schools.	INV	2.1: The agro-climatic information is disseminated and improved CCA practices and innovations are adopted by agro-pastoralists.	2.1.1: Specific curricula for FFS/APFS is revised in light of CCA , resilience of ecosystems and the integration between agricultural production systems, sylvo-pastoral systems and other cross-cutting themes such as nutrition and gender. 2.1.2: Master Trainers are qualified on CCA practices and strategies, on gender issues and nutrition. 2.1.3: FFS are implemented or	LDCF	1,947,425	8,695,357

			<p>strengthened to integrate CCA practices in production systems and producers are trained.</p> <p>2.1.4: Dimitra Listeners' Clubs (CLC) are established and strengthened and integrated within the Farmer Field school network.</p> <p>2.1.5: Good practices and lessons learned for better adaptation to climate risk are capitalized on and disseminated locally.</p>			
		<p>2.2: Household incomes and agricultural and livestock productivity of FFS/AFPS participants have increased through the use of CCA practices, agro-meteorological information and improved crop and beef production value chains.</p>	<p>2.2.1: Agro-sylvo-pastoral producer's organizations are strengthened through the adoption of new technologies and innovations for CCA, improved production and the enhancement of value chains.</p> <p>2.2.2: At least one producer per FFS multiplies and marketing CC adapted seeds with high nutritional values</p> <p>2.2.3: New adapted varieties of cereals, fruits and vegetables and fodder species are introduced into target areas to improve the food and nutritional security of the population.</p> <p>2.2.4: The Land use plan and allocation of land uses (POAS) and plans for the management of</p>	LDCF	1,843,825	8,595,357

			pastures and livestock grazing areas are reinforced with the participation of farmers' associations, livestock producers and local authorities			
3. Mainstreaming CCA strategies in a coordinated manner into agricultural and livestock related policies, development framework programs and projects at the national level and in selected vulnerable areas.	TA	3.1: CCA is mainstreamed into policies, strategies and national programs, shifting from a reactive response to a pro-active preparedness approach.	3.1.1: Awareness-raising modules for policy makers are developed and institutional capacities are strengthened to mainstream CCA in policies, programs and projects 3.1.2: The establishment of a high-level inter sectoral group to define and adopt the agenda of CCA activities and resilience to integrate into policies, programs and projects	LDCF	146,625	1,802,327
		3.2: A "national CC resilience fund" is in place within an existing funding mechanism to support local CCA activities.	3.2.1: A "National Resilience Fund" is created through an open window at the level of existing funds.	LDCF	755,625	788,648
4. Project monitoring and evaluation	TA	4.1: Project implementation based on results based management and application of project lessons learned in future operations facilitated	4.1.1: System for systematic collection of field-based data to monitor project outcome indicators made operational 4.1.2: Midterm and final evaluation conducted 4.1.3: Communications strategy developed	LDCF	315,127	820,000
Subtotal					5,932,377	24,607,385
Project management Cost (PMC) ³				LDCF	296,618	
Total project costs					6,228,995	24,607,385

³ PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount (\$)
GEF Agency	FAO	In-kind	200,000
Government	Ministry of Agriculture and Rural Equipment (MAER) through the Agricultural Value Chain Support Project – Extension (PAFA-E) financed by IFAD	Grant	3,321,254
Government	The Ministry for livestock and animal industries (MEPA) and MAER through the Project to support Food Security in the regions of Louga, Matam and Kaffrine (PASALouMaKaf)	Grant	9,769,939
Government	The Ministry for the Environment and Sustainable Development (MEDD) and MAER through the Project to Support Local Small-Scale Irrigation in the areas of Fatick, Kédougou, Kolda et Tambacounda. (PAPIL)	Grant	4,225,390
Government	MAER through the Program for support to Agricultural Development and Rural Entrepreneurship (PADAER) financed by IFAD	Grant	4,022,146
Government	Agency for the Great Green Wall (AGMV) / MEDD through the Great Green Wall initiative	Grant	3,068,656
Total Co-financing			24,607,385

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Funds	Focal Area	Country Name/ Global	Grant Amount (\$ (a)	Agency Fee (\$) (b) ²	Total (\$) c=a+b
FAO	LDCF	Climate Change	Senegal	6,228,995	591,755	6,820,750
Total Grant Resources				6,228,995	591,755	6,820,750

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Cofinancing (\$)	Project Total (\$)
International Consultants	188,000	540,000	728,000
National/Local Consultants	880,200	3,000,000	3,880,200
Total	1,068,200	3,540,000	4,608,200

G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? NO

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF⁴

The project design is fully aligned with the PIF. Minor changes to the structure of outcomes have been made and outputs were further detailed. Changes have been explained under section A.5 below. In addition, the project duration was extended to 5 years to exploit an additional full growing season, maximizing the return from project activities in terms of environmental, social and economic benefits.

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

The PIF provides an accurate description of the Project's alignment to national strategies and plans. More detailed information is provided in the Project Document in Sections 1.4 and 1.10.

A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities

The PIF provides an accurate description of the Project's alignment to GEF focal areas and strategies. More detailed information is provided in the Project Document in Section 1.10 c.

A.3 The GEF Agency's comparative advantage

The PIF provides an accurate description of the FAO's comparative advantage to implement this Project. More detailed information is provided in the Project Document in Section 1.7.

A.4. The baseline project and the problem that it seeks to address

The PIF provided a description of the problem to be addressed. The Project Document has further elaborated the relevance and background of the LDCF project, including a more detailed description of the problem to be addressed. Notably, Sections 1.1 and 1.2 of the Project Document provide a detailed overview of the relevant rural sectors in the project areas in Senegal, climate change and climate variability impacts, and related threats to farmers and herders. Section 1.2 also provides an analysis of the barriers to adapting to climate change and increasing climate resilience of the agro-sylvo-pastoral communities in the project area. These are fully in line with the analysis made in the PIF and can be summarized as follows:

- Poor access to accurate agro-climatic information;
- Weak consideration of traditional knowledge and CC local adaptation practices
- Insufficient knowledge and limited local capacity to cope with CC threats;
- Lack of coordination between CCA practices in projects and programs and the relevance of sectoral approaches as opposed to integrated and holistic approaches;
- Lack of clear and consistent display of policies, projects and budget line programs for financing CCA activities

The PIF also provided a tentative description of baseline projects. During project preparation a thorough analysis of baseline projects was undertaken and further partnership were explored. The following table lists 5 projects that form the baseline (adapted from Table 1 in Project Document).

⁴ For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter "NA" after the respective question.

Title	Lead Agency	Funding and period	Co-financing amount (USD)
Agricultural Value Chain Support Project – Extension (PAFA-E)	Executed by MAER	IFAD financing: USD 34.7M Duration: 2013 – 2021	3,321,254
Project to support food security in the regions of Louga, Matam and Kaffrine (PASALouMaKaf)	Executed by MEPA and MAER	BAD/GAFSA financing: USD 49.6M Duration: 2013-2018	9,769,939
Program for support to Agricultural Development and Rural Entrepreneurship (PADAER)	Executed by MAER	IFAD financing: USD 51,7M Duration: 2011-217	4,022,146
Project to Support Local Small-Scale Irrigation in the areas of Fatick, Kédougou, Kolda et Tambacounda. (PAPIL) This project will be extended to become: . the National Development Project of smallholder irrigation (PNDPIL)	Executed by MEDD MH MAER	BAD and BID: USD 14,5M Duration: 2003-2015 BAD and BID: USD 94M Duration: 2016-2022	4,225,390
The Great Green Wall Initiative (GGWI)	Executed by Senegalese Great Green Wall National Agency AGMV/MEDD	Multidonor (FAO, UNCCD, GEF, EC, World Bank, and others)	3, 068,656

A. 5. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

Additional cost reasoning and Co-financing

Based on the PPG assessment of the baseline projects and related consultations, the co-financing to the project has been confirmed. This is detailed in the following table.

Partner	Co-financing as stated in PIF (USD)	Actual Co-Financing (USD)
MAER/IFAD - <i>PAFA-E</i>	5,000,000 (including financing for MAER - <i>PADAER</i>)	3,321,254
MAER/IFAD - <i>PADAER</i>	See row above	4,022,146
MEPA/MAER - <i>PASA LouMaKaf</i>	2,000,000	9,769,939
MEDD/MAER/MH - <i>PAPIL</i>	7,895,000	4,225,390
AGMV - <i>GMV</i>	-	3,068,656
Presidency of the Government of Senegal - USA Millennium Challenge Compact	5,000,000	-
FAO	1,000,000	200,000
Totals	20,895,000	24,607,358

The total co-financing has increased from the level anticipated in the PIF.

- The Ministry of Agriculture and Rural Development (MAER) direct contribution is higher than anticipated, increasing from about USD 5 M to USD 7.3 M. This illustrates MAER's commitment to the Project, its increased understanding of climate change, and openness to using Farmer Field School and Agro-Pastoral Field School approaches as a means to increase resilience of the related rural sectors.
- The Ministry of Environment and Sustainable Development (MEDD) co-financing has remained mostly unchanged from the level anticipated in the PIF.
- The Ministry of Livestock and Animal Production (MEPA) has increased its commitment to the project mobilising additional resources through its flagship project PASA LouMaKaf.
- The level of co-financing from FAO is less than anticipated. This is because the projects identified at PIF stage are still under negotiation with donors.
- Finally, the Project has mobilized additional co-financing from the National Agency of the Great Green Wall towards the improvement of knowledge and information management of CCA practices in agro-sylvo-pastoral areas along the Great Green Wall trajectory mainly in northern Senegal.

Project Framework

The PIF provided a description of the outcomes, outputs, activities and strategies to be supported by the Project. The problem analysis that was undertaken during the PPG validated the overall strategy and approach of the PIF. It further defined and elaborated on the outcomes and outputs in order to better address remaining barriers to sustainable climate adaptation and maximise opportunities offered through the baseline initiatives and other projects, programmes, policies and strategies. Modifications made to the project framework are listed in the following tables. A detailed description of the activities is provided in the Project Document, Section 2.4, and in Appendix 1 (Results Matrix).

Table of modifications to former PIF Outcome/Outputs	
Former PIF Outcome/Output (only those with modifications are listed)	Comment
Outcome 1.2 Fine-tuned and piloted agroecosystems-specific strategies for increasing CC resilience developed to be scaled up	This Outcome and related Outputs (1.2.1 and 1.2.2) have been integrated within the redefined Outcome 2, with new Outputs 2.1.5 and 2.2.1.
Output 2.1.1 A core of national program managers have the potential for mainstreaming CCA in rural development, using the FFS/APFS approaches, through field and institutional visits to neighboring countries where upscaling is already taking place	The expected output is now integrated within Outcome 3, particularly Output 3.1.1
Outcome 2.3 Use of climate information reinforced at provincial/local levels and in FFS networks for forecasting agricultural production and to increase production and to increase production, thus reducing food insecurity during climate shocks	This has been incorporated in Outcome 2.1.

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks

The risk analysis has been further detailed during project preparation and mitigation measures have been included in the project design as follows:

Risks	Rating (High, Substantial, Moderate, Low)	Mitigation Measures
Probability of increased occurrence of more severe droughts, especially in the South, which may affect crop and livestock cycles and increase food/nutritional insecurity	M	The risk will be addressed through the implementation of policies and programmes to reinforce pro-active and coordinated responses and developing plans for rangelands management and by fostering community capacities to anticipate CC related threats. In addition, the project will prioritize the selection of drought-resilient crops to cope with climate change.
Farmers / herders conflict	M	Reinforcing protocols on Charters and management arrangements, ensuring that the rights of each stakeholder are preserved and duties defined, will be the mitigation measure to cope with this risk.
Reluctance to endorse and participate in the project activities from communities and stakeholders	L	An approach strictly based on local farmers / herder's participation, specifically through FFS and APFS, and which takes into strong consideration socio-cultural aspects of local communities, reduces risks.

		In addition, demonstrative events such as achievements on the ground that bring benefits to local producers and show loose reduction from adaptation activities, will contribute to mitigating the risk and overcoming scepticism.
Seed shortages due to extreme weather events, prolonged droughts, or pests and diseases outbreaks with risk of crop/grassland failure	M	The project will address by systematically linking the adoption of CCA measures and fostering of community-level field observation capacity to reduce seed multiplication failures, particularly with specialized seed multiplying farmers.
Limited capacity and reluctance/slowness by local and national institutions to actively participate	L	By mobilizing and articulating the capacity of different actors, projects and programs to work intensively with Government and gradually transfer skills to government institutions, and through capacity building of national program managers and awareness-raising activities addressed to policy-makers, the risk will be strongly reduced.

A.7. Coordination with other relevant GEF financed initiatives

Section 4.1 of the Project Document provides a detailed and updated description of the approach to coordination with other initiatives in the GEF portfolio.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1 Describe how the stakeholders will be engaged in project implementation.

A study of stakeholders was undertaken as part of the preparation of this Project. The analysis looked at governmental (national and local), non-governmental, academic, community and international stakeholders and partners, and it identified potential collaboration activities/mechanisms.

Key government stakeholders involved in agro-sylvo-pastoral development and food and nutrition security are the following:

- Ministry of Agriculture and Rural Equipment (MAER), through its Department of Agriculture, its Seeds Division, the Senegalese Institute of Agricultural Research (ISRA) and the National Agency for Agricultural and Rural Council (ANCAR)
- Ministry of Livestock and Animal Production (MEPA) through its Directorate of Livestock (DIREL);
- Ministry of Higher Education and Research (MESR)
- Ministry of the Environment and Sustainable Development (MEDD) and its Directorate of Environment and Classified Establishment (DEEC) which monitors the implementation of NAPA; and
- Ministry of the Economy, Finance and Planning (MEFP)
- The regional directorates of technical ministries

- The regional directorates of development agencies
- Local authorities (administrative authorities) and local elected officials (city and district councillors).

On aspects relating to climate change, key stakeholders include:

- The National Agency of Civil Aviation and Meteorology (ANACIM) through its Department of Climate and Application, plays an important role at the national level, particularly in government policy in the areas of early warning for food security and meteorological assistance for farmers. With the drought of the 1970s and 1980s and the drop in performance observed in agriculture, national authorities and donors have drawn more attention to ANACIM for many projects: (i) to demonstrate to farmers the importance of taking into account technical advice on the weather in the planning and execution of the agricultural calendar; (ii) to develop effective tools to prevent food crises due to weather information for the Sahel countries—it is the logical continuation of project Early warning and agricultural production forecast (AP3A); (iii) to demonstrate the impact of the application of seasonal forecasting of rainfall in planning strategies and implementing the agricultural calendar; and (iv) to bring promising innovations in climate risk management to bear on the challenge of protecting and enhancing food security and rural livelihoods in the face of a variable and changing climate.
- The Ecological Monitoring Centre (CSE) that is responsible for climate studies and CCA and was the first national implementing entity accredited under the Adaptation Fund for approving, monitoring, and managing projects in Senegal and regional neighbourhoods. The CSE climatic database and the crop production monitoring and evaluation system form a very valuable information and methodology baseline.

Project Document Section 4.2 provides detailed information on their mandate related to the project and their role in the project implementation.

A vast number of NGOs and CSOs are active in activities related to extension and providing capacity building to local communities across Senegal, and many are active in remote and rural areas. These organizations are to be directly involved in the development of the Field School approach and the training of farmers and facilitators. A detailed list of CSOs and NGOs providing agricultural/pastoral extension services and operating in the proposed project areas is provided in Table 2, Section 1.8 of the Project Document.

Beneficiaries:

The project will directly target agro-pastoral communities through direct and participatory targeting. The project will ensure the inclusion of the most vulnerable households, women and youth. It will directly support 25,000 farmers-herders (15,000 farmers and 10,000 herders). Indirectly, the project will impact all households in the project intervention areas, through synergy and pooling resources with partner projects. The target sites have not yet been identified; they will be identified and selected through a participatory process based on agreed criteria during the implementation of the Project.

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

The project aims to directly provide socio-economic benefits to poor and marginalized individuals and communities in Senegal. The project approach is based on the active participation of local populations through field schools, community radios, POs and on the promotion of local know-how which will guarantee social sustainability. Social groups sharing common interests and language, faced with the same threats from Climate Change (CC), will be put in contact to share their experiences and their worries. The pertinence of the recommended actions to respond to the issues posed within the organisations is a key element to the social sustainability of the project since by being pertinent to the people; the groups' cohesion is strengthened (collective actions around an integrated, integral approach). Dialogue on the collaborative management of natural resources will ensure exchanges between the populations using the resources and the institutions involved, thus increasing the social sustainability of the actions (reduction of conflicts, improvement in access to information, local dialogue and participation, etc.).

Gender focus:

The project has a strong gender focus. Project activities under each Output have a gender focus. The awareness raising, the preparation of training material and the training of Master Trainers and Facilitators all have modules focused on women and women's role. Outputs 2.2.1 – 2.2.3 cover the provision of technologies, and the market inclusion for various community activities with the aim of increasing revenue and increasing food security, notably for women.

Environmental sustainability

Since a majority of the target population relies directly on natural resources for their livelihoods, the main problem that the project will try to resolve will be that of the degradation of natural resources, whether that be pastures, water resources, or the impoverished agricultural land due to poor soil fertility management. The project aims, through its actions, to increase environmental sustainability for those using the resources, by strengthening the natural capital of people's livelihoods and the resilience of the ecosystems to the harmful effects of Climate Change.

- The field school approach (FFS) promoted in this project is based on an integral and systematic intervention, which considers production systems to be interrelated and complementary. In this way, the practices and innovations tested and adopted will be chosen based on their potential to strengthen the resilience of ecosystems to CC in the mid-long term. Promoting the use of inputs will take into account aspects relating to contamination through the tested integrated management of production and pests (IPM) already used in Senegal;
- The majority of the intervention areas chosen by the Project present advanced levels of land degradation (see selection criteria for zones) either due to human or climate causes. In these areas, the objective is to improve the management of the agro-sylvo-pastoral resources by introducing techniques which take into consideration the harmful actions of man and which provide an adapted response to CC; and
- The training sessions developed by the Project will take into account the practices of sustainable production intensification, the use of organic material and green fertilizers, and the introduction of plant varieties adapted to the agricultural, soil and climate conditions of each zone, etc.

B.3. Explain how cost-effectiveness is reflected in the project design

Cost-effectiveness is a concept that is built into the LDCF/GEF programming strategy. LDCF/GEF funds the "additional costs" of achieving adaptation to climate change, meaning that activities of the partners' in the baseline cover most of the basic development and agro-sylvo-pastoral, gender, nutrition and IGA issues. For this project, this means that FAO/LDCF/GEF project builds on top of a large baseline of natural resources management, food security, livestock, and pastoralism and agro-forestry projects. With a baseline and co-financing of approximately USD 24,607,385, the FAO/LDCF/GEF costs represent about 20% of the entire project costs. This means that for every dollar invested, FAO/LDCF/GEF gains almost four dollars of impact.

Cost-effectiveness is also at the heart of the FAO strategy to support rural development (SO2) and strengthen the resilience of vulnerable populations (SO5) in Sub-Saharan African countries such as Senegal. The design of the proposed project is expected to be highly cost-effective as it relies on the existing structures of the FFS already operational in Senegal, and on ongoing activities with similar goals and synergies with existing programs. The proposed project also builds directly on previous collaborations between FAO and Senegal on FFS (1366 FFS established through the IPPM program). FAO has conducted FFS activities in Senegal since 2001, supporting the government's priority of improving agricultural productivity and competitiveness. On this basis and through the IPPM program, FAO has created core capacity of technical expertise and experience. This includes legal and technical capacities within government structures as well as the FFS national experts who have worked on previous FAO projects and on which the project will capitalize.

In addition, the FFS approach itself has demonstrated its cost effectiveness in many contexts, including Senegal. It is a way to provide high quality technical advice to a large number of Communities. Under the Outcome 2 of this project, about USD 4M of FAO/LDCF/GEF funds, direct benefits will reach a minimum of 25,000 agro-pastoralists. This is about USD156 per farmer-herder.

To achieving this cost-effectiveness with FFS, it is crucial to work with local partners. FAO will channel the project funds to local authorities and NGOs already active in similar activities in the same project intervention area. Therefore, there will be little start-up costs and few costs to mobilize expertise outside the region or country. Several alternative methodologies and approaches have been considered for cost effectiveness during project design. These alternatives included focusing on providing more equipment (e.g. beekeeping support) and inputs (e.g. improved seeds), or concentrating all capacity development efforts on state services, development agencies and country extension services, or installing an adequate number of rain gauges, or by FAO directly providing extension services to farmer-herders.

The project also intends to limit the role of international consultants, using them only if there is a lack of availability of national expertise. This will lower both travel costs and the cost of consultancy fees. However, when international expertise is unique or exceptionally credible, it will be utilized.

C. DESCRIBE THE BUDGETED M & E PLAN:

The FAO Project Document provides a detailed description of the monitoring, reporting and evaluation to be undertaken during the Project (Sections 4.6). Full details of indicators, baseline values and targets are presented in Annex 1 (Results Framework).

Monitoring and evaluation activities will follow the FAO and GEF monitoring and evaluation policies and guidelines. Monitoring and evaluation of progress in achieving project results and objectives will be done based on the targets and indicators established in the project Results Framework (Annex 1). The project Monitoring and Evaluation Plan has been budgeted at \$228,000 (see Table below). Integrated into all Outcomes, the Project monitoring and evaluation approach will also facilitate learning and mainstreaming of project outcomes and lessons learned into international good practice as well as national and local policies, plans and practices.

A summary of the envisaged M&E activities is provided in the following table.

Type of M&E Activity	Responsible Parties	Time-frame	Estimate of costs
Inception Workshop (IW)	PCU, supported by the LTO, BH, and PCU	Within three months of project start up	10,000
Surveys to determine AMAT baseline values	PCU and service providers	Within three months of project start up	Covered under costs of Outcomes 1.1, 2.1, 2.2 and 3.1
Project Inception Report	PCU, LTO, BH, and PCU	No later than one month post IW.	3,000
Field based impact monitoring	PCU, MoA and other relevant agencies – including regional and provincial – to participate.	Periodically – to be determined at inception workshop.	70,000
Supervision visits and rating of progress in PPRs and PIRs	LTO, other participating units and PCU	Annual or as required	The visits of the LTO and the GCU will be paid by GEF agency fee. The visits of the NPC and Technical Experts will be paid from the project travel budget.
Project Progress Reports	PCU, with inputs from MoA, PSC members and other partners	Mid-Term	Paid by GEF agency fee
Project Implementation Review report	PCU supported by the LTO and cleared and submitted by the PCU to the GEF Secretariat	Annual	Covered by NPC and National Technical Experts salaries
AMAT	PCU supported by the LTO	Project start-up, mid-Term and project end.	

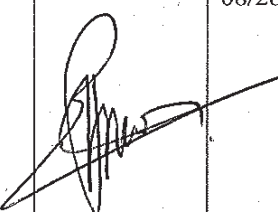
Type of M&E Activity	Responsible Parties	Time-frame	Estimate of costs
Co-financing Reports	PCU, FAO Senegal	Annual	Covered by NPC and National Technical Experts salaries
Technical reports	PCU, LTO & Participating Units	As appropriate	-
Mid-term Evaluation & Review	External Consultant, FAO Office for Evaluation in consultation with the project team including the PCU and other partners	At mid-point of project implementation	USD 40,000 for independent consultants and associated costs. In addition the agency fee will pay for expenditures of FAO staff time and travel
Final Evaluation	External Consultant, FAO independent evaluation unit in consultation with the project team including the PCU and other partners	At the end of project implementation	USD 40,000 for external, independent consultants and associated costs. In addition the agency fee will pay for expenditures of FAO staff time and travel
Terminal Report	NPC, LTO, TCSR Report Unit	At least two months before the end date of the Execution Agreement	Covered by NPC and National Technical Experts salaries. LTO's involvement is covered by the fee.
Best practices publication	PCU, LTO & Participating Units	Between the second and last year	USD 20,000 for publication preparation and printing
Auditing	External Unit, PCU	Annual	USD 15,000
Impact Assessment	External Consultant and PCU	At the beginning and the end of the project	USD 30,000 for external consultant assessment
Total Budget			USD 228,000

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

- A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):**
 (Please attach the Operational Focal Point endorsement letter(s) with this form. For SGP, use this OFP endorsement letter)

NAME	POSITION	MINISTRY	DATE (MM/DD/YYYY)
Mariline Diara	La directrice	Ministère de l'Environnement et du Développement Durable	15-02-2013

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.					
Agency Coordinator, Agency name	Signature	Date (MM/DD/YYYY)	Project Contact Person	Telephone	Email Address
Mr Guy Evers Deputy Director Officer-in-Charge Investment Centre Division Technical Cooperation Department FAO Viale delle Terme di Caracalla (00153) Rome, Italy TCD-Director@fao.org		08/28/2015	William Settle, Project Manager, Plant Production and Protection Division, FAO, Rome	+39 06.570 56039	William.Settle@fao.org
Jeffrey Griffin FAO Senior Coordinator Email: Jeffrey.Griffin@fao.org Tel: +3906 57055680					

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Please see Appendix 1 of the FAO GEF Project Document.

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comments from Council

Comments by Germany on PIF Senegal:

Suggestions for improvements to be made during the drafting of the final project proposal: Germany commends the PIF and its objective of enhancing the capacity of Senegal's agro-pastoral sector to develop more climate-resilient production systems, as well as to mainstream integrated adaptation strategies into on-going agro-pastoral/agricultural policies and programmes. We are particularly pleased to see the strong focus on capacity building activities targeting farmers and agro-pastoralists.

Regarding gender related issues, the PIF states that poor rural women are among the most affected by climate change (p. 16). Further, it is noted that over 70 per cent of women are active in the agriculture sector while they only own 13.4 per cent of land (p.7). Against this backdrop, we appreciate that the proposed project aims to incorporate inclusive, community-based efforts to ensure mutual participation of both women and men. However, to be able to track the project benefits for both women and men, it would also be essential to include gender aspects in the project framework. In the final project document, we therefore recommend disaggregating by gender all the expected outputs (2.1.3, 2.2.1, 2.2.3 and 2.3.1 in the PIF) which include objectives in terms of number of persons benefiting from the respective project activities.

GEF Agency response to comments by Germany on PIF Senegal:

The project preparation phase was designed in such a way that gender issues be comprehensively represented in the project framework. Key activities of the project preparation phase that particularly focused on gender mainstreaming include:

- *Concept on the inclusion of gender sensitive CCA strategies into existing FFS/APFS curricula* focusing on i) ecosystem resilience, ii) food and nutritional security, and iii) social acceptance by farmers and agro-pastoralists. The activity involved the initial identification of opportunities and constraints when selecting relevant topics for CCA/FFS-APFS curricula and modules, as well as gender awareness and demand-driven CCA/ FFS-APFS frameworks. The activity further included the development of a methodological approach based on the Social Learning Process/Place-Based Learning Communities.
- *Gender sensitive analysis of social/indigenous acceptance of new CC adapted cereal varieties* for increased quality of forage and its resilience to CC and increased food security.

For this purpose, a national Gender Dimension Expert was recruited as part of the project preparation team, with the specific task to i) develop a proposal on gender approaches to be used for the implementation of the project and in particular of component 2 of the project; and ii) support the Farmer Field School expert in including gender into technical studies. The Gender Dimension Expert worked with the project preparation coordinator, the project preparation team, FAO and partners throughout the preparation phase and met with and interviewed national and grassroots stakeholders, in particular CSOs, NGOs and POs. The expert furthermore participated in the inception and validation workshops, providing further reason and evidence for properly embedding gender and youth into project activities in order to achieve integrated, equitable and sustainable project results.

As a consequence, the results matrix that can be found in Annex I of the Project Document includes a high number of gender sensitive indicators and targets, particularly but not exclusively under Component 2.

Comments from GEF Secretariat

GEF Secretariat recommended actions for project improvement during PPG:

(10. Is the role of public participation, including CSOs, and indigenous peoples where relevant, identified and explicit means for their engagement explained?) - Please highlight the plan for the inclusion of the CSOs, indigenous people, gender groups and/or any other, as appropriate, in the preparation stage of the project.

GEF Agency response to comments by GEF Secretariat:

A key activity of the project preparation phase was the *Stakeholders' analysis and consultations*. A Policy and Institutions Expert was specifically taken on board to cover the tasks related to this activity.

The activity foresaw a PPG inception workshop during which a stakeholder mapping was done in order identify primary and secondary stakeholders, their influences and interests, potential roles in the project and links and relations amongst them and with the project objectives.

A series of stakeholder meetings and consultations with policy-makers, researchers, technicians and community representatives took place during the following period with particular attention to women and grassroots communities. These included focus group discussions with agro-pastoralists, producers organizations and local institutions at the field level, bilateral consultations with governmental and ministerial technical bodies, academic and research institutions and multi-stakeholder workshops to introduce, discuss and readjust the project proposal and specific activities. These meetings also increased the ownership of the consulted stakeholders of the project and its planned activities. A validation workshop concluded the consultations, involving all relevant partners, government actors and other stakeholders mentioned earlier.

Identification of Stakeholder(s)	Date	Participants	Location
PPG Inception Workshop: Ministry of Agriculture and Rural Equipment (MAER), through its Department of Agriculture, its Seeds Division, the Senegalese Institute of Agricultural Research (ISRA) and the National Agency for Agricultural and Rural Council (ANCAR); National Agency of Civil Aviation and Meteorology (ANACIM); Centre de Suivi Ecologique (CSE); IFAD Senegal; Agence Nationale de Conseil Agricole et Rural (ANCAR); Ministère de l'Elevage et des Productions Animales (MEPA); Ministère de l'Environnement et du Développement Durable (MEDD)	June 2014	15 (5 women)	Saly
Meeting of PPG National Team of Consultants with Stakeholders: Field consultations in Matam : Projet de Développement Agricole de Matam (PRODAM), Société d'Aménagement des terres du Delta (SAED), USAID YAAJEENDE et la Direction Régionale du Développement Rural (DRDR). Field consultations in Louga : Direction Régionale du Développement Rural, Direction de Zone Sylvopastorale de l'Agence Nationale de Conseil Agricole et Rural ANCAR, Projet des Villages du Millénaire, Directoire Régionale des Femmes en Elevage (DRFEL), Réseau des Facilitateurs GIPD (Gestion Intégrée des Déprédateurs et de la Production), Antenne PASALOUMAKAF/Volet Eaux Souterraines ; Field consultations in Thiès : Direction Régionale du Développement Rural DRDR, Association des Unions Maraichères AUMN, RESOPP (Réseau des Organisations Paysannes et Pastorales du Sénégal du Sénégal) ; Fédération des ONG du Sénégal (FONGS), Direction Zone Niayes ANCAR	July 2014	Average 5 representatives of key stakeholders per meeting during field visits (20% women)	Matam Louga Thiès
Field visit : Direction régionale du Développement Rural (DRDR) ; BAMTAARE/SODEFITEX ; Projet d'Appui aux Filières Agricoles (PAFA) ; Projet d'Appui au Développement Agricole et de l'Entreprenariat Rural (PADAER) ; PASA LouMaKaf	Septembre 2014	5 to 8' per meeting (20% women)	Tambacounda, Kaffrine, Kaolack
Field visit: Direction régionale du Développement Rural (DRDR) and PASA LouMaKaf	Octobre 2014	6 (2 women)	Louga, Matam, Tambacounda, Kaffrine and Kaolack

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS⁵

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF: 150,000			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Activity 1: Assessment of data availability, institutional options and technology needs for development of an inter-institutional Information System, including the identification of pilot sites	23,000	28,448	
Activity 2: Technical studies and approaches for the design of FFS and APFS' programmes and to develop proposals and strategies for the introduction of CC adapted cereal varieties and livestock production value chains	37,000	41,627	
Activity 3: Policy and institutional analysis and improved investment strategies for mainstreaming CCA into agricultural sector policies and development programs	18,000	16,387	
Activity 4: Stakeholder consultations	25,000	10,955	
Activity 5: Analysis of execution options and assessment of fiduciary standards	7,000	11,814	
Activity 6: Information Synthesis; Project Design & Budgeting	40,000	16,583	24,186
Total	150,000	125,814	24,186

⁵ If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

PPG Validation Workshop: Ministry of Agriculture and Rural Equipment (MAER), through its Department of Agriculture, its Seeds Division, the Senegalese Institute of Agricultural Research (ISRA) and the National Agency for Agricultural and Rural Council (ANCAR); National Agency of Civil Aviation and Meteorology (ANACIM); Centre de Suivi Ecologique (CSE); IFAD Senegal; Agence Nationale du Conseil Agricole et Rural (ANCAR); Ministère de l'Elevage et des Productions Animales (MEPA); Ministère de l'Environnement et du Développement Durable (MEDD); Ministère de l'Elevage et des Productions Animales (MEPA); Société de Développement et des Fibres Textiles (Sodefitex); Comité National de Changement Climatique (COMNACC); Direction de l'Environnement et des Etablissements Classés (DEEC); Programme d'Appui au Développement agricole et à l'Entrepreneuriat Rural (PADAER); Projet d'Appui aux Filières Agricoles (PAFA); Projet d'Appui à la Sécurité Alimentaire dans les régions de Louga, Matam et Kaffrine (PASALouMAKAF); Base d'Appui aux Méthodes et Techniques pour l'Agriculture, les autres Activités Rurales et l'Environnement de la SODEFITEX (BAAMTARE); Programme de Développement Agricole et Nutritionnel pour la sécurité Alimentaire au Sénégal (YAJEENDE)	April 2015	34 (14 women)	Dakar
Separate meetings of PPG national and international team with relevant key stakeholders and partners <ul style="list-style-type: none"> - The National Agency of Civil Aviation and Meteorology (ANACIM) - The Ecological Monitoring Centre (CSE) - The Senegal Agency of the Great Green Wall (ANGMV) - Projet d'Appui aux Filières Agricoles (PAFA) - Projet d'Appui à la Sécurité Alimentaire dans les régions de Louga, Matam et Kaffrine (PASALouMAKAF) - DGA/MAER 	April 2015	6 (2 women) 6 (2 women) 5 (1 women) 5 (1 women) 5 (2 women) 4 (2 women)	Dakar

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

N/A



FAO/GLOBAL ENVIRONMENT FACILITY PROJECT DOCUMENT



PROJECT TITLE: Mainstreaming ecosystem-based approaches to climate-resilient rural livelihoods in vulnerable rural areas through the Farmer Field School methodology

PROJECT SYMBOL: GCP/SEN/065/LDF

Recipient country/ies: Senegal

Resource Partner: LDCF

FAO project ID: 5503

GEF/LDCF Project ID: 625461

Executing Partner(s): Ministry of Agriculture and Rural Development (MAER)

Expected EOD (starting date): 10/01/2015

Expected NTE (End date): 10/01/2020

Contribution to FAO's Strategic Framework

a. Strategic objective/Organizational Result: SO2: OO1, OO2 ; SO3: OO1

b. Regional Result/Priority Area: Reduction of vulnerability to threats to food security and nutrition; improved management and governance for sustainable use of natural resources

c. Country Programming Framework Outcome: Country Programming Framework Outcome: CPF- 1 (Strengthening the resilience of vulnerable populations), and CPF-2 (growth, diversification and development of agro-forestry-pastoral production)

GEF Focal Area/LDCF/SCCF: Climate Change Adaptation

GEF/LDCF/SCCF Strategic Objectives:

CCA-1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level

CCA-2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level

CCA-3: Promote transfer and adoption of adaptation technology

Environmental and Social Risk Classification: Low ☒ Moderate ☐ High ☐

Financing Plan:

LDCF allocation:

USD 6,228,995

Co-financing:

USD 3,321,254 (PAFA-E)

USD 9,769,939 (PASALouMaKaf)

USD 4,022,146 (PADAER)

	USD 3,068,656 (ANGMV) USD 4,225,390 (PAPIL) <u>USD 200,000 (FAO)</u>
Subtotal Co-financing:	USD 24,607,385
Total Budget:	USD 30,836,380

EXECUTIVE SUMMARY

Senegal's agricultural, pastoral and forest sectors are likely to be affected by climate change with regard to both food crop and forage crop yields. Despite the fact that climatic variability has been considered in rural development policies, programs and field activities, farmers and agropastoralists are now subject to increased risks and will have to adapt their agricultural and pastoral systems to a hotter and likely drier future and react to the risk of decreasing yields and degradation of the natural resource bases (soils, biodiversity).

Main barriers to effectively addressing CC challenges identified within this context are: a) insufficient information and awareness of climate change adaptation (CCA) methodology, best practice and strategy among institutions, producers and consumers; b) lack of attention to traditional knowledge and local practices related to coping with CC; c) the need to build capacity in adopting drought-resilient agropastoral and agroforestry practices to counter the adverse effects of climate variability; d) weakness of policies and programmes aimed at confronting CC in key sectors such as agriculture, pastoral and food security and promoting multi-sectoral policies and programmes; e) the need for technology and methods to tackle the impact of climate change on crops and animal breeding as relevant to food security; f) the need to strengthen institutional capacity and disseminate information and knowledge on CCA lessons learned.

The proposed LDCF project is a joint effort by the Ministry of Agriculture, other national partners, the FAO and the GEF to fill the above-mentioned gaps and reduce CC-induced threats by introducing CCA dimensions into the farmer field school and agro-pastoral field school (FFS/APFS) approach. The project will partially be blended with and co-financed by four major projects/programmes implemented by the Ministry of Agriculture and its partners, and financed by IFAD, ADB and IDB. The project area will cover seventeen municipalities in six regions of three agro-ecological zones (i) the Peanut Basin covering the Central and Northern regions of Kaolack, Fatick, Diourbel and Kaffrine; (ii) the agro-pastoral zone covering the region of Louga; and (iii) the Eastern zone of Senegal area covering Tambacounda Region. With the additional financing from the LDCF, the proposed intervention will expand the scope of the activities carried out in the country related to increased resilience of the agricultural and pastoral sectors to climatic changes and contribute to reducing the vulnerability of smallholder farmers and herders.

The project's Adaptation Objective is to enhance the capacity of Senegal's agro-sylvo-pastoral sectors to cope with climate change, by mainstreaming Climate Change Adaptation (CCA) practices and strategies into on-going national agro-sylvo-pastoral development policies and programmes. The project's Development Objective is to help stakeholders adopt a field-based, pragmatic community learning process that leads to an increased understanding, adaptation and eventual wide-scale adoption of improved agro-sylvo-pastoral practices, which in turn creates a trend towards increasing production, improving livelihoods and enhancing food and nutrition security. The project consists of the following components:

Component 1: *Developing/fine-tuning CCA strategies and tools based on improved knowledge and information management and piloting improved CCA practices in agricultural and pastoral production systems*, aims to improve knowledge and information management and pilot CCA experiences to serve as baseline to inform Components 2 and 3.

Component 2: *Capacity building and up-scaling of CCA strategies, technologies and best practices for*

small farmers and agro-pastoralists through a growing network of FFS/APFS, is focused on capacity building and up-scaling of CCA strategies, technologies and best practices for small-scale farmers and agro-pastoralists through FFS/APFS, based on the knowledge and information systematized in Component 1. Furthermore, Component 2 will improve crops and livestock production value chains, thus enhancing income generation, by introducing specific CCA curricula in FFS/APFS and capacity building of national program managers, farmers and agro-pastoralists.

Component 3: Mainstreaming CCA strategies in a coordinated manner in agricultural and animal production development frameworks at country level and in selected vulnerable areas, aims at integrating CCA strategies in agricultural and animal production development frameworks at country level, which will improve the regulatory frameworks for achieving results and outputs of Component 2, drawing on information and knowledge systematized and disseminated in Component 1.

Component 4: M&E and information dissemination. This includes activities to ensure a systematic results-based monitoring and evaluation of project's progress and to promote the wider dissemination of project information, data and lessons learned for replication in other areas.

The expected impacts and adaptation benefits of the project are the following: (i) Agro-climatic information, innovation and CC adaptation practices are adopted by agro-sylvo-pastoral producers building on better knowledge of CC-induced threats on all sectors in the three targeted agro-climatic areas; (ii) Household income, agricultural and livestock productivity of FFS/APFS farmers have increased thanks to the application of CCA practices, and the use of agro - meteorological information, and have improved the value chains of agricultural and livestock products (750 FFS and 500 APFS are implemented targeting 15000 producers et 10000 herders trained and empowered on CCA practices); (iii) Fine-tuned and piloted agro-ecosystems specific strategies for increasing CC resilience are scaled up, including optimal use of dry land crop genetic resources and rangeland species in three agro-ecological zones (at least 4 CCA practices are identified and adopted by producers; at least 25% of farmer organizations participating to field schools are able to use the broadcasted climatic information; 15000 farmers and 10000 herders, of which 40% are represented by women and youth, are directly targeted by the project and at least 10 Action Plans developed by farmers organizations include CCA strategies); (iv) FFS and APFS farmers and herders integrate their traditional production with improved and adapted systems including also a landscape approach, and other activities that generate income (apiculture, aviculture, small ruminant, horticulture, etc.) increasing their household revenue by 20% and their capital accrual by 25%; (v) National institutional capacities to develop and integrate CCA policies, strategies and supporting programs to FFS/APFS are increased allowing a shift from a reactive response to a pro-active preparedness approach (30% of operational projects in sector-level programs incorporate budget for CCA components); (vi) a national framework CC resilient fund integrating together the different existing local CC and resilience funds is implemented and used by key actors mobilizing twice the initial GEF/LDCF contribution by end of year 4.

Table of Contents

GLOSSARY OF ACRONYMS	7
SECTION 1- RELEVANCE AND BACKGROUND	13
1.1 AGRICULTURE, LIVESTOCK AND RURAL DEVELOPMENT BACKGROUND	13
1.2 CLIMATE CHANGE AND VULNERABILITY TO CLIMATE CHANGE	17
1.3 JUSTIFICATION AND ISSUES ADDRESSED BY THE PROJECT	18
1.4 POLICY FRAMEWORK AND BASELINE PROJECTS – BASELINE SCENARIO	20
1.5 REMAINING BARRIERS AND PROBLEMS TO BE ADDRESSED BY THE PROJECT	25
1.6 ADDITIONAL REASONING	27
1.7 FAO’S COMPARATIVE ADVANTAGE	28
1.8 STAKEHOLDERS AND TARGET BENEFICIARIES	29
1.9 LESSONS LEARNED FROM PAST PROJECTS/INITIATIVES	32
1.10 LINKS WITH NATIONAL DEVELOPMENT OBJECTIVES, PLANS, POLICIES AND LEGISLATION, FAO STRATEGIC OBJECTIVES AND THE GEF/LDCF	34
a) <i>Alignment with national development objectives, plans, policies and legislation:</i>	34
b) <i>Alignment with FAO’s strategic objectives:</i>	36
c) <i>Alignment with the programming strategy of LDCF and SCCF projects:</i>	37
SECTION 2 –PROJECT FRAMEWORK AND EXPECTED RESULTS	38
3.1. PROJECT STRATEGY	38
3.2. THE PROJECT INTERVENTION AREA	41
3.3. PROJECT OBJECTIVES	43
3.4. EXPECTED PROJECT OUTCOMES AND RELATED INDICATORS	43
2.2.1 <i>Outcomes and Indicators</i>	44
2.2.2 <i>Description of components, outputs and activities</i>	45
3.5. GLOBAL ENVIRONMENTAL BENEFITS/ADVANTAGES OF ADAPTATION	63
3.6. COST – EFFECTIVENESS	64
3.7. PROJECT INNOVATIONS PROVIDED BY THE PROJECT	66
SECTION 3 – FEASIBILITY (FUNDAMENTAL DIMENSIONS FOR HIGH QUALITY DELIVERY)	68
3.1. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT	68
3.2. RISK MANAGEMENT	70
SECTION 4 – IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS	72
4.1. INSTITUTIONAL ARRANGEMENTS	72
4.2. IMPLEMENTATION ARRANGEMENTS	73
<i>Roles and responsibilities of the executing partners</i>	73
<i>Coordination with other ongoing and planned related initiatives</i>	77
<i>Roles and responsibilities specific to the FAO as an agency for the GEF and for project implementation</i>	79
4.3. FINANCIAL PLANNING AND MANAGEMENT	86
<i>Financial Plan (by Outcome)</i>	86
<i>Contributions from the GEF/LDF</i>	89
<i>Government contributions</i>	89
<i>FAO Contributions</i>	89
4.4. FINANCIAL MANAGEMENT AND REPORTING ON THE RESOURCES	89
4.5. PROCUREMENT	91
4.6. MONITORING AND EVALUATION (M&E)	91
<i>Oversight and monitoring responsibilities</i>	91
<i>Indicators and information sources</i>	92
<i>Reporting schedule</i>	93
<i>Monitoring and evaluation plan summary</i>	95
4.7. COMMUNICATIONS AND VISIBILITY	96
SECTION 5 – SUSTAINABILITY OF RESULTS	98
5.1. SOCIAL SUSTAINABILITY	98
5.2. ENVIRONMENTAL SUSTAINABILITY	98
5.3. FINANCIAL AND ECONOMIC SUSTAINABILITY	98

5.4.	SUSTAINABILITY OF SKILLS DEVELOPED	99
5.5.	ADOPTION OF INTRODUCED TECHNOLOGIES	100
5.6.	POTENTIAL FOR UPSCALING	100
APPENDIX 1 – RESULT MATRIX.....		101
APPENDIX 2: WORK PLAN		115
APPENDIX 3: RESULTS BUDGET		129
APPENDIX 4: PROJECT ENVIRONMENTAL AND SOCIAL SCREENING (ESS) CHECKLIST.....		130
APPENDIX 5 - TERMS OF REFERENCE (TORS) FOR INTERNATIONAL AND NATIONAL CONSULTANTS		133

Figures

Figure 1 - Map of the six eco-geographical zones of Senegal (Source: ANACIM & CSE)	14
Figure 2 - Agricultural and Livestock sectors of Senegal.....	15
Figure 3 - Institutional Arrangements	85

Tables

Table 1: Baseline projects and programmes providing co-financing	23
Table 2: NGO, institutions and development agencies that will collaborate with the project..	30
Table 3 : Lessons learned from projects and initiatives	32
Table 4 : FFS, APFS and CLC to be implemented during the project lifetime	51
Table 5 : Risks and mitigation measures	70
Table 6: Preliminary Letters of Agreement (LoA)	75
Table 7: Connected initiatives underway and scheduled	77
Table 8: Summary of financial contribution	87
Table 9 : Summary of M&E Related Costs	95

GLOSSARY OF ACRONYMS

AFFS	Alliance de Crédit et d'Epargne pour la Production (Credit and Savings Alliance for Production - CSAP)
AERN	Annuaire sur l'Environnement et les Ressources Naturelles (Annual Directory on the Environment and Natural Resources - ADENR)
ANACIM	Agence Nationale de l'Aviation Civile et de la Météorologie (National Agency of Civil Aviation and Meteorology - NACAM)
ANCAR	Agence Nationale de Conseil Agricole et Rural (National Agency for Agricultural and Rural Consultancy - NAARC)
ANGMV	Agence Nationale de la Grande Muraille Verte (National Agency of the Great Green Wall - NAGGW)
ANDS	Agence Nationale de la Statistique et de la Démographie (National Agency of Statistics and Demography - NASD)
APFS	Agro-pastoral field school
APRAO	Amélioration de la Production de Riz en Afrique de l'Ouest (Boosting West African Rice production Project)
APROVAG	Association des Producteurs de la Vallée du fleuve Gambie (Association of Producers in the Gambia River Valley - APGRV)
ARC	African Risk Capacity
ASPRODEB	Association Sénégalaise pour la Promotion du Développement à la Base (Senegalese Association for the Promotion of Basic Development - SAPBD)
ASUFOR	Association Sénégalaise des Usagers des Forages (Senegalese Association for Well Users - SAWU)
BAD	Banque Africaine de Développement (African Development Bank – ADB)
BAMTAARE	Base d'Appui aux Méthodes et Techniques pour l'Agriculture, les autres Activités Rurales et l'Environnement de la SODEFITEX – signifie “Développement” en langue Pulaar (Baseline Support in Methods and Techniques for Agriculture, Other Rural Activities and the Environment of SODEFITEX – which means “Development” in the Pulaar language)
BID	Banque Islamique de Développement (Islamic Development Bank – IDB)
CAA	Centrales d'Achat Agricoles (Agricultural Purchase Central - APC)
CCPA	Cadre de concertation des producteurs d'arachides (Consultation Framework for Peanut Producers)
CASP	Conseil Agro-sylvo-pastoral (Agro-Sylvo-Pastoral Council - ASPC)
CC	Changement Climatique (Climate Change)
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CE	Champ Ecole (Field School - FS)
CEC	Club d'Ecoute Dimitra (Dimitra Listeners' Club - CLC)
CEP	Champ Ecole de Producteurs (Farmer Field School – FFS)
CEASP	Champ École Agro-Sylvo-Pastoral (Agro-Sylvo-Pastoral Field School - ASPFS)
CIMA	Conférence Interafricaine des Marchés d'Assurance (Inter-African Conference on Insurance Markets - IACIM)
COMNACC	Comité National de Changement Climatique (National Climate Change

	Committee - NCCC)
COMRECC	Comité Régional de Changement Climatique (Regional Climate Change Committee - RCCC)
CNDD	Commission Nationale de Développement Durable (National Sustainable Development Commission - NSDC)
CONSERE	Conseil Supérieur des Ressources naturelles et de l'Environnement (High Council of Natural Resources and the Environment - HCNRE)
COOPAKEL	Coopérative rurale de l'Arrondissement de Kéllé Guèye (Rural Cooperative of the Arrondissement Kéllé Guèye - RCAKG)
COSFAM	Comité Sénégalais pour la Fortification en Micronutriments (Senegalese Committee for Micronutrient Fortification - SCMF)
CLC	Community Listeners' Club (also known as Dimitri Listeners' Club)
CLM	Cellule de Lutte contre la Malnutrition (Unit for the Fight against Malnutrition - UFM)
CNAAS	Compagnie Nationale d'Assurance Agricole du Sénégal (National Agricultural Insurance Company of Senegal - NAICS)
CNCAS	Caisse Nationale de Crédit Agricole du Sénégal (National Agricultural Social Security Fund of Senegal - NASSFS)
CNCR	Conseil National de Concertation et de Coopération des Ruraux (National Council for Rural Cooperation - NCRC)
CNDR	Confédération Nationale pour le Développement Rural (National Confederation for Rural Development - NCRD)
CNCSP	Comité National Consultatif des Semences et Plants (National Advisory Committee on Seeds and Plants - NACSP)
CNS	Conseil National de la Statistique (National Statistics Council - NSC)
CP	Confédération Paysanne (Farmers Confederation - PC)
CPG	Comité de Pilotage et de Gestion (Steering and Management Committee - SMC)
CPP	Cadre de Programme Pays de la FAO (FAO Country Framework Programme - CFP)
CROASP	Comité Régional d'Orientation Agro-Sylvo-Pastorale (Regional Agro-Sylvo- Pastoral Steering Committee)
CSE	Centre de Suivi Ecologique (Ecological Monitoring Center)
CSOAP	Conseil Supérieur d'Orientation Agro-Sylvo-Pastorale High-Council of Agro- Sylvo-Pastoral Orientation)
DA/DISEM	Direction de l'Agriculture/Division des Semences (Department of Agriculture/Seed Divison)
DEEC	Direction de l'Environnement et des Etablissements Classés (Department of Environment and Classified Establishments - DECE)
DGPSN	Direction Générale à la Protection Sociale et à la Solidarité Nationale (General Directorate of Social Welfare and National Solidarity - GDSWNS)
DINFEL	Directoire National des Femmes en Elevage (National Directorate of Women in Livestock Production - DWLP)
DIRFEL	Directoire Régional des Femmes en Elevage (Regional Directorate of Women in Livestock Production - RDWLP)
DLC	Dimitri Listeners' Club (also known as Community Listeners' Club)
DRDR	Direction Régionale du Développement Rural (Regional Directorate of Rural Development - RDAD)

DSRP	Document de Stratégie de Réduction de la Pauvreté (Poverty Reduction Strategy Paper – PRSP)
EDS-MICS	Enquête Démographique et de Santé à Indicateurs Multiples au Sénégal (Demographic and Health Survey on Multiple Indicators in Senegal)
EMPRESS	The Emergency Prevention System for Transboundary Animal and Plant ESPT and Diseases
ENSAN	Enquête Nationale sur la Sécurité Alimentaire et la Nutrition (National Survey on Food Security and Nutrition - NSFSN)
ESPS-II	Enquête de Suivi de la Pauvreté au Sénégal (Poverty Monitoring Survey in Senegal - PMSS)
FADSR	Fonds d'Appui au Développement du Secteur Rural (Support Fund for Rural Sector Development - SFRSD)
FAO	Organisation des Nations Unies pour l'Alimentation et l'Agriculture (Food and Agriculture Organization of the United Nations)
FAPAL	Fédération des Associations Paysannes et Agricoles de la Région de Louga (Farmers Federation and Agricultural Associations of the Louga Region)
FEM	Fonds Mondial pour l'Environnement (Global Environment Fund – GEF)
FEPROBA	Fédération des Producteurs du Bassin de l'Anambé (Federation of Farmers of the Anambé Basin)
FFS	Farmer field school
FIDA	Fonds International de Développement Agricole (International Fund for Agricultural Development - IFAD)
FIARA	Foire Internationale de l'Agriculture et des Ressources Animales (International Agriculture and Animal Resources Fair)
FNDASP	Fonds National de Développement Agro-sylvo-pastoral (National Agro-Sylvo-Pastoral Development Fund)
FNPC	Fédération Nationale des Producteurs de Coton (National Federation of Cotton Producers - NFCP)
FNRAA	Fonds National de Recherches Agricoles et Agroalimentaires (National Fund for Agricultural Research and Food Processing)
FP	Force Paysanne (Farmers Power)
FONGS	Fédération des Organisations Non Gouvernementales du Sénégal (Federation of Non-Governmental Organizations of Senegal)
GAFFSP	Global Agriculture and Food Security Program of the World Bank
GDT	Gestion Durable des Terres (Sustainable Land Management)
GIE	Groupe d'Intérêt Economique (Economic Interest Group – EIG)
GIEC	Groupe d'experts Intergouvernemental sur l'Evolution du Climat (Intergovernmental Panel on Climate Change - IPCC)
GIPD	Gestion Intégrée de la Production et des Déprédateurs (Integrated Pest and Production Management – IPPM)
GMV	Grande Muraille Verte (Great Green Wall - GGW)
GTP	Group Travail Pluridisciplinaire (Multidisciplinary Working Group)
IGA	Income Generating Activities
IMF	Institution de Micro Finance (Micro Finance Institution)
IPDSR	Institut de Population, Développement et Santé de la Reproduction de l'UCAD (Institute of Population, Development and Reproductive Health UCAD)

ISRA	Institut Sénégalais des Recherches Agricoles (Senegalese Institute of Agricultural Research)
ITA	Institut de Technologie Alimentaire (Food Technology Institute)
LADA	Land Degradation Assessment
LDCF	Least Development Country Fund
LOASP	Loi d’Orientation Agro-Sylvo-Pastorale (Agro-Sylvo-Pastoral Orientation Law)
MAG	Malnutrition Aiguë Globale (Global Acute Malnutrition – GAM)
MAER	Ministère de l’Agriculture et de l’Equipement Rural (Ministry of Agriculture and Rural Development)
MCT	Ministère en charge de la Communication et du Transport (Ministry for Communications and Transport - MCT)
MEDD	Ministère de l’Environnement et du Développement Durable (Ministry of the Environment and Sustainable Development - MESD)
MEFP	Ministère de l’Economie, des Finances et du Plan (Ministry of Economy, Finance and Planning - MEFP)
MEPA	Ministère de l’Elevage et des Productions Animales (Ministry of Livestock and Animal Productions)
MESR	Ministère de l’Enseignement Supérieur et de la Recherche (Ministry of Higher Education and Research)
MH	Ministère de l’Hydraulique (Ministry of Hydraulic)
MI	Micronutrient Initiative au Sénégal (Micronutrient Initiative in Senegal)
MSD	Mouvement Sénégalais pour le Développement (Senegalese Movement for Development)
MWG	Multidisciplinary Working Group
PADAER	Programme d'Appui au Développement agricole et à l'Entrepreneuriat Rural (Support Programme for Agricultural Development and Rural Entrepreneurship)
PADEL	Projet d'Appui au Développement Economique Local (Support Project for Local Economic Development - SPLED)
PDIAS	Programme de Développement Inclusif de l’Agrobusiness au Sénégal (Inclusive Agribusiness Development Program in Senegal - IADPS)
PAFA	Projet d’Appui aux Filières Agricoles (Support Project for Agricultural Commodities - SPAC)
PGES	Plan de Gestion Environnementale et Sociale (Environmental and Social Management Program - ESMP)
PAMECAS	Partenariat pour la Mobilisation de l’Epargne et le Crédit Au Sénégal (Partnership for Mobilizing Savings and Credit in Senegal - PMSCS)
PANA	Plan National d’Adaptation aux Changements Climatiques (National Plan for Climate Change Adaptation)
PAN/MPCD	Plan National d’Action sur les Modes de Production et de Consommation Durables (National Action Plan on Production Methods and Sustainable Consumption)
PAPEL	Projet d’Appui à l’Elevage (Livestock Support Project)
PAESPN	Programme d’Appui à la mise en œuvre du PNIA au Sénégal (Support Program for the Implementation of NAIP in Senegal)
PASALouMaKaf	Projet d’Appui à la Sécurité Alimentaire dans les régions de Louga, Matam et Kaffrine (Support Project for Food Security in the regions of Louga, Matam and Kaffrine)

PDDAA	Programme Détaillé de Développement de l'Agriculture en Afrique (Comprehensive Africa Agricultural Development Program – CAADP)
PIB	Produit Intérieur Brut (Gross Domestic Product –GDP)
PIV	Périmètre Irrigué Villageois (Irrigated Village Perimeter – IVP)
PNASA	Programme National d'Appui à la Sécurité Alimentaire (National Program in Support of Food Security)
PNDE	Programme National de Développement de l'Elevage (National Program of Livestock Development)
PNIA	Programme National d'Investissement Agricole (National Agricultural Investment Program – NAIP)
PNDL	Programme National de Développement Local (National Program for Local Development)
PNDS II	Deuxième Plan National de Développement Sanitaire (Second National Health Development Plan)
PNUD	Programme des Nations Unies pour le Développement (United Nations Development Program – UNDP)
PNUE	Programme des Nations-Unies pour l'Environnement (United Nations Environment Program – UNEP)
POAS	Plan d'Occupation et d'Affectation des Sols (Land use plan and allocation of land uses)
PRACAS	Programme d'Accélération de la Cadence de l'Agriculture Sénégalaise (Senegalese Agricultural Cadence Acceleration Program)
PSAOP	Programme des Services Agricoles et d'Appui aux Organisations de Producteurs (Agricultural Services and Support to Producer Organizations)
PSSA	Programme Spécial pour la Sécurité Alimentaire (Special Program for Food Security)
PRODAM-CSA	Projet de développement agricole dans le département de Matam-Consolidation de la Sécurité Alimentaire (Agricultural Development Project in the Department of Matam-Consolidation of Food Security)
PROMER	Projet de Promotion des Micro-Entreprises Rurales (Rural Micro-Enterprise Promotion Project)
PSE	Plan Sénégal Emergent (Emerging Senegal Plan – ESP)
PTBA	Programme de Travail et de Budget Annuel (Annual Work Plan and Budget (AWPB))
PVV	Pharmacie Vétérinaire Villageoise (Village Veterinary Pharmacy)
RESOPP	Réseau des Organisations des Paysans et Pasteurs (Network of the Organizations of Farmers and Pastoralists)
RGPHAE	Recensement Général de la Population, de l'Habitat, de l'Agriculture et de l'Elevage (General Census of Population, Housing, Agriculture and Livestock)
SAP	Système d'Alerte Précoce (Early Warning System – EWS)
SIENA	Système d'Information Environnementale National au Sénégal (National Environmental Information System in Senegal)
SIGEL	Système d'Information et de Gestion du Secteur de l'Elevage (Information System and Livestock Sector Management)
SE/CNSA	Secrétariat Exécutif / Conseil National de la Sécurité Alimentaire (Executive Secretariat/National Council for Food Security)
SNACC	Stratégie Nationale d'Adaptation aux effets des Changements Climatiques (National Strategy for Adaptation to Climate Change Effects)

SNCASP	Système National de Conseil Agro-Sylvo-Pastoral (National Agro-Sylvo-Pastoral Advisory System)
SNEEG	Stratégie Nationale pour l'Egalité et l'Equité de Genre (National Strategy for Gender Equality Equity)
SNDD	Stratégie Nationale de Développement Durable (National Strategy for Sustainable Development)
SNDES	Stratégie Nationale de Développement Economique et Social (National Strategy for Economic and Social Development)
SNRASP	Système National de Recherche Agro-Sylvo-Pastorale (National Agro-Sylvo- Pastoral Research System)
SODEFITEX	Société de Développement et des Fibres Textiles (Corporation of Development and Textile Fibers)
SSN	Système Statistique National (National Statistical System – NSS)
SYNAEP	Syndicat National des Agriculteurs, Eleveurs et Pêcheurs (National Union of Farmers, Herders and Fishermen)
TACC	Territorial Approach to Climate Change
UBT	Unité de Bétail Tropical (Tropical Livestock Units)
UCAD	Université Cheikh Anta Diop de Dakar (University Cheik Anta Diop of Dakar)
UNCDF	United Nations Capital Development Fund
UNIFEM	Fonds des Nations-Unies pour la Femme (United Nation Fund for Women /)
UN3P	Union Nationale des Paysans, Pasteurs et Pêcheurs (National Union of Farmers, Pastoralists and Fishermen)
UP	Unité Pastorale (Pastoral Unit – PU)
USAID	United States Agency for International Development
YAJEENDE	Programme de Développement Agricole et Nutritionnel pour la sécurité Alimentaire au Sénégal (Agricultural Development Programme for Nutrition and Food Security in Senegal) (USAID/YAAJEENDE)
ZAE	Zone Agro Ecologique (Agro-Ecological Zone - AEZ)
ZBA	Zone du Bassin Arachidier (Groundnut Basin Zone - GBZ)
ZEG	Zone Eco-Géographique (Eco-Geographical Zone - EGZ)
ZSO	Zone du Sénégal Oriental (Eastern Senegal Zone -ESZ)
ZSP	Zone Sylvo-Pastorale (Sylvo-Pastoral Zone - SPZ)

SECTION 1- Relevance and background

1.1 Agriculture, livestock and rural development background

Senegal is located at the western tip of the African continent, between 12.5 and 16.5 degrees north latitude, covering an area of 196,712 Km². It is bordered to the north by the Islamic Republic of Mauritania, on the east by Mali, to the south by Guinea Bissau and the Republic of Guinea, and to the west by the Atlantic Ocean.

Senegal is characterized by two climatic regions on both sides of the 500 mm isohyet: the Sahelian-type region with a rainy season (winter) beginning in June and ending in September-October. Annual cumulative rainfall ranges between 200 mm in the north and 500 mm in the south; and the Soudanian-climate region (Casamance and Eastern Senegal) where the winter lasts from May to October with annual rainfall ranging from 600 to 1200 mm. Across the country, the dry season is divided into a cold period from December to February followed by a warm period. Rainfall is highly variable both at the inter-annually and on inter-decadal scales. Average annual temperature for Senegal was 27.8°C for the period 1960-1990, with monthly averages in the hottest seasons of up to 35°C.

Senegal has six eco-geographical zones (EGZ): (Figure 1)

- a) *The Niayes zone*, covering an area of 8,883 km² along the north coast (1% arable land), relies on vegetable production and fruit trees mainly on waterlogged soils. However, most of the area is occupied by millet and groundnut crops. Intensive livestock farming is practiced, particularly cattle for milk production and poultry (meat and eggs). Small-scale coastal fishing is also existing on the *Grande Côte*;
- b) *The Senegal River Valley* is a flood plain and sandy uplands extending over 22,472 km² (8% arable land). Agriculture is organized around a zone of traditional rainfed crops (sorghum, maize, rice) with irrigated perimeters over its floodplain where rice and industrial crops (sugar cane and tomato) are implanted and vegetable production is practiced;
- c) *The Sylvo-Pastoral Zone of Ferlo* is one of the largest areas of the country with an area of 55,561 km² but with only 4% of arable land. It has a Sahelian climate and is sited between isohyets 300-600 mm. Due to the severe nature of the environment, the main production system is based on extensive livestock transhumance (22% to 30% of the national livestock);
- d) *The Groundnut Basin Area (GBA)* covers an area of 46,367 km² (57% arable land). Its average rainfall is between 500 mm and 700 during the period between June and October. Two thirds of the production of millet and groundnuts (main national cultures) is from this area;
- e) *The Eastern Senegal Zone* is 51,958 km² (10% arable land). Mining is the predominant activity in its northern part, while pastoralism is dominant in its southern area. It also practically provides all of the fuel-wood consumed in large urban centers. This area is one of the wettest of the southern part of Senegal, with total annual rainfall exceeding 1000 mm; and
- f) *The Casamance* region extends over an area of 49,361 km² (20% arable land). Along with the Eastern Senegal Zone, the Casamance is also a very humid area of Senegal. It has the largest forest environment of the country but it is dramatically facing the expansion of agricultural areas and illegal logging. The density of the river system makes this area ideal for rice cultivation and horticulture, especially in the lowlands.

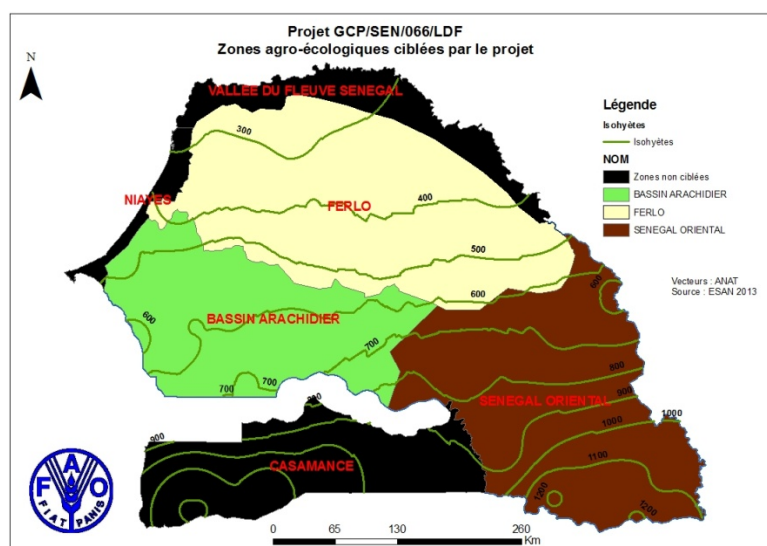


Figure 1 - Map of the six eco-geographical zones of Senegal (Source: ANACIM & CSE)

In Senegal, the growing population is associated with a rural employment deficit: Senegal's population was estimated to be 12.8 million inhabitants¹ in 2011. With an average annual growth rate of 2.9%, it will reach 14 million people by 2015². The population is predominantly rural (54%) with a demographic profile that illustrates the numerical importance of women (52%) and a relatively young population: one resident over two is under 19 years of age and 71.2% of Senegalese are under 30 years³. Unemployment and under-employment are especially high among youth, with only one over five people working full time⁴. In Senegal rural areas, the deficit of productive employment is revealed by an increasingly massive exodus of youth of both sexes looking for an employment in Dakar, in other major cities within and outside the country. Therefore, the urbanization rate has increased over the past decade by 4% per year, which has fostered the growth of secondary cities (including Thiès, Louga and Kaolack), new opportunities and potential markets for agricultural production. Nevertheless, the agricultural sector continues to employ half of Senegalese while 70% of the rural population depends on agriculture-related activities. In the poorest households, the share of agricultural employment is very important. With an estimated economic growth at only 4% per year since 2000⁵, the share of agricultural GDP was 15.4% in 2011. Livestock contributes to half of the agricultural GDP up to 7.5%.

Trends and challenges in the agricultural sector: the agricultural sector is dominated by small subsistence family farming. These farms, mostly located in the semi-arid area, are based on rainfed cereal crops including: rice, millet/sorghum, maize, fonio and peanut/groundnut (Figure 2). Less than 2% of harvested land is irrigated.

The constraints of the Senegalese agricultural sector are many: (i) weak and irregular rainfall and soil degradation; (ii) unavailability and inaccessibility to inputs (quality seeds and fertilizers) that induce a significant use of traditional techniques with low productivity; (iii) weak technical support services and insufficient consideration of research results; (iv) isolated areas with high productive potentials and low development of agricultural development; (v)

¹ The results of the 2013 General Census of Population, Housing, Agriculture and Livestock (RGPHAE), published September 25, 2014 set the total Senegalese population at 13,508,715 inhabitants, source ANSD (<http://www.ansd.sn/>).

² According to population projections from the 2002 census

³ Idem

⁴ ANSD 2013-2017.

⁵ +3.6% in 2013, source ANSD (<http://www.ansd.sn/>)

inadequate land policy; and (vi) poor structure around value chain sectors limiting the access of producers to markets, the value of exported products and the access to finance.

Nevertheless, the Senegalese agriculture has considerable resources (Figure 2): (a) of about 3.8 million hectares of arable land only 2.5 million hectares are exploited effectively (65%); (b) of 350,000 hectares of irrigable land, only 105,000 hectares are exploited (30%); and (c) water resources are estimated to be about 35 billion cubic meters including 31 billion in surface water (Senegal, Gambia and Casamance rivers) and four billion cubic meters of groundwater. However, the level of mobilization of these resources is still low.

Trends and challenges in the livestock sector: livestock is the second main economic pole of Senegal primary sector and involves about 350,000 families, or a total labour force of about 3,000,000 people (over 23% of the national population), mostly the most vulnerable. The number of livestock is estimated at 15.35 million heads in 2011 and is dominated by sheep (37.4%), goats (31.9%) and cattle (21.9%)⁶. Despite a large livestock population, Senegal remains a net importer of meat, especially sheep, during high consumption periods such as holidays and religious events⁷. The livestock sector also faces many constraints: the vulnerability of livestock (access to water, forest fires, etc.), land issues (reduction of pastoral land by the advance of the agricultural border, urbanization), the low genetic potential of local breeds, animal health and the incidence of endemic diseases, and lack of basic infrastructure (see Figure 2).

The Senegalese agricultural sector faces two major challenges: (i) the country imports nearly 70% of its food needs while more than 60% of assets are engaged in subsistence rainfed agriculture and livestock; (ii) 47% of the rural population live in high poverty situations and has no access to adequate food.

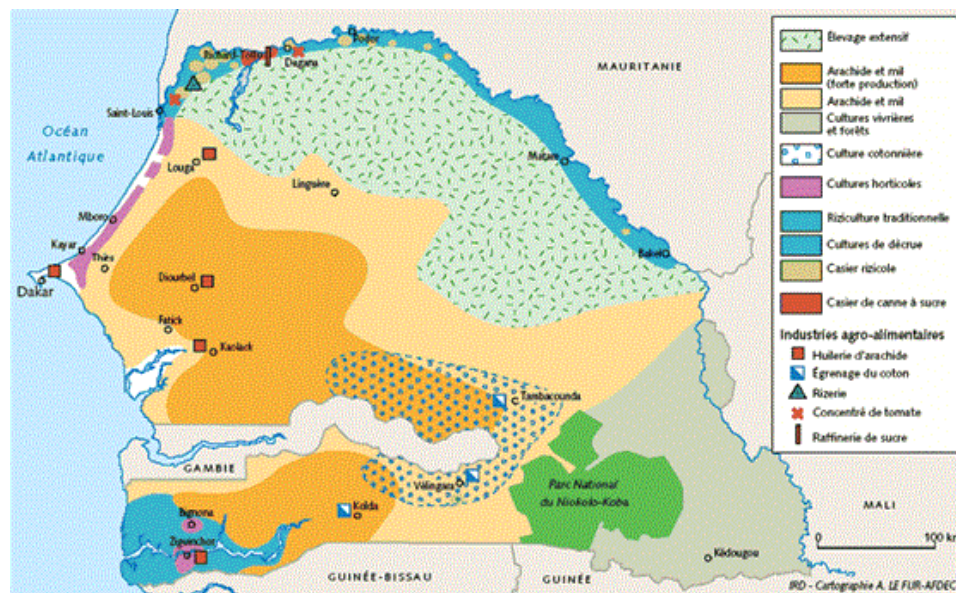


Figure 2 - Agricultural and Livestock sectors of Senegal

Poverty, food and nutrition security: in Senegal, 75% of rural households are poor⁸, mostly located in the rural areas of the Central, South and Northeast of the country. The index of

⁶ The Republic of Senegal's Ministry of Livestock Project to Support Agricultural Sectors – Extension (PAFA-E). Detailed design report.

⁷ For example, sheep imports for Tabaski in Mali and Mauritanie in 2011 was around 400,000.

⁸ Monitoring Survey of Poverty in Senegal (ESPS-II). National Agency of Statistics and Demography (ANSD). ESPS-II Final Report 2011. Dakar, Senegal.

severity of poverty was 9.2 in 2001, 9.5 in 2005 and 8.7 in 2011. FAO⁹ estimates the number of undernourished people in Senegal to be 2.8 million or 21.6%. Food security of the rural population depends heavily on crops production and therefore varies greatly depending on meteorological conditions. Thus, 2013/2014 cereal production declined by 12% over the previous year and 17% compared to the average of the last five years (2008-2012), and this will not cover more than five months of household consumption. The situation of food and nutritional¹⁰ security is precarious and of concern in most eco-geographical zones of the country. The prevalence of acute malnutrition (MAG) is: (i) from 7 to 10.6% in the Groundnut Basin area and the sylvo-pastoral zone, with rates, respectively, of 6.7%, 9.3%, 9.7%, 9.8% and 10% in the regions of Kaolack, Diourbel, Louga, Fatick and Kaffrine; (ii) 9.7% in Eastern Zone of Senegal, 8.3% and 11.1% respectively in the regions of Kédougou and Tambacounda, and; (v) 18.2% in the region of Matam (Senegal River valley).

The prevalence of chronic malnutrition remains high (> 20%) in the regions of Kaffrine and Tambacounda. The situation is less precarious in the regions of Louga, Matam, Fatick, Kaolack and Diourbel with prevalences ranging from 11% to 18%. Micronutrient deficiencies such as iron, zinc and vitamin A are widespread nationally¹¹. Malnutrition has serious consequences on the growth and development of young children and is greatly responsible for morbidity and maternal and infant mortality. It is responsible for over 21% of deaths of children under 5 years.

Malnutrition is caused by inadequate dietary intake associated with diseases. Among the underlying factors are poor breastfeeding practices, supplementary feeding and food hygiene and quality of maternal and child care¹². Added to this is food insecurity caused by crop failure, low grain stocks, the price increase of food, strong dependency on markets, low diversification of income-generating activities, and recurring shocks and weak resilience of households and communities.

Gender inequalities also persist in rural areas. Women make up nearly 70% of the work force and provide a little more than 80% of agricultural production, especially in food crops. In the social and cultural context of Senegal, women have limited access to land and land ownership and predominantly farm on family land. The National Strategy for Equity and Gender Equality (SNEEG), adopted in 2005, focuses on land issues perceived as a source of the imbalances between men and women found in agriculture. Lack of access to factors of production and credit are exacerbated for women: "They use four times less fertilizer and six times less selected seeds than men. Moreover, women have poor access to farm equipment, more than half of the plots are not prepared before planting¹³." Added to this is the lack of education and illiteracy as well as their non-participation in consultations and producer organizations. Furthermore, just like all women, young people suffer from gender-based inequality. They are poorly equipped to achieve economic empowerment (access to land and financial capital) and are a minority in decision-making bodies.

Three major problems maintain gender disparities in the agricultural sector: i) lack of awareness of the importance of the participation of women in the food strategies of farms and

⁹ (FAO). The State of Food Insecurity in the World 2013. The multiple dimensions of food security. Report FAO, WFP and IFAD 2013, Rome, p63

¹⁰ SE / CNSA. National Survey on Food Security and Nutrition (ENSAN). Report of primary data collection from 2013.

¹¹ COSFAM/UCAD/MI, 2011.

¹² Demographic and Health Survey of Multiple Indicators in Senegal (EDS-MICS). National Agency of Statistics and Demography (ANSI). Final report 2011-2012 EDS-MICS, Dakar, Senegal, in February 2012, p520.

¹³ Diagnosis of social disparities in economic and social sectors and prospects for gender budgeting (Agriculture, Health Education and Health). UNIFEM and Gender research laboratory of UCAD.

income formation within them; ii) failure to take into account the expectations of women and rural youth in family farm modernization policies; and iii) the non-participation of women and youth in rural stakeholder consultations/producer organizations with their own expectations.

1.2 Climate change and vulnerability to climate change

In Senegal, more than 80% of rural people depend from winter rains to ensure their food security. Thus, disturbances occurring in climatic factors have notable effects on the lifestyles of these populations and their socio-economic activities. This means that all households are facing permanent risk situations and high vulnerability due to the lack of means at their disposal to deal with shocks.

An analysis of climate change shows that the spatial and temporal variability of rainfall in the Sahel is among the largest in the world and is a major constraint that farmers have adapted to with extensive farming systems¹⁴. This constraint and the economic context explain why the farmers have difficulties adopting the recommendations of the research on intensifying¹⁵ and increasing the productivity of rainfed cereal production. Among the major climatic risks that could impact the vulnerability of rural populations include: i) the decrease in rainfall patterns and increased variability within and between seasons; ii) the increase in the temperature of the ambient air; and iii) the increase in the occurrence of extreme events (droughts, floods, storms, high winds, excessive heat, etc.).

Climate trends in Senegal. To analyze climate change trends in Senegal several criteria must be considered, including: the variability of inter and intra-annual rainfall, the length of the rainy season, the number of dry or wet spells during the planting season, temperature variability, the presence of violent or drying winds and the occurrence of climatic shocks.

Rainfall evolving below normal and an increasingly late wintering. The analysis of the evolution of rainfall in the Groundnut Basin¹⁶ shows a significant decrease of more than 150 mm between the decades from 1961 to 1970 and 1971 to 1980 (see Annex 1, Figure 3, Figure 4 a, b and c). Despite a slight increase in average annual rainfall (50 mm) in the periods 1981-1990, 1991-2000 and 2001-2010, the rainfall level in the Groundnut Basin (*La Zone du Bassin Arachidier*) remain below that of 1961-1970. Moreover, this decrease in rainfall is accompanied by increasingly late wintering, which leads to a major challenge for farmers and agro-pastoralists to adapt their practices to climate change (eg. change of sowing dates, choice of short cycle varieties, choice of species to farm, etc.).

The risk of developing dry spells, analyzed during the 1947-2010 period over five, seven and ten consecutive days, occurred throughout the winter with more instances of appearance marking the beginning of the season (see Annex 1, Figure 6). On the other hand, there is a continuing decline in the number of consecutive days recording rainfall of over 10 mm and heavy rain of 20 mm (see Annex 1, Figure 7). Decreasing in their temporal succession, these extreme events in the northern part of the Groundnut Basin (*La Zone du Bassin Arachidier*)

¹⁴ Affholder, 1997 ; De Rouw, 2004.

¹⁵ Hansen, 2005.

¹⁶ The Groundnut Basin, being the interface between the various agro-ecological zones that house the project where most of the climate, agro-sylvo-pastoral and socioeconomic conditions agglomerate, is subject to an analysis of parameters and climate elements evolving over the last decades.

show a trend change in latitudes further south and may become more frequent, following the warming of the lower atmospheric layers¹⁷.

A general rise in temperature and winds. The evolution of temperatures in Senegal shows a clear upward trend with more pronounced minima. Wind speeds have also been exacerbated by the weakening of the plant screen in sustaining pressure and deforestation, accentuating erosion and land degradation (see Annex 1, Figures 8 and 9).

Projections for climate change in Senegal over the next twenty years. Overall climate change scenarios of the IPCC (2007) show that, in West Africa, rising temperatures will affect all geographical areas but will differ however with: + 3 ° C in coastal areas for Senegal, Gambia, the Ivory Coast and Benin; and 4° C in inland Mali, Burkina Faso and Niger. The upward trend in regional temperature is linked to global warming due to increased greenhouse gases. Throughout West Africa and all over Senegal and its sub-regions the trend is less rainfall, the response of precipitation to warming differs only in magnitude from one place to another. This is accompanied by an increase of monsoons which could carry a lot more moisture from the ocean to the mainland, though this humidity does not necessarily turn into rain. (Second National Communication to the UN Framework Convention on Climate Change, 2010).

The evolution models of annual rainfall developed for Senegal between 2000 and 2050 show little variation ranging from -50 to +50 mm (see Annex 1 models)¹⁸. Some models (CNRM-CM3 and MIROC), however, show an increase in rainfall (between 50 and 100 mm) in the region of Casamance. As for the ECHAM model, it portends a severe reduction in rain of -50 and - 200 mm for the Eastern Region of Senegal. Other models show a disturbance of thermal factors and rains from one extreme to the other, meaning a large seasonal deficit to a surplus in winter that can cause flooding. An effort to forecast the impact of climate change on crop yields was also made according to developed models. All models show a decrease in yield for peanuts varying from 5% to 25%, and a slight decrease for corn and upland rice, seemingly less affected crops.

Given this quick analysis, the long-term forecast models agree on the variability of climate change with the seasons and localities. Mastering climate parameters locally is also important in order to support rural people in decisions and more appropriate adaptation options. While it is essential to analyze local parameters such as rainfall totals and trends, in agronomy, their distribution within the season is more relevant because it is crucial for the development of the various phases of crop plants (vegetative phase of germination, flowering, emergence and maturation). Thus, it will be important for agro-climatic recommendations and the decision-making of producers for an analysis of the characteristics of the rainy season in each specific area of intervention to be provided by: the length of the growing season (start and end dates, proceedings) and the frequency of the number of consecutive days of heavy rain and dry spells.

1.3 Justification and issues addressed by the project

According to the IPCC, vulnerability is the degree to which a system is susceptible to, and unable to cope with, the adverse effects of climate change, including climate variability and extreme weather events. According to the analysis of climate trends in Senegal, the vulnerability of Senegalese agriculture is linked to its heavy dependence on rainfall, the latter

¹⁷ Houghon et al. 2001, cited by Ozer et al. 2005.

¹⁸ ILRI Senegal, Chapter 11.

being rarefied in recent decades as well as having high inter and intra-annual variability. The consequences of this phenomenon may exacerbate already significant vulnerabilities in: (i) interannual variations in depletion of water stocks due to the predominance of the discharge process during the years of rainfall deficit; (ii) the decrease in the groundwater level; (iii) the decline of woody vegetation in 2/3 of the country as well as biodiversity (estimated at 30%); (iv) the acceleration of soil degradation due to the scarcity of vegetation cover and stress exerted without proper restoration of fertility; (v) the increasing sensitivity of soils to water and wind erosion; (vi) the quantitative and qualitative deterioration of the available forage; (vii) the reduction in storage capacity of ponds and water sources due to excessive evaporation; and (viii) low capacity for regeneration of forest species due to climatic and human stresses.¹⁹

The project covers three Eco-Geographic Areas of Senegal (EGA), namely Ferlo (or the *Sylvo-Pastoral Zone*) the Groundnut Basin and Eastern Senegal area.

The main vulnerabilities to CC in selected ZEG ecosystems are:

- ***Ferlo or Sylvo-Pastoral Zone***: pastoral farming predominates and is highly dependent on natural forage regenerated by rains and groundwater recharge. ZSP is undergoing a process of fairly advanced desertification with a marked loss of vegetation cover due to drought and excessive woody pruning by farmers. Drought²⁰, high evapotranspiration (PET), an annual variability of rains that is very pronounced, decreasing availability of water and wind erosion are the main threats;
- ***Groundnut Basin***: the extensively rainfed breadbasket: the main vulnerabilities are wind erosion due to massive clearings and the disappearance of fallow land, crop rotation without fertility management practices, water erosion, the acidification of upland soils (tanned), shallow salinization (245,000 ha), and droughts; and
- ***Eastern Senegal Zone***: the northern and western areas close to pastoral and agricultural zones are vulnerable to rainfall variability, wind erosion, trickling, bush fires, degradation of vegetation and the peaks in temperatures.

Climate change is not just an environmental problem; it also affects the food security of the most vulnerable people who depend on agriculture as their main livelihood. Therefore, it is important to combine measures to strengthen the capacity of agro-sylvo-pastoral producers to withstand shocks and adapt to climate threats (resiliency) while seeking to improve their food and nutritional security and increase their incomes.

Best CCA and NRM practices based on indigenous knowledge (identified in NAPA report 2006) for dissemination and upscaling include the following: (see Appendix 2 for more details):

- Rational management and protection of ecosystems that optimize the use of existing natural resources such as: community reforestation, water harvesting, catchment and conservation (i.e. construction of small dams, retention basins), measures against water erosion (i.e. erection of anti-salt dams, commissioning windbreaks), prevention of bush fires and abusive logging. Measures should also be taken to promote the sustainable management of production systems through crop diversification, the use of short cycle varieties and varieties tolerant to salinity, diffusion of fertility management techniques and collection and distribution of agro-climatic information;

¹⁹ PANA Sénégal 2006, p.13.

²⁰ This area has been the most severely affected by the drought especially in the 70s.

- The diversification of livelihoods by creating income-generating activities such as village poultry farming, sheep fattening, equipment of collection and manure application; the establishment of fodder reserves in response to the cyclic shift of the rainy season, mowing, dairy processing, etc.; and
- Institutional support and outreach/training of policymakers to strengthen their capacity to analyse climate change issues providing policy support and substantial investment.

1.4 Policy framework and baseline projects – Baseline scenario

The Government of Senegal has adopted a series of measures and policies on food security, sustainable agricultural development and natural resource management over many years. These are set out in various policy documents of agricultural policies.

The Agro-Sylvo-Pastoral Orientation Law (La Loi d'orientation agro-sylvo-pastorale, LOASP - 2004) is the legal framework for agro-sylvo-pastoral development, defining the general provisions and the main directives of agricultural development in reducing poverty over a 20-year period. One of the specific objectives is (Article 6): "Reducing the impact of climate, economic, environmental and health hazards through water control, diversifying production, and training rural people to improve the food security of the population and ultimately achieve food sovereignty." Reducing inequalities between rural and urban populations and between genders as well as the eradication of poverty remain fundamental options for the Government of Senegal. *The National Livestock Development Plan (Le Plan National de Développement de l'Élevage, PNDE)* – the framework for all interventions in this area - is one of the operational programs implementing the LOASP.

The Poverty Reduction Strategy Paper (PRSP 2006-2010) aims to reduce vulnerability and inequality through four areas: (i) wealth creation; (ii) accelerating access to basic social services; (iii) social protection and disaster risk prevention and management; and (iv) good governance, decentralized and participatory development. The PRSP is available in strategies and policies to achieve these objectives, among them: the *National Economic and Social Development Strategy (Stratégie Nationale de Développement Économique et Sociale - SNDES - 2013-2017)* aimed at accelerating economic growth and improving productivity and the *Food Security Policy*, whose first area aims to reduce the vulnerability of agricultural activities, among other priority measures. *The National Food Security Council (Conseil national de sécurité alimentaire - CNSA-1998)* guides this food security policy. Through its Executive Secretariat, it has an early warning system (EWS), enabling it to collect, process, analyse and disseminate information relating to food security and nutrition. It is a decision-making tool and a framework for the exchange of information.

The National Agricultural Investment Program (NAIP) adopted within the logic of the Comprehensive Program for the Development of African Agriculture (CAADP), supports modern, sustainable agriculture that is productive and competitive in both intra-community and international markets, based on the effectiveness and efficiency of family farms and the promotion of agricultural enterprises through the involvement of the private sector. NAIP has eight programs, two specifically interested in CCA: the climate risk reduction program through water control and the program for the conservation and sustainable management of other natural resources.

The Emerging Senegal Plan (Le Plan Sénégal Emergent - ESP) has made agriculture one of the major levers of economic growth and has set broad economic guidelines to be achieved by 2035. The ESP aims to put the Senegalese economy on a path to sustainable growth of 7% per

year by 2018. Axis 1 of the ESP was detailed by the *Programme de Relance et d'Accélération de la Cadence de l'Agriculture Sénégalaise* (PRACAS). It aims to "build competitive, diverse and sustainable agriculture" and focuses on the emergence of agriculture capable of: i) feeding endogenous populations on a lasting basis, ii) capitalizing the benefits of international trade, iii) securing and increasing rural incomes, iv) providing agricultural and non-agricultural jobs and, v) improving the nutritional status of populations.

Resilience and social protection: Senegal does not have a national resilience strategy that can contribute to building the capacities of urban and rural communities to withstand shocks. However, some initiatives to reduce household vulnerability have been carried out and are being encouraged. These include:

The ongoing creation of a *social protection policy for vulnerable populations* which aims to: i) create a General Delegation for Welfare and National Solidarity (*Délégation Générale à la Protection Sociale et à la solidarité nationale* - DGPSN) with a program entitled "*Bourses Familiales*" (*Family Grants*); ii) develop a joint social protection program involving the government with the support of the UN System; and iii) launch the African Union agricultural insurance initiative "ARC" (*African Risk Capacity*) to improve the capacity of AU Member States to manage risks related to natural disasters, adapt to climate change and assist populations at risk of food insecurity. The ARC uses the Water Requirements Satisfaction Index (WRSI)²¹ as a drought indicator, and this calculation allows the number of people potentially affected by drought in each member country of the risk management union to be estimated.

Initiatives related to Climate Change: in 2006 Senegal developed and adopted its National Action Plan for Climate Change Adaptation (NAPA - 2006) whose objective was the participatory and integrated analysis of vulnerability to the negative impacts of CC in various eco-geographical zones of the country and key sectors of the economy. The identified priorities are synthesized in clear priority programs, namely: (i) the development of agroforestry; (ii) the efficient use of water; (iii) coastal protection; and (iv) awareness raising and education.

The government has initiated the implementation of NAPA priority activities through several past (see Section 1.9) and ongoing projects such as:

- *The Climate Change Adaptation and Food Security Program* (CCAFS – 2011/2020) funded by the CGIAR provides access to weather information including forecasts, and guidance on its use, to local producers with the objective of increasing the adaptive capacities of agro-pastoralists to climate change. This pilot project was overseen by the National Agency of Civil Aviation and Meteorology (ANACIM) and implemented in collaboration with ISRA, the agriculture development services (DA) and producer organizations. It has resulted in: (i) the establishment of a system of useful weather forecasts used by producers; (ii) the creation of a multidisciplinary working group (GTP) bringing together local stakeholders; (iii) the incorporation of local knowledge in weather forecasts and recommended actions; and (iv) the involvement of community radio for the dissemination of available information. However, despite some successes, the overall impact remains limited and confined to the municipality of Kaffrine. Weather information broadcast by community radio does not exceed a radius of 10 km while the information sent by SMS is not accessible by the majority of agro-

²¹ Developed by the United Nations Food and Agriculture Organization (FAO), the WRSI index uses rainfall estimates provided by satellite to determine whether the water needs of a given crop were satisfied during the various phases of its development.

pastoralists who are mostly illiterate. However, those initiatives that have proved successful such as the establishment of a local climate information system for data-informed decision making of agro-pastoral producers - will be supported by the LDCF project.

Despite significant past and ongoing initiatives, a vast number of programmes and projects particularly in the agriculture and livestock sector are still falling short of incorporating the special needs to effectively address the adverse effects of climate change. This is aggravated by a limited coordination among programmes/projects, a weak regulatory environment, as well as the limited knowledge about and sharing of CCA best practice approaches (see the following sub-chapter on barriers). The most relevant projects that will also form part of the current project's baseline located in the same project areas are listed in the table below (Table 1). Despite substantial baseline actions, activities have no systematic approach to CCA, thus gaps and barriers remain: there are no comprehensive plans for pastoralist and farmer interaction improvements; the FFS approach needs to be further extended and differentiated to include grassland, pastoralism, dry cereals, and crop/livestock/tree integration; community-based rangeland management needs to be further boosted and expanded; the concept of "agricultural productivity" needs to be expanded to also include range and grassland sustainable management schemes; and the experiences of local species use need to be systematized and scaled up for adoption by farmers and pastoralists. The promotion of smallholder access to markets presents bottlenecks along the value chain that need to be further focused and rural activities need to be diversified. Pastoral smallholder food security still needs to be improved and implementation of existing laws is still needed. Finally, although there are improvements due to the existing interventions and governmental programs, an integrated institutional/programmatic strategy still needs to be further enhanced at a decentralized/local scale.

Part of the current project strategy is to identify and introduce CCA tools and best practices that are not only in line with farmers' needs and social acceptance but are also informed by climate data (weather forecasting) made available to them.

Table 1: Baseline projects and programmes providing co-financing

	Project name and area of intervention	funding source and duration	Project description	Co-financing amount (USD) and components concerned
1	Agricultural Value Chain Support Project – Extension (PAFA-E)	IFAD financing: USD 34.7 M Executed by MAER Duration: 2013 - 2021	The overall objective of this project is to contribute to a sustainable improvement in the livelihoods of family farms in the country's central and northern Groundnut Basin (Zone du Bassin Arachidier) and the western Sylvo-Pastoral Zone (Zone Sylvo-Pastorale), through their incorporation into diversified, profitable value chains. It aims at enhancing agricultural production and marketing to improve household food security and income generation of small producers (farmers and herders) with a focus on women and youth.	USD 3,321,254 The project will support components 1 and 2, by establishing nine pastoral units and installing four pastoral perimeters (20 – 30 Ha) in the Louga region; and by establishing the development and structuring of value chain sectors, and professionalization of key actors.
2	Project to support food security in the regions of Louga, Matam and Kaffrine. (PASALouMaKaf)	BAD/GAFSA financing: USD 49.6 M Executed by MEPA and MAER Duration: 2013-2018	The project aims to improve food security and rural incomes in three vulnerable regions of Senegal (Louga, Matam and Kaffrine) subject to adverse weather conditions. It focuses on expanding the access of smallholders, women, and their organizations to effective services, production infrastructure, and appropriate technologies in particular for water control and storage	USD 9,769,939 The project will support components 1 and 2 by establishing and training pastoral units in FFS and APFS, and components 3 and 4 by supporting the integration of CCA best practices into agricultural and livestock related policies; and by promoting knowledge sharing.
3	Program for support to Agricultural Development and Rural Entrepreneurship (PADAER)	IFAD financing: USD 51,7 M Executed by MAER Duration: 2011-217	The overall objective of the project is to contribute to the reduction of rural poverty and to stimulate economic growth in the regions of Kédougou, Kolda, Tambacounda and Matam. It aims to sustainably improve food security and income generation of small producers (farmers and herders) through sustainable job creation, especially for rural youth and women.	USD 4,022,146 The PADAER project will co-finance all components 1, 2, 3 and 4 by supporting the development and refinement of adaptation strategies to climate change, capacity building and dissemination of strategies, technologies and best practices for adaptation within the Farmer and agropastoral Field Schools
4	Project to Support Local Small-Scale Irrigation in the areas of Fatick, Kédougou, Kolda et Tambacounda. (PAPIL)	BAD and BID USD 14,5 M Executed by MEDD MH MAER Duration: 2003-2015 This project will be extended to become: the National	The goal of this project is to create irrigation structures to ensure the control and recovery of surface waters. Activities include: development of many small irrigation works, identified in a participatory manner and closely involving rural communities. Amenities consist of micro dams, anti-salt dams, sills, lowland rice farming, micro	USD 4,225,390 The cofinancing will focus on taking into consideration CC when implementing the activities related to the valorization of agricultural farmlands. Within components 1 and 2, the cofinancing will support the implementation of field schools that will incorporate

		<p>Development Project of smallholder irrigation (PNDPIL) USD 94 M</p> <p>Duration: 2016-2022</p>	<p>perimeters, pastoral ponds, etc. PAPIL provides support to producers and communities to enable them to assume full responsibility and control of the activities to be carried out. PAPIL also includes the implementation of a local development fund managed by rural communities to finance basic social infrastructure in addition to hydraulic structures.</p>	<p>CCA in their curricula. The project will capitalize on the achievements of PAPIL in the management of agricultural, pastoralist and agroforestry facilities and related environment. It will also support components 3 and 4 to strengthen the institutionalization and advocacy at local, regional, national level.</p>
5	<p>The Great Green Wall Initiative (GGWI)</p> <p>(Programme de la Grande Muraille Verte au Sénégal)</p>	<p>Multidonor (FAO, UNCCD, GEF, EC, World Bank, and others)</p> <p>Executed by Senegalese Great Green Wall National Agency/MEDD</p> <p>Current action plan is related to the period 2012 – 2016 For a total budget of USD 36,767,400</p>	<p>The main objective of the program in Senegal is to contribute to the fight against desertification and to increase the resilience and development of the Sahel – Saharan areas through a sustainable management of natural resources and the fight against poverty.</p> <p>The initiative in Senegal has set three main objectives:</p> <ul style="list-style-type: none"> • Promote agro- pastoral forestry activities generating income and meeting the needs of rural populations (in wood products and / or non-timber). • Support the conservation and enhancement of biodiversity through the diversification of sustainable land management. • Increase carbon sequestration in plants and soil through the implementation of a sustainable recovery strategies and conservation of land and water. 	<p>USD 3, 068,656</p> <p>The cofinancing will support mainly the activities that are ongoing all along the Great Green Wall trajectory in the regions of Louga, Matam and to a lesser extent Tambacounda (Gabou and Balou rural communities). It will support components 1 by supporting the improvement of knowledge and information management of CCA practices in agro-sylvo-pastoral areas; component 2 by strengthening synergies in terms of income generating activities and the management of agro-sylvo-pastoral sectors through Field Schools and the development of infrastructure for the production and marketing of rural products; and components 3 and 4 by supporting a national and regional harmonized strategy for the effective implementation of CCA and GGWI initiatives through FFS approach.</p>

1.5 Remaining barriers and problems to be addressed by the Project

The above mentioned projects represent a real opportunity towards sustainable development and climate change adaptation in Senegal. However, these projects and programs are facing a number of common challenges that limit their efficiency and minimize their impact as they fail to provide an adequate analysis of climate variability and climate change and therefore do not identify appropriate adaptation measures. The effects of climate change on the rural sector are accentuated by the lack of knowledge and capacity for adaptation. There is a real need to strengthen capacity in the adoption of agro-sylvo-pastoral practices resilient to drought. Problems that are not directly related to climate, such as inappropriate agricultural production practices (i.e. unsuited soil and crop management practices and uncontrolled grazing), increase the pressure of the population on resources and fragile ecosystems and causes conflicts between farmers and herders. The low investment in agriculture and difficulties in access to financing are likely to aggravate this situation. A mix of technical solutions (such as crop diversification to minimize risks, and a better integration between crop management, livestock and tree elements of smallholder's production systems) and institutional solutions are necessary to support rural communities in an integrated way.

The following challenges were assessed and analyzed through the PPG studies:

- 1- Poor access to accurate agro-climatic information that is useful to farmers-herders to take decisions. In Senegal, there are several information systems and knowledge networks that provide information on agro-pastoral technologies, tools and practices for increasing resilience to CC and on climate-related threats to food security. However, these national information systems do not always reach out to farmers and pastoralists in a timely, reliable and pertinent way and are rarely useful for agro-pastoralists decision-making. Among the existing information systems are: (i) the *Multidisciplinary Working Group (Groupe de travail pluridisciplinaire - GTP)*²² coordinated by the National Agency for Civil Aviation and Meteorology (ANACIM) that enhances early warning systems on food security by providing updated information on agricultural campaign at national level; (ii) the *Information System and Livestock Sector Management*²³ (*Système d'information et de gestion du secteur de l'Elevage - SIGEL*) that manages and process information on the development of the livestock sector.; (iii) the *National Environmental Information System in Senegal (Système d'information environnemental national au Sénégal - SIENA)*, a web platform managed by the national Ecological Monitoring Centre (CSE) which aims to contribute to environmental monitoring but whose database is not sufficient to be effective; and (iv) *SLIMTRADE*, an electronic platform that performs real-time monitoring of agricultural subsidies distributed in the Groundnut Basin (*La Zone du Bassin Arachidier*) through the World Bank's West Africa Agricultural Productivity Project (WAAPP). (See Annex 3 for more details)
Part of the current project's strategy is to identify and introduce CCA tools and best practices closely linked to climate data (weather forecasting) made available to them. To this end, the proposed project wishes to upscale successful experiences/initiatives that have enabled producers to access real-time information. Among these are: (i) the *local multidisciplinary working group (Groupe de travail pluridisciplinaire local - GTP)* set up

²² The group is composed of services involved in the field of agricultural production (Hydrology, Agriculture, Plant Protection, Livestock Breeding, Ecological Monitoring Centre, Office of Food Security, Department of Analysis, Provision, and Agricultural Statistics, National Agricultural Insurance Company (CNAAS), National Institute of Soil Science (INP), National Council for Rural Cooperation (CNCR), Council of Non-Governmental Organizations (CONGAD), Union of Community Radio (URAC), Public Health Department, public media.

²³ Homepage accessible via: www.sigel.gouv.sn/Fronts/pasto/Forage.

in the department of Kaffrine by ANACIM; (ii) *InfoClim platforms* established by the CSE (2008-2010) in the Thiès region, that bring together agro-pastoralists to share their concerns with technicians and researchers; and (iii) the *Dimitra Community Listener's Clubs* (CLC) championed by FAO whereby farmer-herders and groups of rural women, men and young people meet regularly to discuss challenges and the problems they face in their daily lives and find solutions together.

- 2- Weak consideration of traditional knowledge and CC local adaptation practices. Although farmers and pastoralists have already developed good knowledge and experience to counteract CC threats, they remain fragmented and undermined. There is very limited use of participatory tools and bottom-up approaches that enable the valorization of local knowledge on CC resilience and the identification of specific needs in terms of CCA options through for example, self-assessments.
- 3- Insufficient knowledge and limited local capacity to cope with CC-threats. Extension and training programs do not sufficiently address the challenges related to CC and rarely focus on strengthening agro-pastoralists competences related to tools and practices for increasing the resilience to CC. Furthermore, knowledge transfer methods are still too vertical when they reach the producers. An inefficient agricultural extension system and low levels of literacy among producers limit the achievement of notable agricultural performance. Also, an iterative approach based on the complementarity of farmers and scientific knowledge would combine endogenous knowledge and the introduction of innovations. In Senegal, the FFS approach has proven to be an effective tool for improving agricultural and livestock practices, nutrition and CCA.
- 4- The lack of coordination between CCA practices in projects and programs and the relevance of sectoral approaches as opposed to integrated and holistic approaches. Although the projects and programs listed in Table 1 are contributing to improving the resilience of ecosystems and rural households²⁴, they apply a single-sector approach while CCA demands an integrated approach that recognizes the integrated nature of the livelihoods of resource users. This single-sector approach induces a multiplicity and dispersion of interventions in the same area instead of fostering synergies and complementarities.
- 5- Lack of clear and consistent display of policies, projects and budget line programs for financing CCA activities. This is mainly due to the inefficiency of existing multi-sectoral frameworks in Senegal,²⁵ whose role is to ensure the integration of CCA and sustainable development in economic and social development policies. While some of these frameworks have been successful (CONSERE), others have remained sluggish due to operational difficulties. This has prevented a full integration of CCA into policy making processes, and has failed to repeat necessary multi-sectoral and multidisciplinary

²⁴ mainly focusing on: disseminating techniques and technologies for sustainable land management (land governance, management of pastoral units, reforestation, etc.), proposing technical itineraries adapted to agro-climatic conditions (good agricultural practices, adapted short cycle varieties, etc.), financing irrigation schemes that strengthen the resilience of production systems (small local irrigation and water control, intensive rice, etc.), to stimulate protective systems through savings and credit (micro finance, warehouse receipt, agricultural insurance, etc.), encouraging diversification (village poultry, etc.) and developing capacity building programs for the actors of value chains and organizations.

²⁵ Among them are: the High Council of Natural Resources and the Environment (CONSERE) created by Decree No. 93-885 of August 4th 1993, the National Commission for Sustainable Development (CNDD), established by Decree No. 5161 of May 26th 1995, the National Committee for Climate Change (COMNACC) and the High Council for Agro-Sylvo-Pastoral Orientation (CSOASP) created by Decree 2007-1147 of October 4th 2007.

collaboration. Senegal suffers from the lack of an effective governance framework for resilience and sustainable development.

Two other significant challenges to improve livelihoods and CC resilience are:

- Lack of financial resources: Access to credit remains a challenge for agro-sylvo-pastoral producers. Indeed, funding for the primary sector is still insufficient. In 2009, the banking sector provided only the equivalent of USD 95.2 M to the agricultural sector, or 3% of total bank lending to the economy. Nearly 50% of these loans were for the two main sectors: groundnuts and cotton. Credit supply is heavily concentrated on short-term loans, and virtually excludes credit for agricultural investment (medium and long-term).
- Although POs are represented over the entire territory, they face various challenges such as: i) organizational and institutional weaknesses; (ii) difficulties in effective support for economic and technical functions on behalf of their members; (iii) weak institutional arrangements linking them to government tiers; (iv) low levels of productivity and poor access to inputs and credit; (v) significant post-harvest losses and product marketing difficulties; (vi) the dispersion of herders (in terms of pastoral environment and mobility) which handicap the active and coordinated participation of herders in actions concerning them; (vii) the multitude of OPE in the same area who are poorly interconnected; and (viii) low involvement of herders in creating formal and active consultation frameworks on the theme of public policy coherence at the national level.

The above challenges will undermine the broad efforts being undertaken to support rural communities, such as those supported by the projects and programmes listed in Table 1.

This Project's strategy is to act directly to address these challenges by supporting groups of farmers-herders and building the capacity from the farmer-herder communities upwards. The strategy is elaborated in detail in Section 2 below.

1.6 Additional Reasoning

To overcome the obstacles mentioned above and achieve adaptation benefits, the additional costs from the LDCF project will allow for both the expansion of the FFS approach into existing national program frameworks and the integration of CCA considerations and practices in FFS/APFS curricula. Cross-sectoral partnerships will be established to integrate CCA practices into national projects and programs implemented by the MAER, the Ministry of the Environment and Sustainable Development (MEDD), the Ministry of Livestock and Animal Production (MEPA), the ANACIM, CSE, and other national partners. This will enhance multi sectoral coordination at multiple levels and build institutional capacity to support policies and programmes to shift from a reactive response towards a pro-active preparedness approach to climate events. Additional costs will ensure that farmers and agropastoralists are fully involved in the consultative process at all levels – community, district and national. The proposed LDCF project will also expand the scope of activities carried out in the country related to increasing the resilience of the agro-sylvo-pastoral sector through: (i) boosting the adoption of sound CCA management tools and practices; (ii) increasing gender-sensitive capacity building (FFS/APFS, Community Listeners' Clubs) reaching out to 25,000 farmers and agro-pastoralists; (iii) supporting coordinated policies and programs; and (iv) mainstreaming CCA into sectoral policies, projects and programs. In addition, by focusing on sustainable crop production and use of locally available resources (including careful management of agricultural biodiversity and grasslands) in three

vulnerable/strategic ecosystems, the project will incorporate the decisive elements needed for both effectiveness and up-scaling potential.

In the Agro-sylvo-pastoral ecosystem (the Ferlo, *Zone Sylvo-Pastorale*): additional resources will be used to create new FFS and enhance existing FFS and agro-pastoral management units to facilitate the introduction of CC resilient practices including range management, increasing forage stocks by improving mowing management, supplementation use, improving animal health, and recovery of livestock production. In the Groundnut Basin and the Eastern agro-ecological zones (*The Groundnut Basin Zone and the Eastern Zone of Senegal*): interventions will focus on the availability and use of adapted short cycle seeds, the diversification of production systems, income-generating activities, management of soil fertility, construction of anti-salt dams, the use of assisted natural regeneration, stabling of livestock. In the agricultural systems based on small-scale irrigation (*The Groundnut Basin Zone and the Eastern Zone of Senegal*): interventions will focus on the construction and rehabilitation of small dams and water reservoirs (catchment and storage dams, mini-dams, retention basins) and the capacity building of actors in value chain development and marketing strategies.

Moreover, the project will contribute to fill in the gap in collection, treatment, analysis, and dissemination of agro-climatic data and information useful for the decision-making of farmers and agro-pastoralists. A device for the collection and dissemination of data will be made available to agro-pastoralists through the FFS/APFS, CLC and local GTP. A framework for periodic data exchange including climate information will be established between agro-pastoralist groups, researchers, technicians and decision makers. Local funds for CC resilience will be established to support and finance CCA activities at the local level.

1.7 FAO's comparative advantage

The United Nations Food and Agriculture Organization (FAO) is the UN agency leader in the field of agriculture, fisheries, forestry and rural development. FAO's mandate to member states is to improve the level of food and nutrition security, agricultural productivity, the quality of life of rural populations, and contribute to the economic development of the country.

The proposed project makes use of FAO's comparative advantage in the area of capacity building, providing technical analysis and assessments in relevant areas such as sustainable crop production and land management, policy support and protection of biodiversity. FAO has considerable technical experience and many field projects in a number of areas covered under this project (agriculture production and food security, CC, agro-biodiversity, capacity building, development of community-based capabilities and rural development, forage production and grassland management). The proposed project also supports the up-scaling of the FFS approach that has been endorsed at national level by various governments in the region and that will be used for all capacity-building activities. In Mali, Niger and Burkina Faso for instance, FAO is implementing several projects aimed at mainstreaming climate-resilient approaches through the FFS methodology. In Senegal, the implementation of a comprehensive FFS network was made possible through the Integrated Production and Pest Management Program (IPPM).

FAO's Department of Agriculture and Consumer Protection is launching a review of 20 years of FFS experience, which will lead to the elaboration of a FFS-efficiency Monitoring System and facilitate access to additional funding for FFS-based activities under a result-based framework. FAO currently has a significant project portfolio in Senegal with a major focus on

food security and post-emergency operations, which supports the aims of CAS and the CAADP to develop strategies for food security while mitigating the effects of the current drought-driven food crises.

Implemented successfully in several countries in sub-Saharan Africa (Niger, Ghana, Burundi, DR Congo, Senegal), FAO's Community Listeners' Clubs (CLC) aim to reduce the isolation of rural populations, especially women and youth, and enable them to improve their living conditions, their food security and their participation in development and empowerment. Achieving this goal requires better access to information, participatory communication, social cohesion and exchange of experiences.

The methodological alliance between the farmer field schools and Community Listeners' Clubs, already implemented on a pilot basis in other agro-eco-geographical zones of Senegal (Senegal River Valley and Casamance) will expand the scope of strengthening business capacity activities. Both participatory approaches recognized by the FAO are complementary, with CLCs contributing to enhancing the impact of FFS through networking, strengthening the gender dimension and better sharing of information and experiences.

FAO's achievements in the fight against poverty and the improvement of food security in Senegal have resulted in the implementation of 202 projects with a total cost of USD 118,825,184 between 1994 and 2012²⁶, among which the following relevant and very successful projects: the *Special Programme for Food Security* (SPFS), which created the *National Food Security Programme* (PNASA) and *West Africa Rice Production Improvement Program* (APRAO).

1.8 Stakeholders and target beneficiaries

The main government stakeholders involved in agro-sylvo-pastoral development and food and nutrition security are the following:

- Ministry of Agriculture and Rural Equipment (MAER), through its Department of Agriculture, its Seeds Division, the Senegalese Institute of Agricultural Research (ISRA) and the National Agency for Agricultural and Rural Council (ANCAR)
- Ministry of Livestock and Animal Production (MEPA) through its Directorate of Livestock (DIREL);
- Ministry of Higher Education and Research (MESR)
- Ministry of the Environment and Sustainable Development (MEDD) and its Directorate of Environment and Classified Establishment (DEEC) which monitors the implementation of NAPA; and
- Ministry of the Economy, Finance and Planning (MEFP)
- The regional directorates of technical ministries
- The regional directorates of development agencies
- Local authorities (administrative authorities) and local elected officials (city and district councillors).

On aspects relating to climate change, key stakeholders include:

- The National Agency of Civil Aviation and Meteorology (ANACIM) through its Department of Climate and Application, plays an important role at the national level, particularly in government policy in the areas of early warning for food security and meteorological assistance for farmers. With the drought of the 1970s and 1980s and

²⁶ CPP 2013-2017 p.6.

the drop in performance observed in agriculture, national authorities and donors have drawn more attention to ANACIM for many projects: (i) to demonstrate to farmers the importance of taking into account technical advice on the weather in the planning and execution of the agricultural calendar; (ii) to develop effective tools to prevent food crises due to weather information for the Sahel countries—it is the logical continuation of project Early warning and agricultural production forecast (AP3A); (iii) to demonstrate the impact of the application of seasonal forecasting of rainfall in planning strategies and implementing the agricultural calendar; and (iv) to bring promising innovations in climate risk management to bear on the challenge of protecting and enhancing food security and rural livelihoods in the face of a variable and changing climate.

- The Ecological Monitoring Centre (CSE) that is responsible for climate studies and CCA and was the first national implementing entity accredited under the Adaptation Fund for approving, monitoring, and managing projects in Senegal and regional neighbourhoods. The CSE climatic database and the crop production monitoring and evaluation system form a very valuable information and methodology baseline.

The project will directly target agro-pastoral communities through direct and participatory targeting. The project will ensure the inclusion of the most vulnerable households, women and youth. It will directly support 25,000 farmers-herders (15,000 farmers and 10,000 herders). Indirectly, the project will impact all households in the project intervention areas, through synergy and pooling resources with partner projects (see Table 1).

Other key stakeholders include: the Senegal IPPM National Network of Facilitators (IPPM/NNF), established in 2002, its mission is to support the implementation of the FFS/IPPM approach across Senegal and monitor the training quality of the involved producers across farmer field schools; NGOs and CSOs providing agricultural/pastoral extension services and operating in the proposed project areas

Other potential stakeholders/partners are listed in the table below:

Table 2: NGO, institutions and development agencies that will collaborate with the project

Institution/Stakeholders	Institutional Role	Complementarities and synergies
The Senegal Agency of the Great Green Wall (ANGMV)	National Agency responsible for the implementation of the Great Green Wall Initiative, aimed at halting desertification by improving the surrounding, now degraded soils, allowing resumption of crop cultivation and raising livestock by planting trees to stop the relentless advance of the Sahara desert.	The FFS/APFS approach will strengthen synergies in terms of activities generating incomes to agro-pastoralists (beekeeping, poultry farming, market gardening, small livestock etc.), and supporting the protection of the environment, promoting agroforestry social cohesion and gender, as well in protecting natural resources, contributing to increase the resilience of local population in particular in the regions of Matam, Louga.
Consultation framework for farmers producers (CCPA)	Senegalese farmer association of producer organizations in the regions of Kaolack, Fatick, Kaffrine, Tambacounda and Kedougou.	The project will strengthen the capacity of peanut producers especially in regards to the post-harvest chain (storage, preservation, marketing and warrantage)

NGO “Symbiose-Senegal”	Intervenes in the Kaolack region and helps to strengthen the capacities of the baseline populations to support local development. Symbiosis-Senegal is involved in the training of producers and participates in the introduction of seed varieties adapted to the ecological areas, and conducts sustainable land management activities.	The project will work in a partnership with the NGO for FFS development on rainfall rice and millet in regions of Kaolack and Kaffrine. It will contribute to share and expense their model of local origination which can reinforce dynamics of farmer’ organizations.
Ferlo Agreement (Entente Ferlo)	The five Ferlo ZSP zones (St Louis, Matam, Louga, Tambacounda, Kaffrine) took note of their common characteristics and comparative advantages through integrated management of problems and challenges faced in implementing a framework of cooperation between regions. Formalized through an interregional agreement, this joint management approach is the first of its kind in Senegal. An Integrated Territorial Climate Plan was developed by the Ferlo Agreement with the support of TACC project.	Capitalizing these assets will be a good contribution to the implementation of component 3 of the project.
Agronomists and Veterinarians Without Borders (AVSF) (Agronomes et Vétérinaires Sans Frontières)	Working with farming communities to prevent food crises. The association provides them with professional agricultural and livestock skills.	The project will develop a partnership in the implementation of training, diagnosis and support for vulnerable households. Their experience on pastoral Unit in the sylvo pastoral zone will be an important input for the project:
BAMTAARE	Created by SODEFITEX as an autonomous entity, it has enabled the emergence of the New Rural Economy (NER), which is based on five (5) pillars: <ul style="list-style-type: none"> • Functional literacy and training for new rural businesses; • The modernization of family farms; • Intensification and integration of agriculture-livestock; • The structuring and professionalization of Farmer or Producer Organizations (PO); • Diversification of the agro-industrial sector. 	This BAMTAARE expertise could be seen as a source of experience for the project to capitalize on in the intervention area of the Tambacounda region because it is original and reproducible. The project’s objective is to boost its best results in the field schools. In this regard BAMTAARE has a number of advantages including: <ol style="list-style-type: none"> i. Experience and knowledge of the project area (actors and environment); ii. Recognized professionalism; iii. High quality of human resources; iv. Diversified services; v. Modern methods, participatory and in proximity; vi. A reliable database with a localized Geo Information System (GIS).

1.9 Lessons learned from past projects/initiatives

The project design is based on lessons learned from various experiences (in Senegal and the sub-region) related to food and nutritional security, adaptation to climate change, participatory approaches to strengthen organizational and technical capabilities developed around farmer field schools as well as PO and gender mainstreaming. These are summarized in Table 2 below:

Table 3 : Lessons learned from projects and initiatives

<u>Lessons learned</u>	<u>Suggested actions</u>
IPPM Project (FAO Senegal 2000)	
The FFS approach enables significant improvement in production and agricultural productivity.	Establish FFS integrating CCA in agricultural and pastoral production systems while improving practices.
The FFS approach in Senegal has been confined to systems with partial or total control of water for market gardening and rice cultivation.	Extend FFS in rainfed areas, and introduce training in APFS.
The non-internalization of the FFS approach by policy makers in the formulation of policies is a serious limitation for the widespread adoption of the participatory learning model.	Establish and facilitate platforms on the local and national level to strengthen the knowledge of national authorities on the FFS/APFS approach to facilitate their knowledge when developing policies, agro-sylvo-pastoral development programs and projects.
Gender imbalance in existing FFS requires specific initiatives to ensure better access for women and youth.	Design/revise existing curricula to incorporate aspects of CCA, gender and nutrition. Promote the participation of women and youth in training facilitators.
Insufficient number of women and youth in decision-making positions in partner POs reinforced by social relations enshrining the leadership of men	Develop reference study on identifying support needs in survey organizations and distinguish gender-related disparities.
InfoClim Project	
The synergy of scientific and empirical knowledge enables producers to identify CCA best practices.	Establish a call center with flat rate to answer questions of agropastoralists on CCA.
Agroforestry practices have significantly increased production and farmers' incomes.	. Promote the practice of agroforestry and RNA (Assisted Natural Regeneration) that can help crops obtain high quality organic fertilizers.
Using Kad potting soil (<i>Acacia albida</i>) as nursery substrate enables plants to be provided with the nitrogen supply needed for growth.	Provide Kad in production facility plots
Respect for planting techniques (respect for the planting whole size and sufficient supply of funds for organic fertilizer) enables successful production even in soil infested by ESP.	Include proper planting techniques in actions needed
The seed varieties of local cowpeas using dew to complete their cycle have enabled farmers to have crops staggered until January.	Research cultivars and work with agricultural research on the multiplication of seed varieties to popularize
Tools already tested, such as the “ <i>Climate analogue</i> ” approach, allows a community to learn by visiting other communities that have already developed appropriate responses to similar climate challenges.	Implement sharing networks among groups such as FFS, APFS networks.
FSSA Project (FDI /IED Africa 2010)	
Flexible support at the request of PO. Building on existing practices allows them to acquire the capacities to conduct their development plans.	Provide support for POs to develop their business plans and CCA.
The inclusion of communities and local authorities in matters relating to the CCA is a success factor for territorial approaches.	Supporting communities in the integration of CCA issues in their local development plans.
“Territorial Approach to Climate Change” Project (TACC-2010-2014).	
The participatory development of integrated territorial climate	Support the implementation of PCTI for local

<p>plans (PCTI) in the Ferlo and the Fatick region.</p> <p>The project is enshrined in the decentralization process by offering regional and local actors the opportunity to integrate the CC in local planning through participatory local governance. The aim of this program was to abandon the approach promoting the development of small, dispersed and fragmented programs in favor of intra-regional strategic programming. It is in this context that the interregional Ferlo agreement, grouping the regions of Saint-Louis, Louga, Matam, Tambacounda and Kaffrine, was established by decree in 2009 for the joint management of the sylvo-pastoral zone under the fight against bush fires. Such an approach should be replicated on issues related to the management of natural resources, particularly in pastoral farming.</p>	sustainable development
<p>The agricultural development project of Matam (PRODAM-II - 2004/2011)</p> <p>The development and implementation of Pastoral Unit (PU) management plans. This approach, which includes the villages and hamlets in a radius of 25 km around boreholes, enables a concerted way to estimate biomass resources, to count cattle, and to redefine the path of the animals inside the PU. The recorded results are encouraging: (i) monitoring the composition and volume of the flora shows effective and rational PU management; (ii) local organizations of farmers organize transhumant themselves, as well as the fight against bush fires and the excessive cutting of trees; and (iii) the zoo-technical-economic monitoring shows improvement in key operating parameters of herds, reflecting the impact of training and advice provided to GIE. On the other hand, sales rates remain unchanged, showing a continuation of livestock breeding strategies in this area. The establishment of eight veterinary pharmacies helped to improve animal health, but the transparent management by farmers themselves has led to a low functionality of these village veterinary pharmacies (PVV).</p>	<p>The experience of pastoral system management via the PU will be up-scaled within the framework of this project.</p>
<p>“Strengthening the resilience of vulnerable livestock breeders in the Sahel” Project (2013/2014 – period)</p> <p>Implemented in the regions of Louga, Matam and St. Louis by FAO.</p>	<p>A synergy of intervention in PU will be effective with the LDCF Project through: i) a participatory pastoral early warning evaluation system; ii) strengthening the capacity of national pastoral risk management in partner institutions; iii) an assessment of best practices for sustainable management of pastoral resources; and iv) strengthening the capacity of pastoral communities in pastoral early warning and the sustainable management of pastoral resources.</p>

The "Restoring emergency productive capacity of farmers and herders affected by climatic vagaries of the 2013/2014 crop year in Senegal" Project	
Implemented by FAO in the departments of Matam, Ranérou (Matam region) Goudiry (Tambacounda region) Salemata, Saraya (Kedougou region) Louga (Louga region). The activities implemented within this framework are aimed at improving response and assistance for agricultural and pastoral populations in severe food insecurity in Senegal through the establishment of social safety nets. They relate to the provision of agricultural inputs for the needs of the rainy season and the off-season, and livestock to the most vulnerable agropastoralists households. The beneficiaries are the farm households who use agriculture as a livelihood and source of income as well as pastoral households that depend exclusively on livestock for their survival.	

1.10 Links with national development objectives, plans, policies and legislation, FAO Strategic Objectives and the GEF/LDCF

a) Alignment with national development objectives, plans, policies and legislation:

The proposed project is firmly in line with the government's priorities on adaptation to climate change, as well as national development goals and policies as follows:

- The Environmental Code (2001) that is a legal and institutional instrument for the implementation of the National Adaptation to the effects of Climate Change Committee (COMNACC - 2003); The Action Plan for the Environment (PNAE-2005) that acknowledges that sustainable land use and environmental protection are priority actions for food security and agricultural development;
- The National Strategy for Adaptation to Climate Change Effects (SNACC-2010).

The project is also in line with the priority strategies made in the PRSP II (2010) where combating land degradation and promoting sustainable agriculture and forestry are defined as priority objectives to reduce poverty, and those contained in the Accelerated Growth Strategy (CAS). This PRSP II vision is translated and transmitted through the country's Sectoral Policy Charter (Lettre de Politique Sectorielle) concerning the management of natural resources and the environment, and the Medium-term Sectoral Expenditure Framework (Cadre de Dépense Sectoriel à Moyen Terme, 2010–2012).

The project will contribute to the mobilization of resources for the implementation of activities on adaptation to CC into national policies and strategies for food security with reference to the Agro-Sylvo-Pastoral Orientation Law (LOASP), 2004, with the key elements of promotion of both improved land exploitation and soil fertility. The Medium-term Sectoral Expenditure Framework (CDS-MT) adopted in 2005 also defined a set of programs that should culminate in the achievement of the sectoral objectives fixed by the Letter of Sector Policy for the Environment and Natural Resources for the period 2009-2015 (LPSE 2009-2015) by implementing various lines of action that are consistent with the project: (i) the fight against desertification; (ii) the fight against global warming; and (iii) protection of cross-border areas.

National Adaptation Program of Action:

The project is fully consistent with the Senegalese NAPA presented in 2006. All NAPA adaptation measures are in synergy with the dispositions of post-Rio conventions ratified by

Senegal: in June 1994 the “*United Nations Framework Convention on Climate Change*” (UNFCCC), and in July 2001 the “*Protocol of Kyoto*”. Following ratification a national committee called “*Comité National de Suivi sur les Changements Climatiques*” was implemented in 1994 in order to effectively apply all objectives indicated by the Convention. All adaptation measures were developed in order to be in synergy with the *Multilateral Environmental Agreements (MEAs)* that were also ratified by Senegal. Senegal also adheres to the framework of the *Strategic National Plan to Combat Climate Change* while prioritization of adaptation options are based on documents having a strategic link to the *Regional Integrated Development Plans*. It also joined others in ensuring that the African Ministerial Conference on Environment included climate change (CC) as one of the priority areas in the *New Partnerships for Africa’s Development (NEPAD)* and the project is in line with the National Agricultural Investment (NIPA) executed by the Comprehensive Africa Agriculture Development Programme (CAADP) under NEPAD. It also contributes to Domain #6 of the NEPAD Action Plan, dealing with the global environment and conservation of national resources.

The LDCF project will address the NAPA priorities that are strictly linked to the CC adaptation measures in agriculture sector, particularly: improvement of productivity and income generation, crop diversification, selection and use of drought-resilient varieties, institutional support to cope with CC issues.

Specifically, in the three agro-ecological zones of the proposed project the following priorities identified by NAPA will be addressed through the FFS/APFS approach:

- Centre and North of the Groundnut Basin: (i) the use of adapted varieties; (ii) improvement and restoration of soil fertility; (iii) retention ponds; (iv) development of small gardening units for vegetable production; (v) reduction of water erosion; (vi) reduction of soil salinity.
- Sylvo-pastoral zone: (i) improvement of water irrigation efficiency; (ii) drainage control to reduce soil salinity; (iii) reduction of wind and water erosion; (iv) the use of adapted millet and cowpea varieties; (v) grassland production; (vi) retention of ponds and pools; (vii) promotion of pastoral units; (viii) enrichment of pastures.
- Eastern zone of Senegal, the Senegal River Valley and Casamance: (i) reduction of bush fires ; (ii) reduction of water erosion ; (iii) rehabilitation of traditional cultures such as fonio, Bambara groundnut and sesame; (iv) dissemination of techniques to forage harvesting; (v) intensification of techniques for fruit growing; (vi) reduction of soil salinity; (vii) the use of rice varieties tolerant to salinity and acidity; (viii) promotion of organic-mineral fertilization; (ix) dissemination of agroforestry techniques; (xi) groundwater recharge; (xii) recovery of agroforestry techniques for saline soils.

However, the NAPA report (2006) highlighted that rainfall variability makes agricultural planning difficult and non- predictable, resulting in a further aggravation of food insecurity. The country needs to increase available information on climate change and to strengthen CC sectoral policies, dimension needs and strategies.

In the country strategy paper (2010–2015) produced by the African Development Bank (ADB), Senegal asserts its ambition to become an emerging economy in order to promote a world-class economic environment, develop infrastructure and achieve accelerated growth and it is recognized that pastoral activities are one of the stepping-stones needed for the future. It also mentions the steps that Senegal has taken in the face of the problems caused by CC. The Government of Senegal ratified the UNCCD in 1995, and submitted its *National Action Program to Combat Desertification* in 2000; the project supports activities carried out under this national strategy. The proposed project is also consistent with the approach

advocated under the Terre Africa partnership, as it focuses on creating the enabling conditions for sustainable land management (SLM) scale-up.

b) Alignment with FAO's strategic objectives

FAO's Strategic Framework as reflected in the Organization's Medium Term Plan (2014-2017), contains five strategic objectives (SO). Strategic Objectives 2 and 3 are particularly aligned with the objectives of this project.

Strategic Objective 2 (SO2) aims to increase and improve the supply of agricultural goods and services from agriculture, forestry and fisheries in a sustainable manner. Through this objective, the project will specifically contribute to:

Outcome 2.1: Producers and natural resources managers adopt practices that increase and improve the provision of goods and services in the agricultural sector production systems in a sustainable manner. Component 2 of the proposed project aligns with this effect as it aims to increase the resilience of production systems through the adoption of strategies and adaptation to CC and the diversification of livelihoods. The project will build the capacity of producers and users of natural resources in order for them to adopt these sustainable production intensification practices.

Outcome 2.2: Stakeholders in member countries strengthen governance – the policies, laws, management frameworks and institutions necessary to support the producers and resources managers in the transition to sustainable production systems. Component 3 of the proposed project is aligned with Outcome 2.2, as it will improve the institutional and intersectoral coordination capacity enabling CCA strategies to be included in the policies, programs and plans of agro-sylvo-pastoral sectors.

Strategic Objective 3 (SO3) aims to reduce rural poverty. Specifically, the project will contribute to:

Outcome 3.1: The rural poor have gained equal access to productive resources, services, organizations and markets and can manage their resources more sustainably. The project will contribute to SO3 in particular through the product XX that aims to improve the resilience of communities by strengthening producer organizations, which supports producers' access to microcredit, strengthens market linkages and increases revenues.

Outcome 2.1: The project will contribute to organizational results 01 of SO3 (improved and equitable access of the rural poor to productive resources, services, organizations and market and sustainable management), especially output 1.1., which aims to strengthen rural organizations and institutions and empower the rural poor by establishing Community Listeners' Clubs.

The project is also aligned with the Country Programming Framework (CPF) of FAO. The project will contribute to its strategic focus on "creating opportunities for the economic development of rural areas" of UNDAF (2012-2016) through outcomes 1 and 2 aimed at, respectively:

- (i) increasing incomes of producers (men and women); and
- (ii) Improving nutritional food safety, environmental populations (men and women). It will also contribute to the intervention on "improving the equitable access of populations to social rights and basic services, social protection and sustainable

development" through outcome 8, which aims to develop sustainable livelihoods through climate change adaptation initiatives.

c) Alignment with the programming strategy of LDCF and SCCF projects:

According to the LDCF and SCCF project Programming Strategy for the 2010-2014 periods, this project has been identified and designed through a PANA Senegal participatory process. In addition, it has been designed to be compliant and be in support of national development strategies and the National Adaptation Plan (PNA).

Specifically, the project will support the objectives CCA-1 (Vulnerability Reduction), ACC-2 (Adaptation Capacity Building) and CCA-3 (Transfer of Technologies for Adaptation), with particular focus on CCA-3, in accordance with FAO's comparative advantages. In addition, the monitoring and evaluation of the adaptation tool (AMAT) LDCF/SCCF was used in designing the project's results framework. AMAT indicators are to be used to measure progress towards achieving the outputs and outcomes established at the portfolio level within the LDCF/SCCF results framework.

Finally, the project will indirectly contribute to reduce land degradation through the "Sustainable Land Management" (SLM) capacity building approach, water control, and diversification of production through market gardening and building producers capabilities to more effectively coordinate actions with the line Ministries of the agricultural development sector and to further integrate CC considerations into SLM menus.

SECTION 2 –Project framework and expected results

3.1. Project strategy

The project strategy is based on two main pillars:

- Increasing household adaptative capacity to deal with climate change and shocks. This will be covered by efforts to *increase the social and human resilience of communities*. The strategy of the project is to strengthen the dynamics of the development of endogenous knowledge to promote exchanges between producers and also between research and extension services and producers. The approach will be that of the FFS, with the support of CLC and GTP to test, share and disseminate climate information and technology/innovation responding to questions posed by producers to improve their adaptation capacity to CC. The Project will also promote dialogue around the shared management of natural resources and conflict prevention.
- Reducing household sensitivity to climate shocks by strengthening the *physical and economic resilience of ecosystems and households*. The Project focuses on three areas of intervention: (i) the diversification of livelihoods/income source of households through the promotion of income-generating activities; (ii) the sustainable intensification of agro-pastoral production systems involved (including crop varieties adapted to agro-climatic conditions, introduction of technologies, etc.); and (iii) strengthening of the natural capital (soil organic matter, protection against erosion, agroforestry, etc.).

The strategic approach of the Project uses Farmer Field Schools (FFS) and Agro-Sylvo-Pastoral Field Schools (APFS), as the entry points, considering them to be learning environments using techniques proven by and with farmers, herders and agricultural advisors. In this way that they can capitalize on, consolidate and up-scale experiences of climate change adaptation and successful resilience measures, taking into account the agro-eco-socio-economic realities and contexts in the areas of intervention. Using local climate information in field schools will ensure optimal planning of agro-sylvo-pastoral activities and take into account aspects related to climate disruption.

The first component of the project identifies the tools and practices for adaptation to climate change as well as the climate information needed to improve the resilience of agro-sylvo-pastoral systems. These tools feed into the curricula developed in field schools. This component will strengthen collaboration and synergies between the various involved stakeholders, decision makers and producers.

In an iterative and participatory manner, the second component will test, as well as up-scale, relevant practices through agro-sylvo-pastoral training in FFS and APFS (e.g. adapted seeds, income generating activities, agro-forestry, etc.). Producer organization networks have acquired knowledge on climate adaptation options and have facilitated their dissemination and helped consolidate intra-community trade. The involvement of local, regional and national authorities will provide stakeholders with a framework of exchange for the implementation and monitoring of activities and the integration of climate concerns into the action plans of producer organizations. Specific support will be provided to POs to ensure that sustainability of actions. Furthermore, the project will promote community learning of successful experiences and their networking through the development of Community Listeners' Clubs and partnerships with local radio stations.

Component 3 will summarize the results and lessons learned from other project components in order to facilitate discussions at the national and local levels. The objective will be to raise awareness and bring the government and local authorities together to systematically integrate adaptation strategies to climate change impacts in local plans, projects, programs and development policies. Ministerial institutions and policy makers will be supported and trained to formulate policies incorporating CCA, and an inter-ministerial platform will be established to facilitate coordination and CCA content will be created.

The integrated approaches to be adopted by the project are:

a- Farmer Field Schools (FFS)

FFS is a training approach that offers producers the opportunity to learn by doing, by being involved in experimentation, discussion and decision-making. The FFS approach does not teach farmers new technologies developed outside their environment, but aims to provide them with tools to analyse their own practices and identify specific solutions to their problems. The methodology is based primarily on the non-formal education of adults, which assumes that producers have a wealth of knowledge and experience that can be enhanced by facilitating a basic understanding of the agro-ecological dynamics of their fields.

The methodology of participatory training through FFS was introduced in Senegal in early 2000. Initially focused on the management of agrochemicals and promoting alternative plant protection products, the program has evolved by incorporating other themes, such as training modules on soil fertility, seed production, product marketing and gender.

b- Agro-Sylvo-Pastoral Field Schools (APFS)

The APFS approach is a participatory learning model where agro-sylvo-pastoral groups learn through observation and experimentation within a community. This approach relies on the extensive experience of FAO in FFS and Pastoral Field Schools (PFS). The experiments showed that the FFS provide an excellent platform and strengthen self-confidence and self-reliance among vulnerable populations while supporting risk management strategies.

APFS training follows a production cycle/animal life cycle on two levels: in the group and the community. The group level activities include learning during the entire production cycle: pasture management, herd health monitoring, management of fodder reserves, management of bush fires, etc. Along with these activities, the diversification of livelihoods aimed at promoting empowerment and household resilience are proposed.

Activities at the community level are complementary and exceed the scale of APFS. They contribute to a support system for community resilience through collective actions of rangeland rehabilitation, revitalization of the local seed system, watershed management, early warning systems, market information systems, resource management and conflict management agreements.

APFS is localized along a training system to form a cluster. This aims to improve the frequency of interaction, to promote the exchange of experience, sharing and the horizontal flow of information between various groups. The model also promotes coordination within the cluster, reducing the overall cost of implementation.

c- Gender mainstreaming in Farmer Field Schools

The experience gained in Senegal²⁷ and Kenya²⁸ has shown the ability of the FFS approach to enhance awareness and increase knowledge about women's roles and responsibilities in

²⁷ Integrated Pest Management Project (FAO Senegal, 2000).

²⁸ Hansen et al 2012. Less noise in the household: the impact of Farmer Field Schools on Gender Relations. Journal of Research in Peace, Gender and Development (ISSN: 2251-0036) Vol. 2(2) pp. 044-055, February 2012.

agriculture. The FFS have shown that equity in gender relations can be improved through the active participation of women and men in joint collective organizations. A participatory video available for FFS on the work ethic of men and women enables better understanding of how the experience of participatory education in collective action groups are able to impact gender relations within the community. Some specific actions are increasing the participation of women in CE, such as role-play demonstrations focusing on women's schedules, the involvement of women in the governing bodies of POs, challenges facing women's participation in the FFS and capacity building sessions, etc.

d- Integration of nutrition into Farmer Field Schools

Between 2010 and 2013, the food consumption situation deteriorated in the rural areas of the country, with the proportion of households with unsatisfactory food consumption increasing from 15% to 25%. This diet is based mainly on grains coupled with an insignificant consumption of foods rich in protein, vitamins and minerals (fruits and vegetables). This inadequacy of consumption in relation to needs is one of the main causes of malnutrition in rural areas. The experiments showed that the production and consumption of nutritious foods have an indirect impact on the food consumption and nutritional status of populations. If it is complemented by nutritional education, effects are considerably greater. Nutritional education plays an important role in testing, stimulates discussions and influences the choice of a healthy and balanced diet. In Bangladesh, Malawi, Rwanda and the DRC, the integration of nutrition into FFS activities helped improve child nutrition through the use of locally available foods, promoting foods of animal origin, household food security as well as the adoption of good hygiene practices.

These successful experiences can be retained as a model in the project intervention areas. This approach will be to incorporate a nutritional education curriculum in the FFS through training modules structured around the following themes: i) basic principles of nutrition, ii) food diversification, iii) household food security, iv) diet of pregnant and lactating women, v) the nutritional needs of young children and vi) good food hygiene practices. The integration of nutrition in the FFS combined with the CLC platform could be innovative and potentially powerful in ensuring results in agriculture and improving knowledge and practices in rural nutrition.

e- Community Listeners' Clubs (CLC)

The CLCs (also known as Dimitra Listeners' Clubs) are spaces for participatory, autonomous, gender responsive and action-oriented communication. They aim to improve access to information and communication for rural populations, particularly women and youth, to support their socio-economic and political empowerment and food security. Given their innovative character in Senegal, they will help build a complementarity between the CLC and the FFS, two participatory approaches developed by FAO that contribute to agricultural development as well as strengthening social cohesion. CLCs support FFS as a gender-sensitive approach to development in rural areas for the adoption of climate change adaptation and resilience practices as well as practices favouring better nutrition.

In general there are three clubs (men, women, and youth) for each village who meet on monthly basis. A club is generally comprised of between 15 and 30 people who meet on a voluntary basis, including FFS members.

The CLC will work in partnership with popular radio stations in rural areas through radio programs designed around themes selected by CLC members. In addition to strengthening gender sensitivity in the FFS, the clubs enable FFS networking and facilitate the exchange of best practices, including with communities.

f- The management of agro-sylvo-pastoral lands: Land use plan and allocation of land uses (POAS)²⁹ and Pastoral Units (PU)

Since 1999 the POAS, built by local actors, has been considered an important support tool for the local development of Rural Communities. Designed collaboratively, the POAS has a dual purpose. It is an instrument that creates the rules of natural resource access and sharing and is also a tool to calm social tensions and conflicts between users of natural resources, particularly between farmers and pastoralists.

PU emerged in Senegal in the 1980s, updated by the Livestock Support Project (PAPEL) in the 1990s and adopted by other projects such as the Agricultural Development Project in Matam (PRODAM) and the Integrated Management of Ecosystems Program in Senegal (PGIES), especially in the north of the country in the Matam region. A Pastoral Unit (PU) consists of *"the space and all resources focused on pastoral forage"* (Faye, 2001). It is a set of locations sharing a pastoral or agricultural space and using the same water sources, taking into account their economic interests and historical and community ties. Communities living on the same PU have priority rights to use the resources in their area but are also responsible for these resources. The implementation of PU must emerge from a participatory approach among the affected communities. The organization of transhumance, access and management of water sources and pastures, the fight against bush fires and the excessive cutting of trees are supported by local herder organizations in pastoral units.

3.2. The Project Intervention Area

The Project will engage communities and stakeholders across diverse geographic and socio-economic contexts. Activities will take place in six regions included three Eco-Geographic Areas (EGA), with strong growth potentials. The area of intervention covers about 61% of the national territory and polarizes 33% of the population over 4 million inhabitants and it covers 17 municipalities. Pre-selected project sites will be confirmed and identified in the first three months of project implementation and will be selected through a participatory process. The project will target 1250 Field Schools (of which 750 FFS and 500 APFS) for a total of 25.000 producers (15.000 farmers and 10.000 pastoralists) across the six regions. More specifically:

CCA activities within the Field School approach will focus on the areas that are at risk of extreme weather events (droughts, floods, winds, etc.). Senegal is divided into *Niayes zone* (1% arable land) most suitable for agricultural (horticulture and tree fruits) intensification; the Senegal River basin (8% arable land) where agriculture is organized around rainfed crops and irrigated perimeters; the Sylvo-pastoral of the Ferlo area; the Groundnut Basin (57% arable land) where agricultural production is mostly based on millet and groundnuts. In the Eastern Zone of Senegal (10% arable land) the dominant productive sector is livestock, and the Casamance area (20% arable land) characterized by rice and horticulture production. In particular:

Centre and North of the Groundnut area covering the regions of Kaolack, Fatick, Kaffrine and Diourbel which cover one third of the area of Senegal and about 19% of the national population in which 82% are rural (dominated by the following ethnic group Wolof (62%) located in the departments of Diourbel, Kaffrine, Kaolack and Serere (33%) more concentrated in Fatick of Fulani (4%)). The area covers 57% of arable land in Senegal and provides nearly two-thirds of the national production of millet and groundnuts. This zone receives 500 mm and 700 mm rainfall between June and October.

²⁹ Plan d'Occupation et d'Affectation du Sol - POAS

In the northern part of the Groundnut Basin, soils are slightly leached ferruginous called "*dior soils*". Such soils are very sandy (95% sand) and often degraded. In southern groundnut Basin, there are leached tropical ferruginous soils with a sandy texture and leaching of clay. With the reduction in duration of fallows and the lack or absence of fertilization of land, soils are becoming poorer and are highly vulnerable to erosion, also eroding the vegetation cover. Land salinization develops in the vicinity of permanent water courses (inlets of Sine and Saloum).

The dominant production systems in the area are rainfall agriculture and livestock. In the North and Central Groundnut Basin, millet with 52.4% of sown 38.9% and groundnut are the dominant crops. The other crops are cowpeas grown in association with millet or alone, sorghum, cassava, watermelon. Integrated livestock with farming has been adopted with stalling for cattle and sheep fattening, and animal traction for cultivation operations from mid-July (sowing millet dry period) to November (harvesting, storage and transport), and manure for organic fertilization into fields.

The sylvo-pastoral area of Louga, also called Ferlo is an ecosystem fragile with pastoral systems. Livestock is the main source of livelihood of pastoral societies dominated by the ethnic group Peul and also high biological value and income. Pastoralism there in practice, requires the maintenance of a balance between pasture, water and livestock. In the context of sylvo-pastoral area, drilling plays a major role in any option, since it constitutes the resource polarizing all development activities. The increase in temperature affects the water availability and productivity of pastures. The consequences on livestock are huge in terms of reduced productivity. Those on communities are important because of the role of livestock as their main source of food and income so as the primary means of existence.

The vegetation is a steppe grass cover partially covers the soil during the rainy season. The grass stratum is associated with thorn trees scattered in space. In this area are poorly developed soils (with silica sand) and slightly leached ferruginous tropical soils (sandy clay or ferruginous concretion).

The implementation of the Great Green Wall (GGW), which is aimed at stopping desertification by improving the environment characterized by degraded soils, allows resumption of crop cultivation and raising livestock by planting trees to stop the relentless advance of the Sahara desert. Members of the local communities are involved in food production for human consumption and animal feed. Trends in rainfall include very pronounced annual variability and the production systems are dominated by extensive livestock transhumance based on the exploitation of natural pastures and the search for water sources. Crops occupy a secondary position and speculation grown mostly in the southern part of the area is cowpea, and vegetables.

At the sylvo-pastoral zone, drilling organizes life and economy of pastoral systems. The resilience of communities is organized around mobility and depends on the availability of water and feed and the existence of market and other services. Cyclical/periodical migrations are observed with livestock and community activities present across a vast area.

The Eastern zone of Senegal covering the Tambacounda region *an agropastoral zone* characterized by (i) Important natural resources (soil, rivers, flora and fauna) but with a large amount of poor soils, shallow soils vulnerable to wind and water erosion; (ii) diversification of production systems: lowland rice, millet / sorghum and maize (iii) development of cash crops (cotton and groundnuts); (v) importance of livestock. This area is in the north Sudanese climatic zone and has essentially hydromorphic soils (clayey silt) of lithosols, tropical ferruginous soils. Water erosion also contributes to land degradation. Its North-Western part lies in the lowest isohyets of 600 and 800 mm per year and is neighboring the Groundnut Basin. Farming and livestock are well developed, with seasonal migration northward in winter

to avoid damage to crops and South in the dry season in search of pasture coming from the sylvo-pastoral area and sedentary livestock based on the use of plant resources including a semi-intensive with fattening operations. The nearest part of the forest grazing area (Northern part) is dominated by extensive farming (cropland and livestock), while in the western part of the groundnut basin agro-pastoralism is dominating while extensive farming sometimes stalling.

Target communities of the three agro-ecologic zones will receive technical support through FFS and APFS to perform good agro-pastoral and sylvo-pastoral activities. The field schools will focus on strengthening farmers' knowledge on climate resilience through a broad range of thematic related to land management, water management, catchment protection, crops production and protection (IPPM), gender and nutrition, as well as introducing modules on marketing and value chain, increased biodiversity and animal husbandry. It will provide organizational support, directly assisting communities to address issues such as land tenure, micro-credit, and improving the role of women and youth.

3.3. Project objectives

The **Adaptation Objective** of the project is to improve food security and nutrition in agro-sylvo-pastoral communities through the development of livelihoods resilient to climate change (CC).

The **Development Objective** of the project is twofold: (i) facilitate the use of agro-climatic information and the adoption of CCA by agro-sylvo-pastoral producers and (ii) improve the capacity of the agro-sylvo-pastoral sector to cope with CC by integrating CC adaptation into policies, programs and agro-sylvo-pastoral development projects and strategies.

The project will also strengthen the involvement of women and youth in the learning process and encourage their involvement in decision-making processes.

3.4. Expected Project Outcomes and related Indicators

The project is organized around three technical components as well as a coordination and management component:

Component 1- Development/fine-tuning CCA strategies and tools based on improved knowledge and information management of CCA practices in agro-sylvo-pastoral systems;

Component 2 - Capacity building and upscaling of CCA strategies, technologies, and best practices for small agro-sylvo-pastoral producers through a growing network of Farmer Field Schools;

Component 3 – Mainstreaming CCA strategies in a coordinated manner into agricultural and livestock related policies, development framework programs and projects at the national level and in selected vulnerable areas; and

Component 4 - Project monitoring and evaluation.

2.2.1 Outcomes and Indicators

Outcome 1.1: Increased understanding and capacities to systematically gather and disseminate agro-climatic data to identify and improve best CCA practices and innovations in targeted agro-ecological zones.

Indicators:

- i. An information management and exchange system of agro-climatic data is developed and operating at both local and national levels [LDCF AMAT Indicator 2.1.2.1]
- ii. Agro-climatic information including specific agricultural advice is made available to agro-sylvo-pastoralists through the FFS and the GTPs. [LDCF AMAT indicator 3.1.1.1)
- iii. At least four CCA practices are identified in targeted areas (including POAS) in collaboration with the agro-sylvo-pastoralist communities;

Outcome 2.1: The agro-climatic information is disseminated and improved CCA practices and innovations are adopted by agro-pastoralists.

Indicators:

- i. At least 25% of POs participating to FFS use/adopt agro-climatic information and CCA practices/technologies [LDCF AMAT Indicator 3.1.1];
- ii. 25,000 people (40% women and young people) are directly affected by the project [LDCF AMAT Indicator 3.1.1.2] ; and
- iii. At least 10 FO action plans integrate CCA strategies.

Outcome 2.2: Household incomes and agricultural and livestock productivity of FFS/AFPS participants have increased through the use of CCA practices, agro-meteorological information and improved crop and beef production value chains.

Indicators:

- i. 20% increase in per capita income of farm households due to adaptation measures applied [LDCF AMAT Indicator 1.3.2];
- ii. 25 % increase in Agricultural and livestock productivity in targeted areas [LDCF AMAT Indicator 1.2.8].

Outcome 3.1 - CCA is mainstreamed into policies, strategies and national programs, shifting from a reactive response to a pro-active preparedness approach.

Indicators:

- i. CCA strategies are mainstreamed into at least 30% of agricultural, pastoral and forestry sector policies [LDCF AMAT Indicator 1.1.1.1];
- ii. At least 30% of agro-sylvo-pastoral projects incorporate budget for CCA components [LDCF AMAT Indicator 1.1.1.2].

Outcome 3.2 - A "national CC resilience fund" is in place within an existing funding mechanism to support local CCA activities.

Indicators:

- i. After the third year of the project implementation, the fund is mobilizing twice the initial contribution from the GEF/LDCF.

Outcome 4:

Project implementation based on results based management and application of project lessons learned in future operations facilitated.

Indicators:

- i. Project outcomes achieved and showing sustainability

2.2.2 Description of components, outputs and activities**Component 1: Development and fine-tuning of CCA strategies and tools based on new or improved knowledge and information management of CCA practices in agro-sylvo-pastoral systems.**

This component paves the way to ensure that innovations, CCA technologies and practices and agro-meteorological information are available for large-scale replication. Participatory surveys, including gender analysis and socio-economic analysis will be carried out in order to make proposals that are tailored to the local needs of farmers and local communities. The information gathered will feed the curricula developed in the FFS/APFS. Furthermore, the component will promote climate impact monitoring, weather forecast decision support tools, and assessment of past climate means and extreme events, and their impact on agriculture, building on tools developed by CSE by appropriate adaptation of these tools and testing them in selected participating FFS and at a provincial/national scale.

In addition, this component will enable the collaboration and synergy between various actors involved in the collection, analysis and monitoring of agro-climatic data, such as the CSE, ANACIM, POs, among others.

Output 1.1.1: ANACIM and CSE³⁰ have analyzed CC related threats, opportunities and constraints and proposed an integrated strategy for CCA by specific project area.

ANACIM in collaboration with the project national coordination unit will carry out a detailed analysis of the available climatic data (rainfall and temperature) by collecting the least 30 years historical data³¹ (mainly days and amount of rainfall) from local weather stations in the project sites. This activity will support the establishment of new cropping calendar for staple crops and create a baseline for future forecasts. The weather/meteorological stations in the project area will also be enhanced (setting up of new automatic weather stations, rain gauges, etc.) by taking advantage of an enhanced weather network that will provide localized information. A forecasting tool to support the decisions of producers associated with an agro-climatic advisory system will be developed in consultation with project partners, including the FFS and the national and local GTPs.

³⁰ ANACIM and CSE will implement this output. Detailed terms of reference will be developed at the beginning of project implementation by the project coordination unit.

³¹ This analysis will identify: (i) the cumulative rainfall per station per year and the average monthly rainfall compared against ten year periods: 1975-1984, 1985-1994, 1995-2004 and 2005-2014; (ii) the date of the first significant rain from an agronomic point of view and recommended planting date (indicating the cumulative volume of rain needed and other conditions); (iii) the frequency of occurrence of extreme events; (iv) dry breaks occurring during the crop cycle; (v) drought in the growing season and the period in which it occurs; and (vi) the rain volume available for the cropping season and total rainfall available for the crop cycle by removing excess volumes required for major crops in each area.³² This activity will be supported by an international anthropologist and an international agro-climatologist

Timely agro-climatic information/advisories will be provided to and used by farmers and pastoralists, to determine: (i) the rainy season profile; (ii) the likely starting period of the rainy season; (iii) possible dry breaks and heavy rainfall at the beginning and during the growing season; (iv) changes in the planting of crops and seedling dynamics (favourable conditions for the development of certain vectors or phytosanitary diseases, etc.); (v) the rainy season end period and unseasonable rains that can damage the crop; and (vi) the assessment of crop prospects given the rainfall in the area. This information is available thanks to the climatic data database by ANACIM over the last thirty years, which will be fine-tuned during the project implementation.

Based on the findings of a participatory assessment developed³² in collaboration with FFS/PO networks and the local GTPs, and aimed at collecting local knowledge and perspectives on CC related threats, opportunities, constraints, and on the basis of successful experiences in Senegal and the sub-region, the CSE, in parallel will propose concrete measures to mitigate climate risk and improve resilience in targeted agricultural productive systems.

Activities will be carried out in collaboration with other research institutions (e.g. ISRA). The project will analyse, existing and localized CCA innovations/technologies, based on indigenous/local knowledge and pilot-test their relevance efficacy through the FFS (Component 2).

The results obtained in this phase will be assembled, shared and validated by the national key stakeholders MAER, MEDD, MEPA and MH.

Baseline: Currently, ANACIM is gathering climate information (mainly rainfall) at automatic stations spread across the country however; these only provide a 10-day weather forecast at national level. On the other hand, in Kaffrine region, local agro-climatic information is provided at the level of GTPs through the establishment of an early warning system for agriculture³³ that enable producers to make effective decisions for agricultural risk management. A comprehensive directory/guide containing best practices for sustainable land management in Senegal³⁴ was produced by the CSE, however these databases are outdated and do not include local CCA practices and best practices for climate resilient agriculture.

Outputs indicators:

- i. Updated crop calendars/crop management techniques based on an analysis of inter and intra-annual climate variations, in targeted production systems;
- ii. An agro-climatic information/advisory system is set up in consultation with local GTPs and FFS networks;
- iii. Local climate-resilient technologies/innovation/CCA practices are identified and pilot tested in targeted project sites; and
- iv. CCA-oriented training materials are produced in consultation with the FFS and local GTPs.

Activities will include:

- Preparation of a technical paper on local knowledge on climate related issues, existing perceptions of CC and climate variability, and collection and dissemination of climate information;
- Improve/enhance the existing network of weather stations;

³² This activity will be supported by an international anthropologist and an international agro-climatologist

³³ See Project funded by the Japanese Cooperation and the UNDP

³⁴ BEST PRACTICES, Collection of sustainable land management experiences in Senegal, Project “*Land Degradation Assessment in drylands*” (LADA), CSE Dakar 2010.

- Conduct a participatory diagnosis of climate-related threats, constraints and opportunities and on endogenous knowledge regarding adaptation measures;
- Prepare a technical note identifying CC related threats, opportunities and constraints and develop a strategy /adaptation measures based on existing studies, the lessons learnt from other projects and the participatory diagnosis;
- Organize FFS exchange visits to validate/agree on the introduction of proposed adaptation measures identified by the agro-sylvo-pastoral producers through the FFS network;
- Organize a national workshop to distribute and validate technical documents prepared by ANACIM and CSE, bringing together all actors involved in the project (Ministries, research institutes, POs, NGOs.);
- Collect the information \ needed to develop FFS/APFS trainings and awareness raising materials ;
- Piloting tests of climate-resilient agro-pastoral innovations in project sites through FFS/APFS;
- Develop specific and localized strategies for addressing CCA in each project area;
- Organize a national validation workshop for mainstreaming CCA into national policies and programmes.

Output 1.1.2: Information management systems and tools used by the national GTP are strengthened and updated to include information related to climate change and, local GTPs are established and participate in the agro-climate advisory system.

The information generated under output 1.1.1 will be integrated into a National Information System (NIS) consisting of national and local GTPs. With the dissemination of improved agro-meteorological information, producers, leaders of PO and local authorities will have a better understanding of the threats of climate change in their region, thereby improving their CCA planning and adaptive capacities.

A data collection and climate information dissemination system using mobile phones will be established at the level of farmers and agro-pastoralist groups clustered around the FFS/APFS, CLC and local GTP. The transmitted information will be analyzed (by the local GTP unit) and then published for knowledge sharing of good practice among agro-pastoralists, and researchers.

The GTP will define the sampling process and collection of data from the agro-pastoralists. The project will support the installation of android applications for data collection and the 3G network coverage will be used for data transmission. This will enable direct communication between agro-sylvo-pastoralists and researchers and technicians, as to find appropriate solutions and most suitable practices to suit their livelihoods. The project will provide to a selected group of agro-sylvo-pastoralists a mobile phone data transfer device per agro-geographical zone. The project will work in partnership with community radio and mobile operators to enable less literate producers to have access to weather forecasts and agro-climatic information.

A survey will be carried out to evaluate the efficacy and use of the shared agro-climate information, challenges and constraints. A mid-term evaluation mission will inform the project task force on how to further improve the information systems.

Baseline: Created in 1984 under the coordination of ANACIM, the national GTP is composed of a group of national agencies and institutions involved in monitoring crops and rangelands management. The national GTP represents an effective platform for disseminating agro-climate information at the national level. However, information on climate-resilient

agronomic varieties, cultivars and breeds and diversity of practices of potential use to communities to increase resilience to climate change and variability is limited or absent. In order to collect and make available for use agro-meteorological information at the local level the project will strengthen and establish local GTP. These will function as localized knowledge exchange platforms whereby farmer-herds, researchers and technicians will share practical advice on the actions to take in view of forecast conditions.

Outputs indicators:

- i. The National GTP is strengthened and collects and disseminates agro-climatic information for use by farmers and agro-pastoralists; and
- ii. 17 local GTP are established and collect and disseminate agro-climatic information during the growing season (May to October).

Activities will include:

- Elaboration of a four-year work plan defining tasks, roles and responsibilities of the various institutions that are part of the national GTP and are responsible for collecting and disseminating agro-climatic information ;
- Increase the capacity of institutions that are part of the national GTP;
- Establish new and strengthen local GTP;
- Define a strategy and establish a mechanism for information management and exchange (via broadcast channels, Android tablets, computers, etc.);
- Strengthen and increase availability and access to reliable and user-friendly agro-meteorological information at multiple levels in collaboration with mobile operators (by promoting the use of voice messages for weather forecasting); and
- Train media personnel (community based radio clubs, private radio stations) on the development and distribution of agro-meteorological information.

Component 2: Capacity building and dissemination/upscaling of CCA strategies, technologies, and best practices for small agro-sylvo-pastoral producers through a growing network of Farmer Field Schools.

This component focuses on the upscaling and promotion of CCA practices and technologies within the framework of ongoing FAO-supported and governmental projects on agro-pastoral Field Schools (FFS/APFS). FFS and APFS models will be refined as to include CCA and climate resilient practices.

Component 2 will focus on: i) promoting the correct use of climate information to increase the preparedness of farmers and pastoralists to climate variability and change; ii) raise awareness amongst farmer-herders and local development actors on CCA related issues through the FFS/APFS networks and community based radios. The FFS approach will integrate the previously developed, but until recently, separately implemented “Community Listeners Clubs” (CLC) approach as a powerful means to give voice over a much larger geographic area; (iii) strengthen POs to improve autonomy and self-reliance of PO members; and (iv) optimize agricultural and sylvo-pastoral value chains to diversify farmers’ and herders’ activities and render them suitable to counter CC threats while increasing household incomes. Activities under Component 2 will include specific improvements in addressing issues of gender and improved nutrition.

Output 2.1.1: Specific curricula for FFS/APFS is revised in light of CCA , resilience of ecosystems and the integration between agricultural production systems, sylvo-pastoral systems and other cross-cutting themes such as nutrition and gender

FFS/APFS training modules/curricula will be reviewed and validated through a participatory process involving all main stakeholders in the targeted project area³⁵. Localized CCA options, climate resilient practices and diversification strategies will be promoted and the revised CCA – FFS/APFS curricula will target the following production systems: (i) small-scale irrigation farming systems producing mainly rice and horticulture; (ii) rainfed groundnut basin systems producing millet/sorghum/peanut/cowpea; (iii) cropping systems producing cotton; and (iv) extensive sylvo-pastoral systems.

Training modules will include: management of soil fertility, agro-forestry, rangeland management and forage production, diversification of production systems, water capture and management techniques. Separate cross-cutting themes for gender and nutrition will be included in all curricula, and through the new joint activities deriving from Field Schools being integrated with Community Listeners' Clubs (CLC). A nutrition-sensitive approach will be introduced into the curricula with the aim of reducing nutritional vulnerability by building basic, pragmatic awareness of the basics on diet and nutrition and how a “win-win-win” scenario of diversifying cropping systems can simultaneously build ecological, economic and nutritional resilience (example: leguminous cover-crops that improve soil fertility, provide produce for local sale and help provide for improved nutrition). The contents will, in part, be based on previous experience on nutrition in FFS developed in other African countries, including Kenya and Malawi.

The Project will support: Revising of FFS/APFS curricula as well as introduction of multimedia training methods (CLC and participatory video) based on lessons-learned during the first stage of the project lifetime. Curricula will cover a range of integrated crop/livestock/agro-forestry systems currently existing in the six Regions. Training modules will include e.g., soil fertility, soil protection and soil restoration through green manure cover crops; composting techniques, water capture and management techniques; grassland rehabilitation, and introduction of non-timber forest products (NTFP). Related modules will be developed to cover livestock/grassland management and restoration practices.

Baseline: The FFS training curricula exists but does not include information on CCA practices, climate information or nutrition. Concerning gender issues, the training modules can be improved by applying the "training, gender research and climate change guides in agriculture and food security for rural development"³⁶ tools that enable communities to examine/learn from other communities that have developed appropriate responses to similar climatic challenges. The tool includes a gender analysis that identifies and addresses gender gaps in decision making processes and in the capabilities for uptake of innovations.

Outputs indicators:

- i. A gender analysis in the targeted project area is conducted and a plan/strategy for mainstreaming gender issues in FFS is available;
- ii. Four regional workshops (Louga, Matam, Tambacounda, and Kaffrine) are organized to discuss and validate updated FFS training modules /curricula. Each workshop will involve 100 participants (including 40% women and 40 % young people (boys and girls);

³⁵ Curricula will be developed taking into consideration on farmers identified problems, needs and priorities, through a participatory approach process facilitated also by an international anthropologist with good knowledge on community-based participatory approach who will ensure that socio-cultural dimensions and ethnic diversification are properly taken into consideration

³⁶ CCAFS & FAO, 2013. (training guide, gender and climate change research in agriculture and food security for rural development)

- iii. 500 training modules translated and published in local languages, these will include drawing boards (illiteracy) and 2,500 training modules are published in French.

Activities:

- Developing/reviewing existing FFS/APFS curricula to incorporate CCA issues, gender and nutrition;
- Organizing regional workshops to validate curricula bringing together project stakeholders;
- Translating FFS training materials into the local languages and using illustrations and drawing boards;
- Raising awareness on gender mainstreaming and nutrition into the FFS curricula

Output 2.1.2: Master Trainers are qualified on CCA practices and strategies, on gender issues and nutrition.

Refresher courses and training of trainers will be organized by qualified FFS experts for at least twenty (20) Master Trainers (MT). Those master trainers and newly trained MTs will in turn train 500 new and existing facilitators (recycling courses) using the training materials developed under output 2.1.1.

These facilitators will support the training of farmers and pastoralists in 1,250 FFS leading to eventual adoption of CCA practices. FFS facilitators comprise extension agents and agricultural advisors (ANCAR agents, DRDR staff, NGO project coordinators, SAED, SODEFITEX). Trainings will focus on non-formal adult education methods as well as technical curricula content. The training sessions will include 25 Master Trainers, 25% of whom are women.

Baseline: Currently, there are 13 Master trainers in Senegal, of which 2 are women, and over 800 facilitators, of which 280 are women, trained through the FAO/IPPM project³⁷.

Outputs indicators:

- 13 existing Master Trainers, 10 new Master Trainers, of which 20% will be women and 20% will be youth, are trained on all aspects related to FFS/APFS and CLC;
- Two training sessions for Master Trainers will take place;
- 500 trained facilitators (400 in FFS and 100 in APFS) of which at least 25% are women;
- 90 facilitators from the IPPM national network of facilitators undertake refresher course in CCA strategies; and
- 16 training sessions are organized for new facilitators³⁸ and two refresher courses are conducted for IPPM network facilitators.

Activities will include:

- Training of 23 Master trainers;
- Additional training to 90 facilitators who are members of the national IPPM network (at least 25% women) with 60 facilitators being trained in Year 1 and 30 in Year 2;
- Training of 500 new facilitators (25% women);
- Organizing facilitator's refresher courses.

³⁷ <http://www.fao.org/agriculture/ippm/ippm-home/en/>

³⁸ 3 FFS sessions and 1 CEAP (Year 1); 6 FdF FFS and 2 in CEAP (Year 2), 3 sessions FdF FFS and 1 CEAP (Year 3).

Output 2.1.3: FFS are implemented or strengthened to integrate CCA practices in production systems and producers are trained.

Farmer/herders will receive training through FFS/APFS over a period of a full growing season. During the first year (Y1) the agro-pastoralists will have 4 training sessions (once a week) of 4 hours each in their respective FFS and/or APFS. During the second year (Y2), training sessions will occur every 15 days (2 sessions per month) during the complete crop cycle. The training modules on nutrition, marketing/warrantage, gender, Agrometeorology, agroforestry and other, will be introduced in Y2 to avoid overloads with year 1 (focusing on the use of climate information and CCA practices).

Training quality assurance and evaluation will be supervised by the technical focal points/experienced facilitators or Master trainers of the FFS network³⁹.

Community Listeners' Clubs (CLC) supporting FFS will be strengthened integrated into the FFS networks.

Table 4 : FFS, APFS and CLC to be implemented during the project lifetime

Year	FFS Number	APFS Number	CLC Number
Year 1	60	0	60
Year 2	240	110	140
Year 3	300	240	220
Year 4	150	150	
Total project	750	500	420

Baseline: 1,366 FFS currently exist in Senegal (FAO/IPPM project), these include 843 facilitators and 24,737 trained farmers. Moreover, 64 CLC are active and scattered throughout the country. However, the farmer/pastoralists in most of the project area are not trained on CCA practices and tools.

Outputs indicators:

- At least 1,250 FFS are created or strengthened, including 750 FS focusing on plant and 500 APFS;
- 15,000 farmers and 10,000 agro-pastoralists are trained, at least 30% of which are women and 30 % are youth;
- At least 420 CLCs are established in the project areas; and
- Two exchange visits between FFS are organized once a year (intra and inter agro-ecological zones) [LDCF AMAT Indicator 3.2.1.1].

Activities will include:

- 60 FFS conducted in Year 1, 250 FFS and 110 APFS in Year 2, 300 FFS and 240 APFS in Year 3, 150 FFS and 150 APFS in Year 4;
- Organizing field visits from one agro-ecological zone to the other to share best practices.

Output 2.1.4: Community Listeners' Clubs (CLC) are established and strengthened and integrated within the Farmer Field school network

³⁹ In particular, social inclusion within FFS regarding women and youth, will be considered with the support of an international anthropologist expert with large experience in community-based participatory approach

Project year 1 will support the strengthening of national capacities on CLC implementation and monitoring. A local NGO with strong field presence will be identified and trained by the Dimitra team. With support from FAO, the partner NGO will support the establishment of a smaller number of CLC (60) which in the following year, will support the establishment of other CLCs. CLCs provides a long term support to community members through trainings (initial workshops, decentralized training, technical trainings), and networking activities (exchange visits, forums, radio broadcasts, video, etc.). New CLCs will be established depending on where FFS are localized. CLC facilitators will be trained on specific topics based on the revised FFS curricula.

Baseline:

In Senegal, 64 Community Listeners' Clubs already exist, 40 are in the River Valley (Northern Senegal) and 24 in Velingara, Casamance. While in the North of the country, support was provided by FFS facilitators located in the area, in Velingara CLCs did not link up to FFS.

Outputs indicators:

- i. 400 CLCs are set-up;
- ii. 50% members of CLCs are women;
- iii. 8 training sessions are organized (initial workshop and decentralized training);
- iv. 50% of CLC members that received training (initial workshop and decentralized training) are women;
- v. Follow-up missions carried out;
- vi. Planned interactive CLC's programmes are achieved and broadcasted

Activities will include:

Preliminary phase

- Identifying and training the partner NGO Identifying target areas where to establish CLC's
- Developing an inventory of participatory venues
- Raising awareness among targeted communities on the advantages of CLCs
- Identifying potential partners

Implementation of 400 CLCs

- Organizing launching workshops
- Conducting decentralized training

Capacity building: gender, nutrition, etc.

- Conducting technical training for CLC according to their needs
- Training radio partners

CLC and FFS networking

- Producing and disseminating interactive gender-sensitive radio broadcasts
- Using video and other means to share experiences

Output 2.1.5: Good practices and lessons learned for better adaptation to climate risk are capitalized on and disseminated locally.

Capacity building efforts are essential to helping technical and knowledge institutions (public and private) to assist small farmers and herders with the new challenges related to climate change (Outcomes 2.1 and 2.2) . Local adaptation practices will engage and fully involve target communities in the decision-making process through communication and dialogue, working with farmers during the agricultural season to test technologies as well as the livelihood options and coping strategies, identifying sound economic and marketing practices

and disseminating knowledge through a range of extension and communication strategies, such as open-field days, workshops, orientation meetings, FFS and APFS and CLCs.

Strengthening rural knowledge institutions will be promoted in order for farmers and herders to deal in a coherent and integrated manner with the issues related to climate change. This will imply the integration to local knowledge with scientific-know how, the active involvement of community leaders and key stakeholders in decision-making as well as capacity building in communication, including the use of the available communication technologies e.g. TV, radio, among others.

Under this Output, Field Schools (FFS/APFS) producers and POs in particular, within the six target regions, will be strengthened to support community development, increase capacities of POs to support the resilience of their member households, and ensure the sustainability of activities implemented through FFS/APFS. POs will also be supported to manage CCA activities funded through microcredit fund established through Outcome 3.1 and to reinforce farmers' linkages to markets.

Good practices and CCA innovations tested and validated in FFS and APFS (Output 2.1.1 to 2.1.3) are disseminated locally through community radio clubs (output 2.14) targeting a much larger geographic area.

Baseline: Knowledge transfer on best CCA practices is happening in Senegal for example SAED published a manual to increase CC related knowledge acquired in the Senegal River delta. The CSE also published manual identifying CCA good practices in Senegal. However, knowledge on CCA and CC resilience is fragmented and scattered and a common understanding of CC related risks and opportunities is lacking.

Outputs indicators:

- i. At least five best practices are identified by FFS/PO;
- ii. At least one community radio area by zone broadcasts best practices monthly from May to October for the entire project duration.

Activities will include:

- Identify, analyse and select the best practices to recommend;
- Develop a dissemination strategy based on targets and identify the main distribution channels. This action is linked to Output 2.1.1, Activity: *Raising awareness on gender mainstreaming and nutrition into the FFS curricula*).

Output 2.2.1: Agro-sylvo-pastoral producer's organizations are strengthened through the adoption of new technologies and innovations for CCA, improved production and the enhancement of value chains.

In the targeted agro-ecological zones, POs will be strengthened to provide to their members, services that improve household resilience and the sustainability of the planned activities in the FFS/APFS. Linked to Output 2.1.5 results POs will be supported in developing their business plan incorporating, among other things, issues related to CCA. If this is acceptable they can manage CCA-activities through local funds (Component 3). PO's activities will be linked to those developed by the FFS/APFS so that POs can provide long-term support to producers. To achieve this, the project will strengthen PO's institutional and technical capacities.

The project will capitalize on the FAO experiences in adopting practices that enhance production and marketing in order to guarantee producers to have access to relevant market

and a remunerative value for their production. A baseline survey will be conducted at the project kick-off stage to analyse the socio-economic profile of communities and the valuation practices of existing products in the regions covered. A mid-term review of the implementation of the project by the beneficiaries will then readjust the support as needed.

Through partnerships, the project will up-scale the promising income-generating activities experienced by other co-financing/collaborating projects⁴⁰.

Baseline: Senegal has a network of PO and active PO Unions, which should ensure the sustainability of actions. Nevertheless, the PO present in intervention areas have disparate levels of development that must be evaluated before any intervention. Moreover, the livelihoods of target populations are limited by the potential areas of intervention. The structuring of value chain actors through the organization of production sectors and inter-branch organizations as well as facilitating market access initiated in the area of the Groundnut basin by PAFA have not yet been expanded into the sylvo-pastoral zone and the Eastern Senegal region.

Outputs indicators:

- i. At least 50 vulnerable households by area of intervention are supported by income-generating activities [LDCF AMAT Indicator 1.2.10];
- ii. 50% of farmers and herders adopt at least one recommended CCA option in field schools [LDCF AMAT Indicator 3.1.1];
- iii. POs support a development plan including CCA priorities and have access to local financing;
- iv. At least one PO per area tests warrantage as a practice providing access to finance.

Proposed Activities supporting POs and their members will be related to FFS/APFS training activities and will include:

- Conduct a baseline survey to select POs and identify their support needs;
- Train PO members and leaders as facilitators for FFS/APFS
- Institutionally support PO in governance and gender;
- Support POs in the design of their development plan incorporating priorities, development opportunities around priority sectors, diversification, improving the quality of agro-sylvo-pastoral products and AGR;
- Train PO on themes included in the development plan;
- Facilitate access to inputs as well as farm advisory and management services;
- Provide operating funds for FFS and APFS on the basis of a revolving fund;
- Integrate agro-forestry activities (wind breaks, living hedges, forested villages, alley cropping, improved fallows, small ruminants, poultry farming and beekeeping) within the same geographical area of FFS and APFS at the same time or sequentially;
- Foster awareness and communication between and within the organization on offers and the procedures of financing systems to make the financing requests of sector operators more credible;
- Organize consultation meetings between the heads of financial institutions and PO project beneficiaries, potential customers of these institutions;

⁴⁰ In fields such as: the development of water control structures, village poultry, small ruminant breeding, integrated crop/ livestock/forestry, equipment for agro-pastoralists to collect and spread manure, mowing equipment and mowers for making firewalls, farmer training in the production, collection, storage of milk and meat as well as milk processing in order to optimize local milk

- Establish a system of warrantage, micro credit, working capital for agro-sylvo-pastoral production conservation and marketing.

Output 2.2.2: At least one producer per FFS multiplies and marketing CC adapted seeds with high nutritional values.

The project aims to facilitate the access of farmers to adapted certified seeds. This will be achieved by enhancing the capacity of farmers/producers organisations (PO) to produce and provide the local markets, as well their own PO members, with such seeds. This will be facilitated by the establishment of revolving funds (output 2.2.3) within the different FFS and PO. Therefore, in collaboration with ISRA and DISEM, the project will produce pre-basic seed varieties that are adapted to the local agro-ecological area, responding to climate stresses and embedding nutritional value, which are interesting to populations. Adapted-certified seeds will be tested in the FFS and subjected to assessment by farmers/producers.

Through this project, farmers organizations will be technically training on the production of adapted quality/certified seed in line with the current Senegal quality seed production guidelines for: groundnut, rice, maize, sorghum and millet, and horticulture species/varieties (upon on farmers needs and request) ranging from sowing rate determination to sowing methods; fertilization; weed and pest management; isolation distance; rouging and harvesting; drying; treating; packaging and storage of the seeds. Farmer organizations are also trained in business management including seed marketing approaches (output 2.1.1 to 2.1.4).

Baseline: The seed sector, which is an important pillar for the intensification of agriculture in Senegal, has experienced for decades difficulties, which resulted in an erosion of the seed stocks of all species. Indeed, for peanuts, one of the country's main crops, the rate of coverage of the certified seed requirement was less than 10% in 2011. It is the same for dry cereals (millet, sorghum, corn). However, several initiatives have been developed to support the replenishment of seed stocks, such as the groundnuts national Framework of Mutual Obligation⁴¹ (*COM/Arachide*) funded by the European Union, the Agricultural Productivity Program in West Africa (WAAPP) for dry cereals, and the Integrated Support For Food Security and Nutrition (AISAN) funded by the Canadian Cooperation.

Outputs indicators:

- Amount of pre-basic seeds of adapted varieties produced: mil (3 ha for 4 varieties); sorghum (2 ha for 3 varieties); cowpea (3 ha for 3 varieties) peanut (5 ha for 5 varieties); maize (4 ha for 4 varieties); sesame (3 ha for 4 varieties);
- Quantity of basic and certified seeds of adapted varieties;
- At least two PO by project area benefit from seed storage infrastructure (construction or rehabilitation).

Activities consist in supporting producers of basic and certified seeds with the collaboration/assistance of DRDR and DISEM/DA for:

- Ordering pre-basic seeds
- Training PO on seed legislation;
- Supporting and strengthening monitoring and control in the field;
- Producing documentary media from seed catalogs, technical manuals and records to be translated into local languages and made available to the PO for a better control of the seed production and certification process;

⁴¹ Cadre d'Obligation Mutuelle Arachide – COM/Arachide

- Strengthening seed producers capacities in planning, production, and marketing;
- Building storage warehouses.

Output 2.2.3: New adapted varieties of cereals, fruits and vegetables and fodder species are introduced into target areas to improve the food and nutritional security of the population.

The project in collaboration with co-financing partners will promote and upscale income-generating activities (e.g. micro-gardens, crops with high nutritional value, and underutilized crops rich in micronutrients). For many Field Schools supported by this Project (Outputs 2.1.1 to 2.1.4), lack of access to credit is an obstacle to climate resilience. The revolving fund established during the first year (Output 2.2.1) will provide the necessary funding mechanism for the target farmer/producer organizations (PO) to promote activities aiming to generate incomes to their households and community. During the second year (Y2), the project will upscale the revolving-fund mechanism in each of six regions, particularly at PO level. Revolving funds will finance PO's action plan activities and operate on a revolving loan basis, through a certified financial entity,⁴² and provide access to credit to small farmers/herders to support initiatives such as: small equipment; farm/landscape improvements; multiplication of seeds for cereals; product transformation, conservation and commercialization and warrantage; other activities aimed at livelihood diversification, micro-gardens (for fruit trees and vegetables production), poultry, honey production, small ruminant and other AIG. AIG will mainly address women and youth pursuing in this way gender and nutrition dimension.

Baseline: Since 2011 the agricultural sector (PAFA) support project has implemented a declining funding scheme for value chain actors grouped into sectors structured around funding sub-projects based on a decreasing funding mechanism (80-20% in the first year, 60-40% in the second year, 0-100% in the last year). It is the fourth generation of funded projects. PADAER and PASALouMaKaf and are also based on this pattern.

In terms of improving nutritional status, the main challenge is coordinating multisectoral interventions adapted to local conditions. Sectoral hyper-specialization and intra-sectoral programs and interventions do not facilitate the implementation of coordinated interventions and synergy, which are essential to better prevention of malnutrition. In this regard, several recommendations were shared, without limitation, for the development of sustainable patterns of production, consumption and resilience, guaranteeing vulnerable populations access to healthy and quality food and throughout the year and their life.

Some examples of best practices that have been implemented in Senegal are: (i) multi-sectoral “*la case des tout-petits*” initiative; (ii) the USAID Agricultural-Food Security Development Program which enhances access to protein-rich products and vegetable products; (iii) the existence of a nutritional culture in Senegal, which tends to get lost between generations (e.g. the use of particularly nutrient rich “*Moringa oleifera*” tree leaves on poultry farms, which has been lost); (iv) awareness of the consequences of malnutrition and the need for greater understanding of bio fortification (e.g. ISRA work on the orange-fleshed sweet potato) to address the problems of food shortages; and (v) the establishment of social safety nets and reinvestment in additional revenue in a more varied diet in health and/or education.

⁴² GEF Council Paper (2007): *As regards revolving funds, UN agencies (UNDP, UNEP, FAO) can make grants to a credible financial entity to establish a revolving fund (sinking fund, contingent fund, or guarantee fund). The UN Agencies are not able to recover investment returns, but can ensure that any repayments and returns on capital be reinvested in project objectives. Such funds would not normally result in refloes to the GEF Trust Fund.*

Outputs indicators:

- i. 50% of beneficiaries adopt the new varieties;
- ii. 70% of beneficiaries diversify their diet and meet their nutritional needs.

Activities will include:

- Supporting the development and use of adapted varieties of seeds from different levels (base, R1, R2) to increase production for food security;
- Raising awareness about nutritional practices, nutrition and good hygiene practices; (UCP)
- Organizing communication campaigns on project activities to accompany the introduction of new varieties at important events on the national (International Agriculture and Animal Resources Fair (FIARA), pastoralist open days, etc.) or local (major events organized by project intervention area) agro-sylvo-pastoral agenda, farmers open days, etc.

Output 2.2.4: The Land use plan and allocation of land uses (POAS) and plans for the management of pastures and livestock grazing areas are reinforced with the participation of farmers' associations, livestock producers and local authorities.

Pastoral units selected in the project are equipped with range-path management plans, which implementation is not yet effective. Moreover, in most cases in the Country, there is no POAS. The project will support the development of POAS in specific pilot areas, as well as the implementation of range management plans. This activity will better delineate the basis of local development, taking into account environmental potential in the context of CCA.

The focus will be on agreements and charters for environmental management. Support for the development and implementation of local management plans will preserve the factors promoting the proper implementation of the project and help it become sustainable. This activity will also better help agro-pastoralists with their obligation to ensure the proper management of natural resources collectively and individually.

Baseline: The implementation of POAS as a land management tool was the first step in the process of securing land in Senegal. Nevertheless, the POAS only partially responds to the land security concerns of local users. Indeed, it does not do enough to engage stakeholders in thinking strategically about the future, including on the effects of their regulatory decisions and planning for the long term. Also, the way that POAS is supported does not encourage questioning the control and monitoring of the implementation of the issued rules. Finally, the effects of CC are only slightly considered. The challenge here is to complete the POAS system and implement simple, efficient and effective management tools that can be transmitted to Rural Communities to enable them to better know and manage their territory, taking into account the effects of CC on ecosystems and landscapes.

The PU promotes the modernization of extensive livestock production based on contract-based and of resource management and pastoral areas. Thus, the development of PU in the Matam region enabled the off-season planting of 210,000 ha of pasture for 95,000 additional UBT. Access to water through drills and facilities installed benefitted both herders and livestock, and helped to relief the daily work of women in their villages. In addition, PU situated in sylvo-pastoral areas is mostly equipped with range-path management plans, but their implementation is not yet effective.

Outputs indicators:

- i. At least 17 management plans/POAS/PU supported in the development and implementation;

- ii. At least three communication protocols signed and implemented with at least one protocol per zone with three community radios.

Activities will include:

- Supporting the development of POAS/pasture management plans, cattle grazing management plans, and a pastoral charter encouraging preliminary consultation meetings between stakeholders to foster communication and awareness about resource management issues; (UCP)
- Supporting the implementation of POAS and existing pasture management plans; (UCP)
- Signing and implementing protocols with local radio stations for the production and dissemination of public issues throughout the development and/or implementation of POAS and pasture management plans. (UCP)

Component 3: Mainstreaming CCA strategies into agro-sylvo-pastoral sectoral policies, programs and development frameworks at the national and local level.

This component will support the mainstreaming of CCA into agro-sylvo-pastoral sector policies, programs and planning strategies through a two-pronged approach:

- i) high-level awareness raising activities and training of decision/policy makers towards the definition of CCA agendas that are integrated into sector level programming ; and
- ii) the establishment of a "national climate change resilience fund" to support local CC adaptation activities and to improve farmers/herders access to innovative and improved technologies.

Output 3.1.1: Awareness-raising modules for policy makers are developed and institutional capacities are strengthened to mainstream CCA in policies, programs and projects.

The analytical results of components 1 and 2 of the project and the studies on resilience and CCA issues will be used to prepare policy briefs, realise relevant communication videos, feeding websites and use social networks to raise the awareness of key stakeholders policymakers (MAER, MEDD, MEPA, EESC, CSOASP, National Assembly, etc.) on CCA approaches that aim to improve local and national agricultural policies and strategies.

Furthermore, based on a joint assessment with the national partner ministries (MAER, MEDD, MEPA, MEF, etc.), the project will identify the strengths, weaknesses, obstacles and opportunities related to CC in the national current policies and programmes. The gaps will be filled by strengthening the capacities of institution experts and policy makers to design those cross-sectoral policies that address CC issues (Y1and Y2 of the project).

Finally, a coordination mechanism via a consultation platform will be set up within the SNCASP/FNDASP from Y2 onwards. To ensure the integration of PO concerns in policy decisions, the platform will strengthen their involvement in political consultations in the formulation and development of policies and agro-sylvo-pastoral development programs and projects. The platform will have the role of organizing participatory workshops with decision makers, institutional stakeholders and PO representatives to assemble the political needs and proposals of local institutions and community representatives. The operating mechanism and roles of the consultative platform will be defined on the basis of a Memorandum of Understanding (MoU) with ministerial department partners with annualized objectives and a four year work plan. Coordination exists at two levels - national and municipal - and takes into account the policies formulated within the framework of the territorialisation of public

policies that are emerging across the country following Act 3 of the national decentralization policy⁴³.

Baseline: Although many initiatives exist in terms of integrating CCA concerns into projects and programs, they are not always systematized to follow-up CCA issues. Among them are activities such as sustainable land management, development of pastoral units, reforestation, improving fireplaces, diversification and the use of good agricultural practices for adapted short cycle varieties, the rice intensification system, water control and small local irrigation, agricultural insurance, the use of climate information, etc. However, the low capacity of institutional stakeholders and policy makers in considering CCA, resilience to CC as well as the low level of coordination among institutions make up blocking factors. For example, the main agricultural advisory structures (parastatal) ANCAR, SAED or SODEFITEX hardly consider the subject in their action plans.

Outputs indicators:

- i. A note on the capitalization of project results is made;
- ii. At least two “policy briefs” and two documentary videos are produced and distributed, the website is built and powered and social networks are used;
- iii. The identification report of gaps and inconsistencies in inter-institutional competencies and the assessment report of capacities and deficiencies in the formulation of CC adaptation policies are available, discussed and validated in a national workshop (end of Year 1);
- iv. The consultation platform is set up and operational (Year 2) and the Memorandum of Understanding and four year work plan is discussed, validated and signed with FNDASP;
- v. At least two participatory workshops with decision makers, institutional stakeholders and representatives of POs are organized to share community needs and identify measures to be included CCA in policies, programs and projects at the end of Year 2 and in Years 3 and 4;
- vi. At least 50 inter-institutional decision makers, stakeholders, PO leaders and viewpoints will be trained in the design and formulation of public policies and strategies for better management of the CCA in sector policies during Year 3 of the project;
- vii. At least two sectoral policies have incorporated CCA proposals at national and municipal levels⁴⁴ by the end of Year 3 of the project.

Activities will include:

- Capitalizing project results (UCP);
- Preparing “policy briefs” and making videos for decision makers (CCP);
- Supporting websites and using social networking sites (UCP);
- Identifying gaps and inconsistencies in inter-institutional skills and assessing capacities and deficiencies in the formulation of policies on CC adaptation; (UCP)
- Establishing a consultation platform within the SNCASP/FNDASP with roles and operating mechanisms defined and including a Memorandum of Understanding and a five year work plan; (UCP)

⁴³ The Government of Senegal took the irreversible option to commit to a major overhaul of its territorial action, proceeding to Act III of decentralization which ultimately aims to “*organize the Senegal into viable and competitive territories that can achieve sustainable development.*”

⁴⁴ Act III of decentralization advocates full communalization.

- Organizing participatory workshops with decision makers, institutional stakeholders and representatives of POs to share community needs and identify key CCA measures to be included in policies, programs and projects; (UCP)
- Developing and formulating training modules to build the capacity of officials in the implementation of policies and strategies for better recognition of CCA in sectoral and intersectoral policies on the basis of a resilience analysis models developed by the High Level Inter-Sectoral Group and the FAO; (UCP)
- Formulating proposals for the integration of the CCA in political, national and municipal programs and projects. (UCP)

Output 3.1.2: The establishment of a high-level intersectoral group to define and adopt the agenda of CCA activities and resilience to integrate into policies, programs and projects.

The existing sectoral coordination mechanisms are identified, diagnosed and evaluated in terms of strengths, weaknesses, obstacles and opportunities in the institutional governance of agricultural and rural sustainable development and climate change at national and local levels in terms of the partners involved (MAER, MEDD, MEPA, regions). Moreover, the National Agricultural Investment Plan in Senegal will be reviewed with a view to integrate aspects of CC-sensitive agriculture. Using the consultation platform, the recommended actions will be debated, shared and validated. Following this NAIP “re-greening”, the project will identify the investment requirements for the implementation of recommended actions and discussions to mobilize financial resources to invest in the CCA projects of project partners.

Baseline: Several existing planning and cooperation frameworks take on the role of ensuring the integration of environmental considerations and sustainable development into economic and social development policies (CONSERE, CNDD COMNACC, CSOASP, etc.). However, most of these frameworks have remained slow-moving, failing to carry out the missions that were assigned to them to ensure the integration and promotion of CCA at the time of design as well as during the development and planning of sectoral policies for economic and social development. Moreover, this slow-moving situation has not favored the multisectoral and multidisciplinary collaboration needed in the CCA care.

NAIP has assessed the required funding needed by 2020 to boost the development of agriculture (crop production, animal production, fisheries and the environment) in accordance with the Maputo Declaration and achieving MDG 1 by 2015. It will converge national resources and resources from Technical and Financial Partners (TFP) for national development priorities in accordance with the Paris Declaration. For its operationalization, an Investment Plan in the amount of 1.346 billion CFA francs covering the 2011-2015 period was developed and validated with a remaining gap of 672 billion CFA francs to cover. The state has committed to contributing up to 32.2% or 433 billion FCFA francs. However, CCA activities and resilience are not clearly specified, which suggests a low consideration of these issues in future funded projects and programs.

Outputs indicators:

- i. The diagnosis of the devices in charge of political dialogue (CONSERE, COMNACC, CNDD, CSOASP) on agro-sylvo-pastoral development and inter-sectoral coordination in the inter-institutional governance of climate change is developed, discussed and validated during a workshop (Year 1 of the project);
- ii. The draft texts of inter-institutional coordination mechanisms at the national and local level are prepared and/or updated, discussed and validated at workshops and

- introduced to administrative signature routes and were signed by the end of Year 2; and
- iii. Inter-agency coordination mechanisms at the national and local levels as well as operations are functional through support for their operation provided by the project: at least two national meetings (Y2) and at least six local meetings (Y3 and Y4).

Activities will include:

- Identifying strengths, weaknesses, obstacles and opportunities of the mechanisms responsible for agro-sylvo-pastoral development political dialogue and inter-sectoral coordination in the institutional governance of climate change;
- Preparing and/or updating the draft texts of the intersectoral coordination mechanisms;
- Organizing sharing workshops and the validating draft texts at national and local levels; and
- Supporting the operation of these institutional governance arrangements.
- Identifying investment needs to support the growing awareness of CCA through field schools;
- Reviewing the National Agricultural Investment Plan by incorporating aspects of CCA;
- Educating national institutions on the consideration of CCA in their budgetary planning frameworks.

Output 3.2.1: A "National Resilience Fund" is created through an open window at the level of existing funds.

As the FFS producers supported by the project have limited access to the existing funding mechanism through the National Agricultural Credit Fund of Senegal (CNCAS) that provides most loans to finance agricultural campaigns, it seems clear that the lack of access to credit can be a barrier to climate resilience. The LDCF project plans to remove this obstacle by creating a national resilience fund that will exclusively finance the activities of the action plans of producer organizations and municipalities. This fund will operate on the basis of a revolving credit scheme through a financial entity to be attributed after the diagnosis and in-depth analysis conducted in the first year of the project. The fund will provide access to credit to producer organizations to support community initiatives for the CCA.

Baseline: The Support Fund for Local Adaptation Strategies (FSSA), launched in 2009 by FDI Africa, demonstrated that there is potential for leadership as well as technical and institutional innovation at the local level. POs were able to directly manage grants to implement their development plans that were conditional on support. However, the major challenge remains in municipalities where CCA is very poorly reflected in local development plans. As such, capacity building among elected officials and advisors in terms of CCA and planning will be integrated into the Fund.

Regarding the whereabouts of funds, Senegal's agro-sylvo-pastoral sector has many funds such as: (i) the National Fund for Agricultural Research and Agri-Food (NARF), which funds agriculture and food research programs on a competitive basis; (ii) the Fund for Support to Rural Sector Development (FADSR) that finances actions for the modernization and intensification of farms and young farmers; (iii) *fonds de Stabulation* (FONSTAB) that support the livestock farm modernization process and (iv) the National Fund for Agro-Sylvo-Pastoral Development (FNDASP) which funds, on a competitive basis, the agro-sylvo-pastoral board, the training of producer organizations as well as support and sector structuring. The LDCF Fund could be housed within one of these funds according to the results of the analysis performed early in the project.

Outputs indicators:

- i. The diagnosis report and analysis of existing funds is developed, discussed and validated in Year 1;
- ii. The negotiations and the implementation protocol terms of the Fund are conducted and discussed and the draft texts are also developed, discussed and validated in the second half of Year 1; the documents signed by the Government and decentralized local authorities at the end of Year 1;
- iii. The Fund is operational in the winter of Year 2 of the project and includes resources for strengthening the capacities of municipalities and POs, potential project promoters; and
- iv. The Government and at least two technical and financial partners, who have expressed strong commitment to replenish the funds, double the funds by the end of Year 3 of the project.

Activities will include:

- Conduct technical workshops on sharing and validation;
- Prepare the promotion and operationalization of funds;
- Identify common needs of capacity building among municipalities and PO to integrate CCA aspects into their planning;
- Support and conduct awareness campaigns and advocacy for raising Fund contribution funds.

Component 4: Project monitoring and evaluation

The objective of Component 4 is to ensure a systematic results-based monitoring and evaluation of project progress. Thus achieving project outputs and outcome targets that are established in the Project Results Framework, as well as promoting the wider dissemination of project information, data and lessons learned for replication in other areas.

Output 4.1 System for systematic collection of field-based data to monitor project outcome indicators made operational

The National Project Coordinator (NPC) will be responsible for preparing a Project Progress Report (PPR, six-monthly) in close cooperation with the PSC and the PCU. The PPR includes the project results framework with project output and outcome indicators, baseline, and six-monthly target indicators, the risk matrix monitoring, and identification of potential risks and mitigation measures for unexpected risks reduction.

On an annual basis, the Lead Technical Officer (LTO) in FAO will prepare the Project Implementation Report (PIR). The PIR includes the project results framework with project output and outcome indicators, baseline and yearly target indicators, the monitoring of the risk matrix, and identification of potential risks and mitigation measures to reduce those unexpected risks. The LTO will be supported by the NPC and PCU.

Output 4.2 Midterm and final evaluation conducted

After 24 months of project implementation, a mid-term project review will be conducted by an external consultant, who will work in consultation with the project team including the FAO-GEF Coordination Unit, the LTO, and other partners. At the end of project implementation, a final project evaluation will be conducted by an international external

consultant under the supervision of the FAO Independent Evaluation Office, and in consultation with the project team including the FAO-GEF Coordination Unit, the LTO, and other partners.

Output 4.3 Communications strategy developed

Project-related “best-practices” and “lessons-learned” for enhanced adaptation to climate risk of the agricultural sector are disseminated via publications, project website and others.

A communication strategy will be developed to promote project visibility, knowledge sharing, and “communication for development”. The latter refers to use of specific communication tools to develop key messages to target community and national levels to support the attainment of project objectives). Tools for the communication strategy will include participatory rural radio programmes, participatory videos, Community Listeners’ Clubs, articles written for local newspapers, journals and websites, as well as articles written for international websites including the project website, scientific articles, and presentations at conferences, TV reportage on national TV, and more.

In the first year of implementation, a webpage will be built within the existing IPPM programme website, hosted by FAO. The website will be maintained and updated by Project staff during Project implementation in order to share experiences and lessons learned.

Over the course of the Project, at least five publications will be issued on best practices and lessons learned through the Project. All publications will be uploaded on the Project website, and will be distributed through printed and electronic copies to local partners and government.

3.5. Global Environmental Benefits/Advantages of Adaptation

The proposed project will generate the following **adaptation benefits**: (i) increased knowledge and understanding of CC-induced threats ; (ii) adoption of CCA best practices and introduction of CC resilient varieties and cultivars such as : millet (4 varieties in 3 ha), sorghum (3 varieties in 2 ha), cowpea (3 varieties in 3 ha) peanut (5 varieties in 5 ha), corn (4 varieties in 4 ha), sesame (4 varieties in 3 ha) in targeted production systems through the FFS/AFPS/CLC networks ; (iii) provision of tools and training for 15,000 farmers and 10,000 agro-pastoralists to increase resilience and improve their capacity to adapt to CC through : a) a network of at least 1,250 FFS (750 FFS and 500 APFS); (b) links to a growing network of institutional stakeholders incorporating improved CCA strategies, and CC resilient practices including 17 targeted communities, five ministries, an ecological monitoring centre and three national agencies, (c) partner projects and/or governmental programs actively involved in up-scaling CCA practices including improved soil, crops and herd management practices; (iv) the implementation of a “CC resilience fund” supporting farmers’ and herders’ CC adaptation activities ; (v) mainstreaming CC into agricultural policies and programs and increasing institutional capacity at national level to develop CCA policies, strategies and programs.

CCA activities will particularly focus on the diversification of farming systems, promoting the introduction of sustainable forest management practices such as agroforestry and encourage increased adoption of improved soil practices, seeds diversification (CC resistant variety and varietal selection), water and predator management, small livestock management (small ruminants and poultry flocks), introduction of multipurpose gardens Training on diversified income generating activities (IGA) such as poultry farming and beekeeping, , marketing strategies and warrantage will generate additional resources towards economic growth (resulting in economic resilience and improved nutrition). Once transposed to a larger

scale, these changes will reduce vulnerability to external shocks (socio-economic conditions, natural disasters) and improve livelihoods.

The project will directly support at least 25,000 farmer-herders in developing and adopting new CCA approaches, practices and introducing CC resilient varieties/cultivars that will reduce risk and increase the adaptive capacities of vulnerable communities. . The project will also directly contribute to improving institutional capacities at multiple levels - indirectly leading to improvements in terms of gender and nutrition. Improved access to and processing of agro-meteorological information and knowledge management and exchange systems, as well as improving farmer/herders access to credit and markets will contribute to reducing the vulnerability of approx. 150,000 people living in vulnerable targeted areas.

In addition, the project will support the adoption of improved practices for natural resource management in 140,000 hectares by promoting:

- a) Rangeland management based on intensively and semi-intensively grazing techniques;
- b) Sustainable agricultural land use in staple crops production systems (rice, millet, cowpea, groundnut and vegetables) and in fodder production;
- c) Assisted natural regeneration of highly degraded rangelands - therefore reducing the pressure on land (while contributing globally to sustainable land management in a significant way) and increasing an environment favourable to biodiversity.

It is expected that the project will indirectly lead to duplicative effects and the following multipliers:

- In supporting the establishment of a dynamic network of field schools (while integrating and strengthening the existing one), the project will indirectly affect the extension system used in Senegal. In particular, it is expected that through this support, local and national interventions in agriculture and livestock will (i) better integrate adaptation to climate change, thereby greatly contributing to overall adaptation in the agricultural and sylvo-pastoral sectors, and (ii) lead to the adoption of a more integrated ecosystem approach, as opposed to focusing on unique crops. This will lead to improved land management, reduced land degradation and the likely conservation of unique species and varieties.
- By empowering field schools and supporting dissemination into neighbouring communities, the project will indirectly affect the implementation of several rural development projects, particularly in the agricultural sector. This should have a strong multiplier effect in terms of increased resilience to climate change and variability. Although there are no specific indicators in terms of impact on the population/by ha, these processes will be followed.

3.6. Cost – Effectiveness

Cost-effectiveness is a concept that is built into the LDCF/GEF programming strategy. LDCF/GEF funds the "additional costs" of achieving adaptation to climate change, meaning that activities of the partners' in the baseline cover most of the basic development and agro-sylvo-pastoral, gender, nutrition and IGA issues. For this project, this means that FAO/LDCF/GEF project builds on top of a large baseline of natural resources management, food security, livestock, and pastoralism and agro-forestry projects. With a baseline and co-financing of approximately USD 24,607,385, the FAO/LDCF/GEF costs represent about 20% of the entire project costs. This means that for every dollar invested, FAO/LDCF/GEF gains almost four dollars of impact.

Cost-effectiveness is also at the heart of the FAO strategy to support rural development (SO2) and strengthen the resilience of vulnerable populations (SO5) in Sub-Saharan African countries such as Senegal. The design of the proposed project is expected to be highly cost-effective as it relies on the existing structures of the FFS already operational in Senegal, and on ongoing activities with similar goals and synergies with existing programs.

The proposed project also builds directly on previous collaborations between FAO and Senegal on FFS (1366 FFS established through the IPPM program). FAO has conducted FFS activities in Senegal since 2001, supporting the government's priority of improving agricultural productivity and competitiveness. On this basis and through the IPPM program, FAO has created core capacity of technical expertise and experience. This includes legal and technical capacities within government structures as well as the FFS national experts who have worked on previous FAO projects and on which the project will capitalize.

In addition, the FFS approach itself has demonstrated its cost effectiveness in many contexts, including Senegal. It is a way to provide high quality technical advice to a large number of Communities. Under the Outcome 2 of this project, about USD 4M of FAO/LDCF/GEF funds, direct benefits will reach a minimum of 25,000 agro-pastoralists. This is about USD 156 per farmer-herder.

To achieving this cost-effectiveness with FFS, it is crucial to work with local partners. FAO will channel the project funds to local authorities and NGOs already active in similar activities in the same project intervention area. Therefore, there will be little start-up costs and few costs to mobilize expertise outside the region or country.

Several alternative methodologies and approaches have been considered for cost effectiveness during project design. These alternatives included focusing on providing more equipment (e.g. beekeeping support) and inputs (e.g. improved seeds), or concentrating all capacity development efforts on state services, development agencies and country extension services, or installing an adequate number of rain gauges, or by FAO directly providing extension services to farmer-herders.

The project also intends to limit the role of international consultants, using them only if there is a lack of availability of national expertise. This will lower both travel costs and the cost of consultancy fees. However, when international expertise is unique or exceptionally credible, it will be utilized.

3.7. Project Innovations provided by the Project

Building an environment that encourages innovation is the purpose of the FFS approach and Community Listeners' Clubs (CLC). Non-formal educational methods and collective participation encourage a socially healthy environment. Everyone is encouraged to participate and share ideas with an explicit focus on gender. Existing indigenous knowledge is sought, valued and tested along with newly introduced ideas. Discussion, debate and experimentation are at the heart of the field school approach. Conducting experiments in community field school plots offers a zero-risk environment where farmers can test new ideas with no fear of loss.

Continuous innovation is ensured by the FFS approach that collects multidimensional data including on nutrition, gender and Income Generating Activities (IGR), among others. The FFS approach is a "grass-roots laboratory", evolving in time and space, where farmers can increase and develop their knowledge base and enhance their capacities by comparing the technical options available. This is particularly suitable considering the need for evolving knowledge to understand CC impacts. With additional funding from the LDCF, the proposed intervention will expand the scope of the activities carried out in the country related to the increased resilience of the agro-sylvo-pastoral sector to climate change and contribute to reducing the vulnerability of smallholder farmers, herders and pastoralists, through the FFS approach which ensures the continuous updating of the information base needed to address CC.

In general, past experiences with FFS projects in the sub-region show that sustainability of the field school approach requires investment and time. The adoption or the "institutionalization" of these educational approaches comes only after the sustained involvement of stakeholders at multiple levels, during which the benefits of the approach become evident, leading to increased demand for activities. The experience of the FFS projects in West Africa show that with time, good advocacy and attention to strengthening partnerships at various national, regional, and local levels, it is possible to increase FFS to a number higher than that prefigured as the target goal. At the community level, practices that lead to clear benefits for farmers and that are profitable tend to spread from farmer to farmer. In many countries in the sub-region where the field schools are active, statistics show over a 90 percent reduction in the use of toxic pesticides, linked to an increase in production, while only a fraction of farm households were trained on this. Dissemination (farmer to farmer) and the adoption of the approach help increasing numbers. . To enable this diffusion, the project will set up networks of trainers and trained farmers (facilitators) and strengthen the links with all interested stakeholders.

In Sub-Saharan Africa, women represent nearly half of the agricultural labour force. These women often lack access to knowledge, capital goods, inputs, technologies and decision-making skills needed to increase agricultural productivity and the income of their families. Investing in rural women - and ensuring they have access to resources and are able to control them - can produce the best returns on investment in terms of poverty, food insecurity and malnutrition in the communities, especially among the most vulnerable such as youth and the elderly. In this context, the project and the experiences gained elsewhere will work to empower women through CLC and will capitalize on the achievements of the IPPM program on gender. This involves ensuring that the gender approach is well integrated within its operational strategy (from planning and design to implementation and evaluation) to training stakeholders and encouraging greater awareness and more exchanges on issues related to gender. Participatory community approaches such as CE and CLC are used to inform

decision-making and to ensure that activities are more inclusive and balanced in terms of gender – for women. By encouraging the fair representation of women in FFS, APEC, CLC and training facilitators, the project will enable greater visibility of women in agriculture and will promote positive changes in attitudes, behaviours and practices. The FFS/CEAP and CLC approaches, which promote the sharing of information and knowledge, also enable women to develop leadership skills; the learning-by-doing environment can strengthen women's skills in critical thinking, decision-making and communication. Furthermore, FFS, especially when combined with community listeners' clubs, can provide an excellent entry point to discuss the roles assigned to each sex and to raise awareness locally on existing gender disparities. The knowledge-sharing device foreseen to connect local groups with mobile operators for access to climate information will be a voice message. This should ensure the sustainability of activities to the extent that farmers in need of climate information will be willing to pay for access and adapt their farming practices for seasonal forecasts.

Up-scaling successful CCA experiences, especially like that in Mali (2012 - 2014), helps capitalize on the results achieved by the previous FAO LDCF/Mali project while strengthening South - South cooperation between countries with significant environmental, social, agro-sylvo-pastoral and climate similarities. This Cooperation will translate to a network of master trainers who will train new trainers and facilitators in Senegal on adopting innovative CCA practices. On the other hand the project is inserted in what is being done currently to eliminate a deficit considered a key instrument for implementing the goals of the partner project (cofinance project) in the context of CCA. It is at this level that the project identified in each area, a technical partner that is already involved in the implementation framework of activities that need better integration of CCA, to achieve objectives and have the desired impact on resilience to CC of rural populations.

Finally, the attempt to also integrate CCA into Senegal's investment plans, which are managed by the Ministry of Finance, a non-traditional player in CCA action implementation, can be a highly innovative aspect in terms of project facilitation for accessing the resources and funds necessary for the protection of the environment and strengthening the resilience of vulnerable populations.

SECTION 3 – Feasibility (fundamental dimensions for high quality delivery)

3.1. Environmental and Social Impact Assessment

The FAO plays a front line role in sustainable agriculture by promoting the protection and sustainable use of natural resources, all while attempting to ensure a growing society's need for decent and resilient livelihoods. The FAO, along with Senegalese State organisations, project partners, civil society and the agro-sylvo-pastoral producers, is committed to monitoring activities and actions which contribute to environmental and social development and to presenting an integrated framework which guarantees a constant level of quality in the project. Based on the below assessment of Project Outcomes this project does not pose any significant risk as no adverse environmental or social impacts are likely to occur. Conforming to the FAO's guidelines on Social and Environmental Management, this project is classified under category Low risk (see Appendix 5; E&S Screening Checklist), and as a result does not require neither a full scale environmental and social impact analysis nor assessment .

The environmental and social considerations are elaborated on an outcome-by-outcome basis as mentioned in the following paragraphs:

Outcome 1.1: *Increased understanding and capacities to systematically gather and disseminate agro-climatic data to identify and improve best CCA practices and innovations in targeted agro-ecological zones.*

The effects of climate change expose the populations in the project target areas to real and potential risks, which, added to the risks linked to socio-economic limitations and their ever present vulnerable situation, disrupt the agro-pastoral production activities, their way of life, and in some cases, lead to great losses.

The project will involve the strengthening of local Multidisciplinary Work Groups (GTPs) as well as the national GTP so that accurate and updated climate and meteorological information is valued and taken into account in national planning and decision-making processes. The pilot trials for new technologies and existing or proposed methods are at the heart of this outcome, which will therefore involve improving the environmental capital in the targeted areas and towards a positive environmental impact.

Outcome2.1: *The agro-climatic information, is disseminated and improved CCA practices and innovations are adopted by agro-pastoralists; and **Outcome 2.2:** Household incomes and agricultural and livestock productivity of FFS/AFPS CE participants have increased through the use of CCA practices, agro-meteorological information and improved crop and beef production value chains:*

The activities proposed under Outcome 2.1 and 2.2 aim at developing, disseminating and improving the understanding and identification of most suitable CCA methodologies, measures and practices for agro-sylvo-pastoral productions. Activities will be tailored to specific realities on the ground through community based self-assessments, participatory trainings (FFS), and pilot testing of proposed new technologies and practices proven to be successful in the region (GCP/MLI/033/LDF project in Mali, and the INTAC project in Senegal). Adoption of these practices by producers will improve the environmental and social capital of the targeted areas.

The integration of CCA priorities based on specific elements of the local ecosystems and production systems in the project area represents a positive environmental element. The

development of IGA (Income Generating Activity), the sustainable management and use of Pastoral Units (PU) and the creation of POAS (Occupation and Allocation of Soil Plans) will reduce pressure on natural resources while promoting the sustainable management of scarce resources.

Practices for the integrated management of soil, the introduction of adapted, more productive varieties of plants (climate resilient seeds), the integration of vegetable crops, of fruit trees, of forest agriculture, of small ruminants, and short cycle, small holdings, will enhance the conservation and promotion of significant genetic biodiversity.

Under no circumstances, intensive agriculture or livestock farming will be introduced and all introductions will be fully in line with carrying capacities and environmental limits. In the event that exotic seed varieties will be introduced, these will first be subject to a rigorous process of evaluation by the FAO.

Thanks to FFS/APFS approaches and in particular to the introduction of CLC, the project will promote the empowerment of women and men (including youth) in the rural environment. This will subsequently strengthen the gender aspect; provide better access to information and lead to a strong participative communication approach to rural development. The CLCs help rural populations to become agents of development. Collaborating with rural radio stations which encourage and broadcast village level discussions, the CLCs have become agents of change in the sylvo-pastoral- agricultural sector as well as in other areas, including men and women's rights, youth employment, HIV/AIDS, underage marriage, or the rights of women to inherit land. The project will contribute, in a significant way, to strengthening the socio-economic status of rural populations, of Producer Organisations (POs) and family farms.

The project will also strengthen the efforts made to increase the social and human resilience of communities. The strategy focuses on valuating, promoting and taking advantage of local know-how, and knowledge exchanges between producers or between producers and service providers, through Field Schools (FFS) and GTPs, to expand research on and the vulgarisation of best practices. The project will also promote dialogue on the shared management of natural resources and the prevention of conflicts.

Outcome 3.1: *CCA is integrated mainstreamed into policies, strategies and national programs and evolves from reactive response to a proactive approach., shifting from a reactive response to a pro-active preparedness approach ; and* ***Outcome 3.2:*** *A "national CC resilience fund" is set up in place within an existing funding mechanism to support local climate adaptation CCA activities.*

The activities supported by the project will put in place a program for monitoring and evaluating climate change vulnerability to inform decision making on agriculture and food security. In-depth investigations and evaluations will be undertaken using a variety of investigation tools. The activities, as part of these direct effects, will be concentrated on the integration of issues linked to climate change and adaptation measures in national policies and strategies. This will be done through lobbying, consultation, investment and raising awareness. There will not be negative direct impacts on the environment nor on the populations involved. The activities aim, de facto, to promote and institutionalise methods, measures and practices which will have a positive impact on the livelihoods, the natural resources and the environmental capital of the region, and therefore improve resilience to climate change. Additionally, the fund established will direct resources to POs and

municipalities allowing them to include and budget for CC related actions within their action plans.

Outcome 4.1: *project implementation based on results-based management and application of project lessons learned.*

The project will elaborate annual action plans defining roles and responsibilities of all the stakeholders involved in project implementation. The project will also monitor and evaluate the overall project performance in achieving expected outcomes and outputs and in implementing FAO's environmental and social standards. This will be done through the definition and implementation of a quality assurance system.

3.2. Risk management

Table 5 : Risks and mitigation measures

Risks	Rating (High, Substantial, Moderate, Low)	Mitigation Measures
Probability of increased occurrence of more severe droughts, especially in the South, which may affect crop and livestock cycles and increase food/nutritional insecurity	M	The risk will be addressed through the implementation of policies and programmes to reinforce pro-active and coordinated responses and developing plans for rangelands management and by fostering community capacities to anticipate CC related threats. In addition, the project will prioritize the selection of drought-resilient crops to cope with climate change.
Farmers / herders conflict	M	Reinforcing protocols on Chartes and management arrangements, ensuring that the rights of each stakeholder are preserved and duties defined, will be the mitigation measure to cope with this risk.
Reluctance to endorse and participate in the project activities from communities and stakeholders	L	An approach strictly based on local farmers / herder's participation, specifically through FFS and APFS, and which takes into strong consideration socio-cultural aspects of local communities, reduces risks. In addition, demonstrative events such as achievements on the ground that bring benefits to local producers and show loose reduction from adaptation activities, will contribute to mitigating the risk and overcoming scepticism.
Seed shortages due to extreme weather events, prolonged droughts, or pests and diseases outbreaks with risk of crop/grassland failure	M	The project will address by systematically linking the adoption of CCA measures and fostering of community-level field observation capacity to reduce seed multiplication failures, particularly with specialized seed multiplying farmers.
Limited capacity and reluctance/slowness by local and	L	By mobilizing and articulating the capacity of different actors, projects and programs to

national institutions to actively participate		work intensively with Government and gradually transfer skills to government institutions, and through capacity building of national program managers and awareness-raising activities addressed to policy-makers, the risk will be strongly reduced.
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Analysis of fiduciary risks and mitigation measures

Not required as this is not a NEX project.

SECTION 4 – Implementation and management arrangements

4.1. Institutional Arrangements

The Ministry of Agriculture and Rural Equipment (MAER) is responsible for providing policy and technical support to rural areas on agriculture in Senegal. MAER's main role is to develop and implement the national agricultural policy in the country.

The key technical departments in MAER that will be involved in project implementation are the following:

- **The Directorate for Agricultural Analysis, Forecasting and Statistics (DAPSA)** – responsible for the coordination, planning, monitoring and evaluation of all projects in the agricultural sector;
- **The Directorate for Plant Protection (DPV)** – responsible for a defence and protection system for plants;
- **The Agriculture Directorate (DA)** – responsible for implementing national strategies and policies on agricultural production and development as well as checking and regulating seeds and food security;
- **The Directorate for Retention Pools and Artificial Lakes (DBHLA)** responsible for the implementation of national strategies and policies on using water for agricultural use;
- **The Horticulture Directorate (DHORT)** – responsible for the implementation of national strategies and policies on the production and promotion of high added value crops in the horticultural sector. It also promotes micro gardening as part of income generating activities and to combat poverty in the rural and semi-urban environment;
- **The Regional Directorate for Rural Development (DRDR)** – responsible for the operationalization of national policies and strategies at a regional level;
- **The National Agency for Agricultural and Rural Council (ANCAR) and its Zone departments (ZD)** – which provide agricultural and rural advice and direct technical support, when requested, to local authorities, to communities and to farmers;
- **The National Agro-Sylvo-Pastoral Development Fund (FNDASP)** – responsible for financing, on a competitive basis, agricultural and rural advice services on requested, and for financing the training of producers and the structuring of their organisations;
- **The Senegalese Institute of Agricultural Research (ISRA)** – the main agricultural research and development agency of the country.

The Ministry for livestock and animal industries (MEPA) is responsible for providing policy and technical support to rural areas on all issues related to livestock production and management. The key technical units in MEPA are:

- **Planning and Studies Unit (CEP)** – responsible for coordinating, planning, monitoring and evaluating all livestock sector projects;
- **The Livestock and Animal Industries Directorate (DEPA)** – responsible for the development and modernisation of animal industries;
- **The Veterinary Services Directorate (DSV)** – responsible for animal health and veterinary legislation; and
- **The Regional Inspection of Veterinary Services (IRSV)**, which provides direct technical support to local authorities, to farmers and herders and promotes the integration of agriculture and good livestock management practices.

The Ministry for the Environment and Sustainable Development (MEDD) is responsible for implementing the UNFCCC and for providing technical support to rural areas. A key

stakeholder within MEDD is the **Directorate of Environment and Classified Establishment (DEEC)** which monitors the implementation of NAPA.

The Ministry for Regional Planning and Local Collectives (MATCL) was established in 2009 and is in charge of decentralization.

Other key implementing partners include:

- **The Ecological Monitoring Centre (CSE)** is an environmental institution. It is dedicated to genomics and ecological data observation in Senegal. CSE is responsible for managing the adaptation fund in Senegal. Through the « environmental evaluation and risk management » program, CSE provides support to various government agencies and research institutions on issues such as environmental impact assessment, monitoring and evaluation.
- **The National Agency for Civil Aviation and Meteorology (ANACIM)** is the civil aviation agency of Senegal, responsible for collecting meteorological data and providing forecasts and models for climate change.

4.2. Implementation Arrangements

Roles and responsibilities of the executing partners

The FAO will be the GEF Agency responsible for supervision and provision of technical guidance during the project implementation. In addition, the FAO will act as executing agency, and will deliver procurement and contracting services to the project using FAO rules and procedures, as well as financial services to manage GEF/LDCF resources. The technical execution of the project will be supported by the Government of Senegal represented by MAER.

The MAER will be the lead government counterpart and the main project executing partner. The FAO will execute the project as requested by the government of Senegal in close cooperation with the MAER and the other project partners. Other technical executing partners include the MEPA, MEDD, MATCL, ANACIM and CSE.

The roles and responsibilities of the main institutional units involved in project implementation are the following:

National level

The **Directorate of Environment and Classified Establishment (DEEC)** is the GEF Operational Focal Point of Senegal responsible for coordinating the programming of GEF resources and overseeing Senegal GEF portfolio with the GEF Agencies.

MAER will be the **main Project Executing Partner** directly responsible for technical implementation of project activities of all project components, as well as day-to-day monitoring. The Minister of Agriculture or his representative will chair the Project Steering Committee (**PSC**) and annual project review and planning meetings. The FAO will sign a Government Cooperation Project (**GCP**) Agreement with the MoA. The GCP Agreement will outline the roles and responsibilities of the FAO and MoA including legal aspects of collaboration such as responsibilities for facilitating inputs, copyrights among others.

MEDD will provide technical support in all project activities involving the management of natural resources and sustainable development, including: support for institutionalising the field school (FFS) approach in national extension programmes and facilitating the development of climate change adaptation projects.

MATCL will provide support for the implementation of a coordination mechanism with local councils and the plans and programs connected to the project – consistent with the national decentralization process.

CSE will be primarily be involved in the implementation of component 1 and will provide technical support across project components.

ANACIM will provide agro-meteorological data and coordinate the processing and dissemination of agro meteorological information towards the achievement of Component 1 and Component 2.

Regional/Municipal level

At the regional level, the regional directorates of agriculture (RDA) and regional directorates of livestock (DDL) will be the institutional focal points for the project from MoA and MoL. Both institutions will designate a focal point in each region among internal staff. Institutional Focal points will provide important links to other initiatives in the region and will provide technical support to project field activities and will participate in field supervision missions. These institutional focal points, attached to regional directorates, will be provided by the government as in-kind co-financing. Other in-kind co-financing will include one vehicle per target region (5 vehicles in total) and office space. The technical staff will, in turn, benefit from specific capacity building activities.

Municipal/ Regional Level

At the **regional** level, the Regional Departments for Rural Development (DRDR), the Regional Inspections of Veterinary Services (IVRS) and the Zone Departments (ZD) of the National Agency for agricultural and Rural Council (ANCAR) will be the institutional focal points for the project from MAER and MEPA.

The salaries of these focal points, their operational costs, their offices and the supply of one vehicle per target region (five vehicles in total) will represent the Government's in-kind contribution. The two institutions will designate a focal point for each region from amongst their internal staff. The institutional focal points will represent an important connection with the other initiatives in the region. They will offer technical support for project activities in the field and will participate in monitoring missions. In return, the focal points will be appropriately trained and have their skills strengthened.

At the **municipal level**, the 17 municipalities will each provide office space and technical support from their staff. Each municipality will designate a focal point among internal staff.

In this Project, at the **grass-roots level**, support to farmer-herders through the Field School approach will mostly be delivered by local NGO and Associations that are already active in the targeted areas. A preliminary list of potential NGO's, CBO's and Associations is listed in the table below (see Table 6).

A letter of agreement (LoA⁴⁵), will be signed between the FAO and its partners (service providers). The LoAs will be administratively managed by the project budget holder (the representative of the FAO in Senegal). The funds received by the service providers, as part of the LoA, will be used to carry out project activities conforming to the rules and procedures of the FAO. These LoA will be listed under the budget section « Contracts » in the project budget. The LoAs proposed are summarised in the table below.

Table 6: Preliminary Letters of Agreement (LoA)

Activities Component 1	Potential Partner Institutions
Analysis of threats, opportunities and limitations due to climate change and proposal of an integrated CCA strategy by specific project area.	ANACIM (The National Agency for Civil Aviation and Meteorology) and CSE (Centre for Environmental Monitoring)
Strengthening management tools and information systems used by the national GTP (Multidisciplinary Work group) and put in place by local GTPs	ANACIM
Putting in place of measures and means of using and spreading information (broadcasting channel, Android tablets, computers, etc.) and Training for media staff (Community radio, private radios) on dealing with and spreading agro-meteorological information	ANACIM, CSE
Inventory of local know-how dealing with CCA	NGO (tbd)

Activities Component 2	Potential Partner Institution
Support POs in creating their development plans, integrating development priorities and opportunities around the primary areas. Help in the diversification and improvement of agro-sylvo-pastoral product quality and IGAs (Income Generating Activities).	NGO (tbd)
Scaling income generating activities, which are both promising and tested, to other projects.	ANCAR (The National Agency for agricultural and Rural Council)
Putting in place a system of warrantage, microcredit, or start up fund to protect and commercialise agro-sylvo-pastoral production.	NGO (tbd)
Strengthen the gender aspect of implementing the CLCs	NGO (tbd)
Provide POs with the skills to produce and supply seeds to members through the creation of a start-up fund and by making certified seeds available.	ISRA (The Senegalese Institute of Agricultural Research) DISEM (Seeds Distribution by the Agriculture Directorate)

⁴⁵ LoA = Letter of agreement (memorandum of understanding)

POAS (The Occupation and Allocation of Soil Plans) and the plans for managing pastureland and grazing are strengthened with the participation of local authorities and farmers and livestock rearer organisations.	NGO (td)
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Activities Component 3	Potential Partner Institution
Raising awareness amongst decision makers and training them to integrate CC aspects into policies, programs and strategies	MEDD (Ministry for the Environment and Sustainable Development) /COMNACC (National Committee on Adaptation to the effects of Climate Change)
Putting in place of a 'national fund for resilience to Climate Change' to support adaptation activities to CC at a local level	Appropriate Structure (td)
Consolidate institutional skills to develop and integrate CCA strategies into the planning of policies and programs at a national and local level.	MEDD/COMNACC
Activities Component 4	Potential Partner Institution
Supervision and Coordination of project activities at a regional level.	DRDR

Coordination with other ongoing and planned related initiatives

The project will seek to coordinate with the project mentioned in the table below (Table 7). This collaboration and coordination between different stakeholders will focus on exchanging experiences and sharing technical skills to monitor and frame the benefits.

Table 7: Connected initiatives underway and scheduled

Connected project/ program/ initiative	Implementation partner	Duration Budget Donor
<i>The Climate Change Adaptation and Food Security Program (CCAFS)</i> – financed by the CGIAR (Consultative Group for International Agricultural Research), this program promotes access to weather forecasts and their usage by producers with the aim of strengthening their adaptation skills. This pilot project is supervised by ANACIM and implemented in collaboration with the ISRA, Agricultural Development Services (AD) and producer organisations. It has led to: (i) the putting in place of a useful and useable weather forecast system for producers; (ii) the creation of a multidisciplinary work group (GTP) bringing together local stakeholders; (iii) being aware of local know-how in the weather forecasts and taking recommended steps; and (iv) the involvement of community radio in spreading available information	ANACIM (The National Agency for Civil Aviation and Meteorology)	2011/2020 CGIAR
Project to Develop livestock farming in Eastern Senegal and Casamance Contribute to reducing poverty and improving food security by ensuring the sustainable management of natural resources, all while participating in the development of livestock rearing and the implementation of high-performance production systems in the Bakel, Tambacounda, Goudiry, Koumpentoum, Kolda, Vélingara, Médina Yoro Foula, Kédougou, Saréya and Salémata departments. The project objectives are: i) to support animal production through the development of rural infrastructures and improving the use of pastures and rangeland; ii) to improve and make safer productivity in extensive pastoral livestock rearing; iii) environmental conservation, the rationalization of rangeland use, the management of natural water resources and combatting desertification, iv) the organisation and development of institutions and associations intervening in the field; v) to support cross disciplinary activities through the putting in place of micro-credit; vi) to create jobs and to contribute to increasing and diversifying sources of income in order to reduce poverty ; vii) to support food security in the project area ; viii) to improve the living conditions of the beneficiary populations and	MEPA (Ministry for livestock and animal industries)	2011-2016 USD 40M BAD/AfDB

reduce in women's workload at home through the provision of drinking water		
Participative preservation of biodiversity and low carbon emission development in pilot Ecovillages, close to protected areas in Senegal (Ecovillages) This project aims to develop and invest in new sustainable forms of access to energy, making energy usage more efficient, improving livelihoods and leading to income generating activities based on an integrated and sustainable management of land and natural resources. It has proved itself useful for putting into application an innovative model of sustainable, participative, united and citizen based ecological development. This model is based on the principle of applied ecology and of the integrated conservation of ecosystems using mechanisms to reduce greenhouse gas emissions (mitigation) but also on mechanisms to reduce the effects of climate change (adaptation). This project aims to promote sustainable development and participative conservation for the environment as a way of life that is environmentally friendly, community focused, united and responsible	MEDD (Ministry for the Environment and Sustainable Development)	2010-2016 USD 16M GEF
Support project for the National Program for Agricultural Investment in Senegal The general aim of the program is to contribute to reaching the first objective of the Millennium Development Goals, to reduce extreme poverty and hunger. This is to be achieved through an increase in agricultural production and an improvement in rural populations' income as well as through an increase in food security and the promotion of local economic development. This project aims specifically to increase the income of rural populations living, in chosen areas, thanks to an increase in and diversification of agricultural production, achieved through the spread of modern agricultural practices such as micro-irrigation, but also thanks to an improvement in the technical and entrepreneurial skills of the farmers involved.	MAER (Ministry of Agriculture and Rural Equipment)	2013-2018 USD 30M Italian cooperation
Project to support Pastoralism in the Sahel region (PRAPS) <i>Objectives:</i> to improve access to essential production means and services as well as to markets for pastoralists and agro-pastoralists. It aims to <i>provide</i> support to develop pastoralism and to improve the resilience of pastoral populations in the six countries of the CILSS <i>Component 1: Improving Animal Health:</i> to improve animal health in the six target countries, the PRAPS will support essential national and regional efforts necessary to build more sustainable and efficient national veterinary services (NVS) <i>Component 2: Strengthening the management of natural resources (MNR):</i> to improve the	CILSS Burkina Faso, Mali, Mauritania, Niger, Senegal (MEPA) Chad Governments	2015-2020 USD 250M World Bank

<p>sustainable management and secure access of pastoral and agro-pastoral communities to natural resources, in particular water and pastures with a trans-border focus.</p> <p>Component 3: Facilitate access to markets: to increase pastoral communities access to competitive and inclusive markets and to increase the sale of pastoral products, in particular live animals, in the selected project areas of each country.</p> <p>Component 4: management of pastoral crises: to strengthen preparations for crises, their prevention and the national and regional response</p> <p>Component 5: Project management and institutional support: it is a cross-disciplinary approach concentrated on all of the aspects linked to general project management.</p>		
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Roles and responsibilities specific to the FAO as an agency for the GEF and for project implementation

The Food and Agriculture Organization (FAO) will be the GEF implementing and executing agency. As such, FAO will be responsible for project oversight to ensure that GEF/LDCF policies and criteria are adhered to and that the project meets its objectives and achieves expected outcomes and outputs as established in the project document in an efficient and effective manner. FAO will report on the project progress to the GEF Secretariat and financial reporting will be to the GEF Trustee. FAO will closely supervise and carry out supervision missions of the project through the Lead Technical Unit (LTU –see below) and the GEF Coordination Unit in the Investment Centre Division (TCI), and monitor project progress and provide technical support through FAO’s Agriculture and Consumer Protection Department. FAO-Senegal, together with the LTO/LTU, will be responsible for setting up all necessary LOAs with Executing Partners to be defined at the initial phase of project implementation.

Executing Responsibilities (Budget Holder). Under the FAO’s Direct Execution modality, the FAO Representative in Senegal will be the Budget Holder (BH) of this project. The BH, working in close consultation with the Lead Technical Officer (LTO), will be responsible for the timely operational, administrative and financial management of the project. The BH will head the multidisciplinary Project Task Force (see below) that will be established to support the implementation of the project and will ensure that technical support and inputs are provided in a timely manner. The BH will be responsible for financial reporting, procurement of goods and contracting of services for project activities in accordance with FAO rules and procedures. Final approval of the use of GEF resources rests with the BH, also in accordance with FAO rules and procedures.

Specifically, working in close collaboration with the LTO, the BH will: (i) clear and monitor annual work plans and budgets; (ii) schedule technical backstopping and monitoring missions; (iii) authorize the disbursement of the project’s GEF resources; (iv) give final approval of procurement, project staff recruitment, LOAs, and financial transactions in accordance with FAO’s clearance/approval procedures; (v) review procurement and subcontracting material and documentation of processes and obtain internal approvals; (vi) be responsible for the management of project resources and all aspects in the agreements between FAO and the various executing partners; (vii) provide operational oversight of activities to be carried out by

project partners; (viii) monitor all areas of work and suggest corrective measures as required; (ix) submit to the GEF Coordination Unit, the TCID Budget Group semi-annual budget revisions that have been prepared in close consultation with the LTO (due in August and February); (x) be accountable for safeguarding resources from inappropriate use, loss, or damage; (xi) be responsible for addressing recommendations from oversight offices, such as Audit and Evaluation; and (xii) establish a multi-disciplinary FAO Project Task Force to support the project.

FAO Lead Technical Officer (LTO): The team leader of the West African IPPM programme-team within AGPMC will be the LTO for this project. Under the general technical oversight of the LTU, the LTO will provide technical guidance to the project team to ensure delivery of quality technical outputs. The LTO will coordinate the provision of appropriate technical backstopping from all the concerned FAO units represented in the Project Task Force. The Project Task Force is thus composed of technical officers from the participating units (see below), operational officers, the Investment Centre Division/GEF Coordination Unit and is chaired by the BH. The primary areas of LTO support to the project include:

- review and ensure clearance by the relevant FAO technical officers of all the technical Terms of Reference (ToR) of the project team and consultants;
- ensure clearance by the relevant FAO technical officers of the technical terms of reference of the Letters of Agreement (LoA) and contracts;
- review and ensure clearance by the relevant FAO technical officers of all the technical Terms of Reference (ToR) of Mid Term Evaluation (MTE) report and Final Evaluation Report (FER);
- in close consultation with TCID (FAO/Rome), BH and MoA (Senegal), lead the selection of the project staff, consultants and other institutions to be contracted or with whom an LoA will be signed;
- review and clear technical reports, publications, papers, training material, manuals, etc.;
- monitor technical implementation as established in the project results framework (conducting annual monitoring missions to the field);
- review the Project Progress Reports (PPRs) and prepare the annual Project Implementation Review (PIR).

Within FAO, a multidisciplinary **Project Task Force (PTF)** will be established by the LTU which is mandated to ensure that the project is implemented in a coherent and consistent manner and complies with the organization's goals and policies, as well as with the provision of adequate levels of technical, operational and administrative support throughout the project cycle. The PTF comprises of the BH, Lead Technical Unit (AGPMC) and the GEF/TCID Coordination Unit.

FAO/TCID GEF Coordination Unit in Investment Centre Division will review and approve project progress reports, annual project implementation reviews, financial reports and budget revisions. The GEF Coordination Unit will provide project oversight, organize annual supervision missions, and participate as a member in the FAO Project Task Force and as an observer in the project steering committee meetings, as necessary. The GEF Coordination Unit will also assist in the organization, as well as be a key stakeholder in the mid-term and final evaluations. It will also contribute to the development of corrective actions in the project implementation strategy in the case needed to mitigate eventual risks affecting the timely and effective implementation of the project. The GEF Coordination Unit will in collaboration with

the FAO Finance Division, request the transfer of project funds from the GEF Trustee based on six-monthly projections of funds needed.

The **Investment Centre Division Budget Group (TCID)** will provide final clearance of any budget revisions.

The **FAO Finance Division** will provide annual Financial Reports to the GEF Trustee and, in collaboration with the GEF Coordination Unit and the TCID Budget Group, call for project funds on a six-monthly basis from the GEF Trustee.

Technical coordination and project steering committee

The project will be managed through an institutional structure represented in illustration 4.1 below.

A **National Project Steering Committee (PCS)** will be put in place to monitor and steer the implementation of the project. It will be presided over by the Minister in charge of agriculture and will be composed of GEF focal points and of representatives from MEPA, MEDD, MATCL, ANACIM, CSE (Ecological Monitoring Centre), CLM (Unit for the Fight against malnutrition) and SN/CNSA (National Food Security Council). There will also be the FAO representative to Senegal and representatives from producer and civil society organisations. The PCS will meet at least twice a year and its specific responsibilities will be to: (i) monitor the progress of the project and the results achieved such as those presented in the twice-yearly progress report; (ii) to facilitate cooperation between the project and other pertinent projects and programs underway; (iii) to ensure the sustainability of the key results of the project, in particularly tailoring the actions to other contexts and (iv) to supervise efficient coordination between implementation partners. The members of the PCS will each fill the role of focal point for the project in their respective agencies. As a result, and as such a focal point, they will ensure: (i) the technical supervision of the activities in their sector; (ii) a fluid two-way exchange of information and of knowledge between their agency and the project; (iii) coordination and communication between the activities of the project and the work plan of their agency; and (iv) the provision of co-financing for the project.

A **Steering Committee per EGZ (Eco-Geographical Zone PC-EGZ)** will be put in place to accompany the project coordination unit (PCU) at a regional and local level. The PC-EGZ will be made up of the decentralised technical services of the DRDR (Regional Directorate for Rural Development), the IRE (Regional Inspection for Livestock Farming), the projects/programmes of NGO partner organisations for producers, and the municipal authorities. This committee will be presided over by the DRDR. It will meet at least three (3) times a year in order (i) to prepare the annual work plans, (ii) to organise the review meetings and (iii) to hold a mid-term evaluation meeting during the implementation of the annual action plan. The committee will also organise at least two (2) field visits to ensure the operational monitoring of the activities approved in the work plan. The committee will also supervise an effective application of the complementarities of interventions with partner projects and programs.

A **Project Coordination Unit (PCU)**: it will be located in the MAER or the FAO in Dakar; it will function as the secretariat for the PCS. The PCU will be made up of:

- a National Project Coordinator (NPC),
- three Technical Experts (TEs),
- a Finance and Budget Officer (FBO),
- an Assistant responsible for Finances and Operations, (AFO), and

- five (5) Regional Officers (RO). The RO will be part of delocalised State structures. They will work in close collaboration with the PCU. They will act as operational regional focal points for the project and will be responsible, in collaboration with the PC-EGZ, for the planning, supervision and day-to-day monitoring of project activities in the field.

The staff at the PCU will be recruited by the project and will report to the Budget Holder (BH) and will work in close collaboration with the main technical officer of the FAO (LTO). The PCU will be responsible for the daily operations of the project and will carry out their functions conforming to the rules of the FAO.

The main functions of the PCU are summarised as follows:

- Prepare the work plan and annual budget, focused on results;
- Day-to-day implementation of the annual work plan;
- Ensure respect for the results based approach as defined by the indicators in the project results framework;
- Coordinate project interventions with the activities of other projects and programs underway;
- Monitoring of the project progress;
- Produce project progress reports for the FAO and the annual project implementation report;
- Facilitate and support mid-term and final project evaluations;
- Produce references terms and technical contributions for the memoranda of understanding which will be made with project partners;
- Guarantee an increased level of local and national inter-institutional collaboration.

Role of PCU staff:

- i) **National Project Coordinator (NPC)**⁴⁶ (100% financed by LDCF funds) will direct the PCU and will collaborate directly with MAER (Ministry of Agriculture and Rural Equipment) and the FAO both at a local level (BH) and at the main headquarters in Rome (LTO). The NPC will report to the BH on administrative questions and to the LTO on operational and technical issues. The NPC is a full time position. The NPC will direct and organise the day-to-day implementation of the project, will provide reports to the PCU and the PC-EGZ, will direct appeals and communications with governmental agencies and will be responsible for supplying advice and technical directions within his/her field of technical expertise, will report regularly on the project's progress, conforming to the procedures of the FAO and, in collaboration with the LTO, will write and submit to the PCU annual reports on the activities and financing, as well as the usual twice-yearly reports. In addition to the technical and operational obligations, the NPC will:
 - supervise the creation of a participative monitoring system for the work of the project;
 - carry out the real-time monitoring of project progress and timely communications with MAER, the BD and the LTO, and warn them of any eventual problems which could lead to delays in implementation;
 - help to identify the candidate consultants and will work with the BD to ensure their timely recruitment;
 - ensure the efficient working of the project with the parties involved in the pilot zones;

⁴⁶ TOR detailed in appendix 5

- help to organise and supervise the supply of consultants;
 - supervise the creation of a project approach to manage and share the knowledge gained and to identify and spread the information taken; and,
 - communicate and take part in policy dialogue.
- ii) **The three technical experts**, namely, an expert on social institutions⁴⁷, an expert in agriculture⁴⁸ and an expert in livestock farming will work together to support the NPC. They will monitor technical contributions are well thought through and integrated into the work plan and project activities. The technical experts will report to the NPC and will take care of aspects relating to the day-to-day implementation of the project. They will also:
- Monitor that the best practices and approaches from the field are reflected in the conception and planning of project activities;
 - Help to create a participative monitoring system for the project;
 - Support the monitoring of the project progress and alert the NPC on any possible problems which might lead to delays in implementation;
 - Contribute to identifying candidate consultants;
 - Support collaboration with the stakeholders from the target zones;
 - Contribute to organising and supervising the activities of consultants;
 - Help in proposing a system for the management and sharing of knowledge and in identifying and spreading the information taken;
 - Participate in the policy dialogue in their areas of expertise; and
 - Support the NPC in writing the project progress reports and the twice-yearly PPR and the annual PIR.
- iii) **The Officer responsible for finances and operations**⁴⁹ will be in charge of the financial management of the project at a day-to-day level, in particular, by establishing contracts, by taking care of purchases and all other necessary actions conforming to the budget and to the approved annual work plans. The officer responsible for finances and operations will work in close collaboration with the project coordinator, the BH, the LTOs and in particular with the FAO representative to Senegal. They will be responsible for the timely delivering of scheduled inputs on project activities. They will be supported by an assistant.

Technical working groups (TWG)⁵⁰ will be put in place to supply technical advice on the project components and specific products and will be made up, amongst others, of consultants and members of the technical staff from MAER, MEPA, MEDD and from the FAO. The main tasks of the TWGs will be to provide technical advice to the TPC and support to the PCU when requested. It will advise the TPC on other activities underway or scheduled and will facilitate collaboration between the project and other programs, projects and initiatives of agencies and research institutes in the sector. The TWGs can also be involved in the technical evaluation of project progress and products and the identification of solutions and/or possible changes in project activities when technical problems emerge during its implementation.

At a regional level (including the departments and municipalities targeted).

⁴⁷ TOR detailed in appendix 5

⁴⁸ TOR detailed in appendix 5

⁴⁹ TOR detailed in appendix 5

⁵⁰ The Specific TOR for the specialists/consultants who will be part of the TWG will be defined in appendix 5

The regional directorates of technical ministries will supervise project activities and the operations of the multidisciplinary work groups (GTP) to facilitate dialogue and share climate information. The role of support-advice is to dialogue with the producers and with the project program partners to find a better response to these climate phenomena.

Local authorities (administrative authorities) and elected local officials (municipal and departmental councillors) will participate in the creation and implementation of the strategies to reduce the risks associated with CC. They will play a role in monitoring the interventions, the information and the raising of awareness on the necessary conditions to improve the resilience of vulnerable populations. This will lead to its integration in the action plans of local development programs. The partnership will facilitate the operations of the CROASP (Regional Agro-Sylvo-Pastoral Orientation Committees) and the High Council for Agro-Sylvo-Pastoral Orientation as defined in the LOASP (Agro-Sylvo-Pastoral Orientation Law).

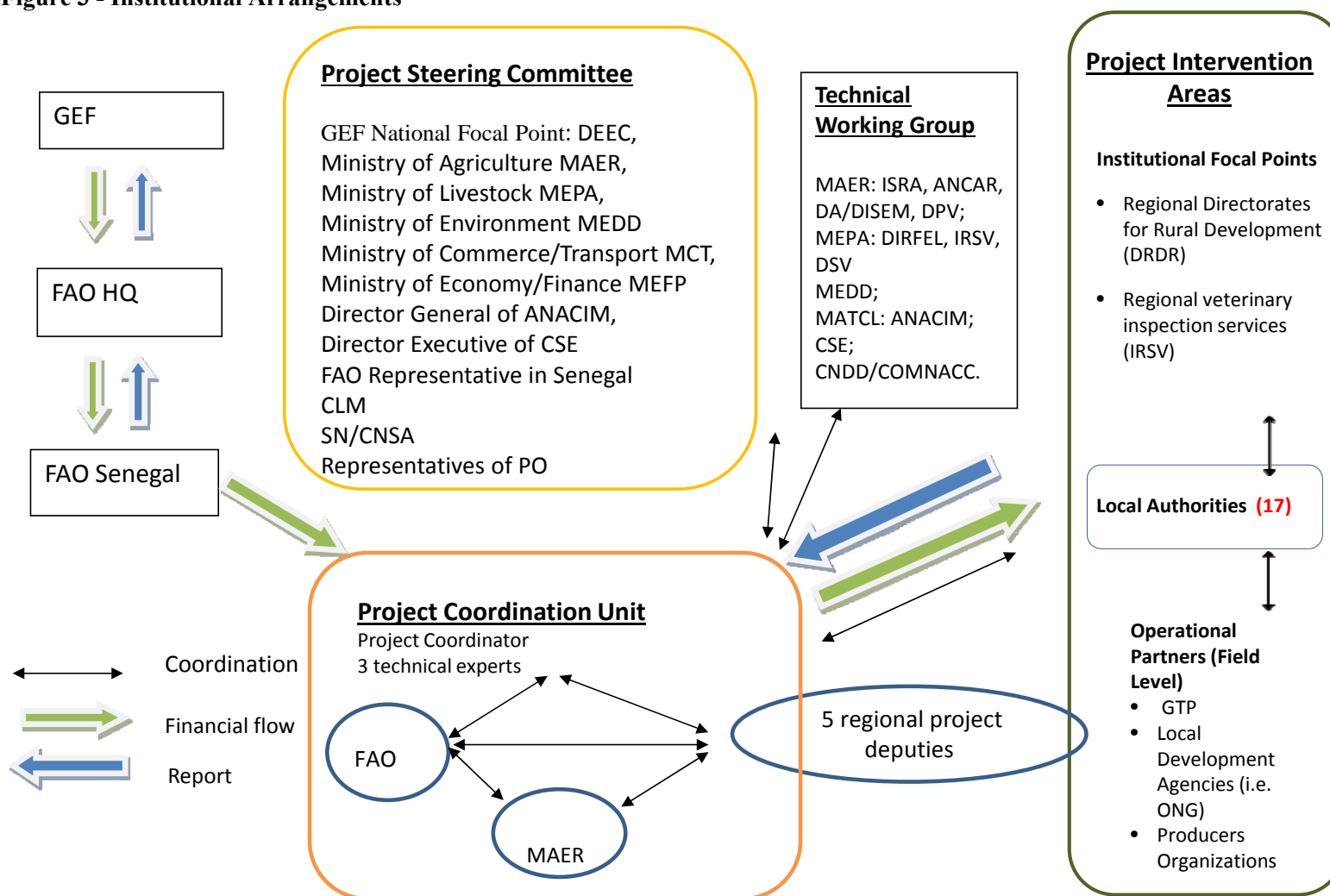
The expertise of the BAMTARRE and NGOs, which work in the project areas, providing support-advice, could be capitalised on and boost the integration results for agriculture and livestock farming. The National Network of IPM Facilitators (Integrated Production and Pests Management Programs) in Senegal (RNFS/IPM) created in 2002 will support the implementation of the FFS/IPM steps throughout Senegal and ensure high quality monitoring of the training, through the field schools (FFS), organised for producers.

At the Community level (villages)

For the farmer and livestock herder organisations, the implementation of the project will allow producers from different sectors to understand the FFS process, the management of climate information and the adaptation possibilities to improve resilience and reduce risks of disasters.

Within the POs involved, the project will be directed primarily towards small agricultural farmers and small livestock holdings. Within these groups it will take care to include the most vulnerable households, women and youths. The project will directly support 25,000 producers (15,000 farmers and 10,000 livestock herders) who are members of producer organisations. Indirectly, the project will have an impact on all of the households in the project intervention region, through the cooperation and pooling of resources between the entire project partners: PASALouMAKaf, PAPIL (Support Project for Small-scale Local Irrigation), PAFA (Support Project for Agricultural Sectors); PADAER (Support Project for Agricultural Development and Rural Entrepreneurship); GMV (Great Green Wall of Africa).

Figure 3 - Institutional Arrangements



4.3. Financial Planning and management

Financial Plan (by Outcome)

The total cost of the project will be USD 30,836,380, to be financed through a USD 6,228,995 LDCF grant and USD 24,607,385 in co-financing from:

- a) FAO in-kind contribution (USD 200,000);
- b) IFAD *PAFA-E* (USD 3,321,254);
- c) MEPA/MAER *PASA LouMaKaf* (USD 9,769,939);
- d) MAER *PADAER* (USD 4,022,146);
- e) MADD/MAER/MH *PAPIL* (USD 4,225,390) ;
- f) AGMV *GMV* (USD 3,068,656).

Table 8 below shows the cost by component and outputs and by sources of financing and type of confirmed co-financing. The FAO will, as the GEF Agency, only be responsible for the execution of the GEF resources and the FAO co-financing.

Table 8: Summary of financial contribution (all figures are expressed in USD)

Component/output	MAER/PAPIL	IFAD/PADAEER	MAER/PAFA-E	MAER/PASA-LOUMAKAF	MEDD/ANGMV	FAO	GEF	Total	%
Component 1: Developing/fine-tuning CCA strategies and tools based on improved knowledge and information management and piloting improved CCA practices in agricultural and pastoral production systems	665,138	732,455	1,328,502	475,629	663,972	40,000	923,750	4,829,446	16%
Outcome 1.1: Increased understanding and capacities to systematically gather and disseminate agro-climatic data to identify and improve best CCA practices and innovations in targeted agro-ecological zones	665,138	732,455	1,328,502	475,629	663,972	40,000	923,750	4,829,446	16%
Component 2: Capacity building and up-scaling of CCA strategies, technologies and best practices for small farmers and agropastoralists through a growing network of FFS/APFS	2,581,981	2,194,109	1,992,752	8,580,867	1,841,005	100,000	3,791,250	21,081,964	68%
Outcome 2.1: The agro-climatic information is disseminated and improved CCA practices and innovations are adopted by agro-pastoralists	1,290,991	1,097,055	996,376	4,290,434	920,503	100,000	1,947,425	10,642,782	35%
Outcome 2.2: Household incomes and agricultural and livestock productivity of FFS/APFS participants have increased through the use of CCA practices, agro-meteorological information and improved crop and beef production value chains	1,290,991	1,097,055	996,376	4,290,434	920,503	-	1,843,825	10,439,182	34%
Component 3: Mainstreaming CCA strategies in a coordinated manner in agricultural and animal production development frameworks at country level and in selected vulnerable areas	828,271	749,025	-	475,629	498,050	40,000	902,250	3,493,225	11%
Outcome 3.1: CCA is mainstreamed into policies, strategies and national programs, shifting from a reactive response to a pro-active preparedness approach	414,136	374,513	-	475,629	498,050	40,000	146,625	1,948,952	6%
Outcome 3.2: A "national CC resilience fund" is in place within an existing funding mechanism to support local CCA activities	414,136	374,513	-	-	-	-	755,625	1,544,273	5%
Component 4: Project monitoring and evaluation	150,000	346,557	-	237,814	65,629	20,000	315,127	1,135,127	4%

Outcome 4.1: Project implementation based on results based management and application of project lessons learned in future operations facilitated	150,000	346,557	-	237,814	65,629	20,000	315,127	1,135,127	4%
Project Management	-						296,618	296,618	1%
Total Project	4,225,390	4,022,146	3,321,254	9,769,939	3,068,656	200,000	6,228,995	30,836,380	100%

Please, note that the LOE from MAER-PAFA-E expresses the co-financing in local currency. The amount has been converted into USD at the rate of FCFA/USD 602.18(UN exchange rate on 1 July 2015, when co-financing letter was signed).

Contributions from the GEF/LDF

The LDCF funds will finance inputs needed to generate the outputs and outcomes under the Project. These include: (i) local and international consultants for technical support and Project management; (ii) Support to designing and establishing an improved approach to FS, incorporating APFS, FFS and CLC in Senegal; (iii) local and international consultants for the technical support and project management; (iv) Support for direct monitoring of activities; (v) support, through the memoranda/contracts (LoA) with technical institutions and service providers, for specific service activities in the field; (vi) International and national travel, local transport and office equipment (vii) increase visibility of the project and produce material for raising awareness.

The LDCF resources will also finance the necessary publications for raising awareness and educating people on the best adaptation practices.

Government contributions

The co-financing, from the government will consist mainly of staff time, offices, public services and logistic support for field activities. The co-financing will support steering the improvement of agricultural practices resilient to climate change, the promotion of agricultural and pastoral practices through field schools, the strengthening of skills at a central, local and municipal level, and the development of IGRs (Income Generating Activity) and systems for start-up funds at a local level.

FAO Contributions

The representative of the FAO to Senegal as the Budget Holder (BH) will co-finance the project, in kind, mainly through staff time, offices, service and logistic support for field activities for a total amount of USD 200,000. The LDCF project might be co-financed by new projects and/or new future activities, implemented by the headquarters of the FAO and the delegation of the FAO in Senegal, through the FAO technical cooperation program or through trust funds from various donors.

4.4. Financial management and reporting on the resources

Financial Records

FAO shall maintain a separate account in United States dollars for the project's LDCF resources showing all income and expenditures. Expenditures incurred in a currency other than United States dollars shall be converted to United States dollars at the United Nations operational exchange rate on the date of the transaction. FAO shall administer the project in accordance with its regulations, rules and directives.

Financial Reports

FAO-representative in Senegal, as the BH, shall prepare six-monthly project expenditure reports and final financial report for the project, showing amount budgeted for the year, amount expended since the beginning of the year, and separately, the un-liquidated obligations as follows:

- Details of project expenditures on a component-by-component and output basis, reported in line with project budget codes as set out in the Project Document, as at 30 June and 31 December each year.

- Final expenditures report on completion of the project on a component and output-by-output basis, reported in line with project budget codes as set out in the Project Document.
- A final statement of expenditures in line with FAO Oracle project budget codes, reflecting actual final expenditures under the project, when all obligations have been liquidated.

The BH will submit the financial reports for review and monitoring by the FAO GEF Coordination Unit. Financial reports for submission to the donor (GEF) will be prepared in accordance with the provisions in the GEF Financial Procedures Agreement and submitted by the FAO Finance Division.

Budget Revisions

The BH in consultation with the FAO at HQ, in accordance with FAO standard guidelines and procedures, will prepare Periodic six months, budget revisions.

Responsibility for Cost Overruns

The BH is authorized to enter into commitments or incur expenditures up to a maximum of 20 percent over and above the annual amount foreseen in the project budget under any budget sub-line provided the total cost of the annual budget is not exceeded.

Any cost overrun (expenditure in excess of the budgeted amount) on a specific budget sub-line over and above the 20 percent flexibility should be discussed with the FAO GEF Coordination Unit with a view to ascertaining whether it will involve a major change in project scope or design. If it is deemed to be a minor change, the BH shall prepare a budget revision in accordance with FAO standard procedures. If it involves a major change in the project's objectives or scope, a budget revision and justification should be prepared by the BH for discussion with the GEF Secretariat.

Savings in one budget sub-line may not be applied to overruns of more than 20 percent in other sub-lines even if the total cost remains unchanged, unless this is specifically authorized by the FAO GEF Coordination Unit upon presentation of the request. In such a case, a revision to the project document amending the budget will be prepared by the BH.

Under no circumstances can expenditures exceed the approved total project budget or be approved beyond the NTE date of the project. Any over-expenditure is the responsibility of the BH.

Audit

The project shall be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.

The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the governing bodies of the Organization and reporting directly to them and an internal audit function headed by the Inspector-General who reports directly to the Director-General. This function

operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO which establish a framework for the terms of reference of each. Internal audits of interest accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

4.5. Procurement

The Budget Holder, in close collaboration with the National Project Coordinator, the Lead Technical Officer and the Financial and Operations Officer will procure the equipment and services provided for in the detailed budget in Appendix 3, in line with the Annual Work Plan and Budget and in accordance with FAO's rules and regulations.

Prior to commencement of procurement, the BH in close consultation with the National Project Coordinator will complete the procurement plan for all services and equipment to be procured by FAO.

The procurement plan shall be updated every 12 months and submitted to and cleared by the FAO Budget Holder and LTO with the AWP/B and annual financial statement of expenditures report for the next instalment of funds.

4.6. Monitoring and Evaluation (M&E)

Oversight and monitoring responsibilities

The M&E tasks and responsibilities clearly defined in the project's detailed Monitoring Plan (see below) will be achieved through: (i) day-to-day monitoring and supervision missions of Project progress (PCU); (ii) technical monitoring of indicators (PCU); (iii) FS-level monitoring activities (by project M&E expert and local technical services); (iv) midterm and final evaluations (independent consultants and FAO Evaluation Office); and (v) continual oversight, monitoring and supervision missions (FAO).

During the Inception Phase of the GEF Project, the PCU will set up a project progress monitoring system strictly coordinated with subsystems in each of the four Regions. Participatory mechanisms and methodologies for systematic data collection and recording at the level of the FS will be developed in support of indicators, monitoring and evaluation. During the inception workshop (see section 4.5.3 below), M&E related tasks to be addressed will include: (i) presentation and clarification (if needed) of the project's Results framework indicator targets and their means of verification, and assumptions and risks with all project stakeholders; (ii) review of the M&E indicators and their baseline; (iii) drafting the required clauses to include in consultants' contracts to ensure they complete their M&E reporting functions; and (iv) clarification of the respective M&E tasks among the Project's different stakeholders, (v) finalization of the first results-based annual work plan and budget, (vi) prepare financial reporting procedures and obligations, (vii) schedule of PSC meetings.

One of the main outputs of the Inception Phase will be a detailed monitoring plan, agreed upon by all stakeholders and based on the monitoring and evaluation plan summary presented in section 4.5.4 below.

The Inception Phase will conclude with the holding of an Inception Workshop (IW) organized by the PCU. The IW will: (a) assist all stakeholders to fully understand and take ownership of the Project; (b) review and confirm/finalize Project indicators and results framework with

stakeholders; (c) Review the Project's first AWP with results-based annual budget; (d) discuss the roles, functions, and responsibilities within the Project's decision-making structures; (e) review a detailed M&E work plan and budget based on the M&E plan summary presented in Table 7, below. The first PSC meeting will be held within the two months of the IW.

The day-to-day monitoring of the Project implementation will be the responsibility of the NPC with support from the Technical Experts, driven by the preparation and implementation of an Annual Work Plan and Budget (AWP/B) followed up through six-monthly Project Progress Reports (PPRs). The preparation of the AWP/B and six-monthly PPRs will represent the result of a unified planning process between the main project partners. As tools for results-based-management (RBM), the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output targets. Specific inputs to the AWP/B and the PPRs will be prepared based on participatory planning and progress review with local stakeholders and coordinated through the PCU and service providers and facilitated through project planning and progress review workshops. The respective Service Providers would consolidate these inputs before forwarding them to the Technical Experts and to NPC who will consolidate the information into a draft AWP/B and PPRs. An annual project progress review and planning meeting should be held with the participation of all involved service providers. Subsequently, the AWP/B and PPRs are submitted to the local and national PSC for approval (AWP/B) and Review (PPRs) and to FAO for approval. The AWP/B will be developed in a manner consistent with the project's Results Framework to ensure adequate fulfilment and monitoring of project outputs and outcomes.

Following the approval of the Project, the Project's first year AWP/B will be adjusted (either reduced or expanded in time) to synchronize with an annual reporting calendar. In subsequent years, the Project workplan and budget will follow an annual preparation and reporting cycle as specified under the heading Reporting Schedule, below.

Indicators and information sources

The project's Results Framework (RF) indicators will be the main reference point for M&E of Project outcomes including contributions to adaptation benefits (see Appendix 1). The RF's indicators and means of verification will be applied to monitor Project performance and impact. Data collected will be of sufficient detail to track outputs and outcomes and flag Project risks early on, using FAO's monitoring procedures and progress reporting formats. The PCU will link each AWP/B to the RF indicators to ensure that Project implementation maintains a focus on achieving the impact indicators as defined. A key element to this will be the elaboration and monitoring of output target indicators in each AWP/B that cumulatively lead to outcome level results. Output targets will be monitored on a semi-annual basis and outcome target indicators will be monitored on an annual basis if possible or as part of the mid-term and final evaluations.

The main sources of information to support the M&E programme will be: (i) participatory progress monitoring and workshops with beneficiaries; (ii) on-site monitoring of FFS/DFF/PFS training and activities; (iii) PPRs prepared by the NPC (iv) consultants reports; (v) participants training tests and evaluations; (vi) mid-term and post project impact and evaluation studies completed by independent consultants; (vii) financial reports and budget revisions; (viii) PIR prepared by the LTO supported by the BH and the NPC and (ix) FAO supervision mission reports.

Reporting schedule

Specific reports that will be prepared under the M&E program are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) annual Project Implementation Review (PIR); (v) Technical Reports; (vi) co-financing Reports; and (vii) Terminal Report. In addition, assessment of Climate Change Adaptation through use of the LDCF/SCCF Adaptation Monitoring and Assessment Tool (AMAT) will be undertaken during midterm and final project evaluation (against the baseline to be completed during project inception).

Project Inception Report

After approval of the Project an inception workshop will be held. Immediately after the workshop, the NPC will prepare a Project Inception Report in consultation with the FAO LTO, BH and national partners.

The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B, a detailed project monitoring plan based on the monitoring and evaluation plan summary presented in table 7 below. The draft inception report will be circulated to FAO and the Project Steering Committee for review and comments before its finalization, no later than three months after project start-up. The report should be cleared by the FAO BH and the FAO GEF Coordination Unit and uploaded in FPMIS by the BH.

Results-Based Annual Work Plan and Budget (AWP/B)

The draft of the first AWP/B will be prepared by the NPC in consultation with the Project Task Force and reviewed at the project Inception Workshop. The Government of Senegal inputs will be incorporated and the NPC will submit a final draft AWP/B within two weeks of the IW to the BH. For subsequent AWP/B, the NPC will organize a project progress review and planning meeting for its assessment. Once comments have been incorporated, the BH will circulate the AWP/B to the LTO and the GEF Coordination Unit on a no-objection basis prior to uploading in FPMIS by the BH. The AWP/B must be linked to the project's Results Framework indicators so that the project's work is contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The AWP/B should be approved by the Project Steering Committee.

Project Progress Reports (PPRs)

The NPC will prepare six-monthly Progress Reports (PPRs) and submit them to the FAO LTO and the BH no later than 31 July (covering the period January through June) and 31 January (covering the period July through December). The first semester six month report should be accompanied by the updated AWP/B. The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome

indicators identified in the Project Results Framework. The FAO LTO and BH will review the progress reports, collect and consolidate eventual FAO comments from the GEF Coordination Unit, and the BH and provide these comments to the NPC. When comments have been duly incorporated the PPR is submitted to the GEF coordination Unit for final clearance. Thereafter the BH will upload final documents in FPMIS.

Annual Project Implementation Review (PIR)

The LTO, with support from the NPC and BH will prepare an annual Project Implementation Review (PIR) covering the period from July (the previous year) through to June (current year). The PIR will be submitted to the FAO GEF Coordination Unit for review and approval no later than 10 September (may be anticipated based on the GEFSEC requirements). The FAO GEF Coordination Unit will upload the final report on FAO FPMIS and submit it to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The FAO GEF Coordination Unit will provide the updated format when the first PIR is due.

Technical Reports

Technical reports will be prepared to document and share Project outcomes and lessons learned. The drafts of any technical reports must be submitted by the NPC to the BH who will share it with the LTO for review and clearance and to the FAO GEF Coordination Unit for information and eventual comments, prior to finalization and publication. Copies of the technical reports will be distributed to the PSC and other project partners as appropriate. The final reports will be posted on the FAO FPMIS by the LTO.

The drafts of any technical reports must be submitted by the NPC or executing partners to the BH who will share it with FAO LTO. The LTO will be responsible for ensuring appropriate technical review and clearance of the reports. The BH will upload the final cleared reports onto the FPMIS. Copies of the technical reports will be distributed to the national executing partners and other Project partners as appropriate. These will also be posted on the Project website and FAO FPMIS.

Co-financing Reports

The BH, with support from NPC, will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by the Government of Senegal and other partners. The NPC will compile the information received from the executing partners and transmit in a timely manner to the LTO and BH. The report covers the period from July (the previous year) through to June (current year). The format and tables to report on co-financing can be found in the PIR.

GEF/LDCF/SCCF AMAT Tracking Tool

Following the GEF policies and procedures, the tracking tool for climate change adaptation area will be submitted at three moments: (i) with the project document at CEO endorsement; (ii) at the project's mid-term evaluation; and (iii) with the project's terminal evaluation or final completion report.

Terminal Report

Within two months of the Project completion date, the NPC, with the technical support of the Technical Experts, will submit to the BH and LTO a draft Terminal Report. The Report will include a list of outputs detailing the activities undertaken under the Project, lessons learned and any recommendations to improve the efficiency of similar activities in the future. This report will specifically include the findings of the final evaluation as described above. The main purpose of the final report is to give guidance at the ministerial or senior government level on the policy decisions required for the follow-up of the Project and to provide the donor with information on how the funds were utilized. The terminal report is accordingly a concise account of the main products, results, conclusions and recommendations of the Project, without unnecessary background, narrative or technical details. A final project review meeting should be held to discuss the draft terminal report before the BH finalizes it and approved by the GEF Coordination Unit.

Monitoring and evaluation plan summary

The Table below provides a summary of the main M&E reports, responsible parties and timeframe.

Table 9 : Summary of M&E Related Costs

Type of M&E Activity	Responsible Parties	Time-frame	Estimate of costs
Inception Workshop (IW)	PCU, supported by the LTO, BH, and PCU	Within three months of project start up	USD 10,000
Surveys to determine AMAT baseline values	PCU and service providers	Within three months of project start up	Covered under costs of Outcomes 1.1, 2.1, 2.2 and 3.1
Project Inception Report	PCU, LTO, BH, and PCU	No later than one month post IW.	USD 3,000
Field based impact monitoring	PCU, MoA and other relevant agencies – including regional and provincial – to participate.	Periodically – to be determined at inception workshop.	USD 70,000
Supervision visits and rating of progress in PPRs and PIRs	LTO, other participating units and PCU	Annual or as required	The visits of the LTO and the GCU will be paid by GEF agency fee. The visits of the NPC and Technical Experts will be paid from the project travel budget.
Project Progress Reports	PCU, with inputs from MoA, PSC members and other partners	Mid-Term	Paid by GEF agency fee
Project Implementation Review report	PCU supported by the LTO and cleared and submitted by the PCU to the GEF Secretariat	Annual	Covered by NPC and National Technical Experts salaries
AMAT	PCU supported by the LTO	Project start-up, mid-Term and project end.	
Co-financing Reports	PCU, FAO Senegal	Annual	Covered by NPC and National Technical Experts salaries

Type of M&E Activity	Responsible Parties	Time-frame	Estimate of costs
Technical reports	PCU, LTO & Participating Units	As appropriate	-
Mid-term Evaluation & Review	External Consultant, FAO Office for Evaluation in consultation with the project team including the PCU and other partners	At mid-point of project implementation	USD 40,000 for independent consultants and associated costs. In addition the agency fee will pay for expenditures of FAO staff time and travel
Final Evaluation	External Consultant, FAO independent evaluation unit in consultation with the project team including the PCU and other partners	At the end of project implementation	USD 40,000 for external, independent consultants and associated costs. In addition the agency fee will pay for expenditures of FAO staff time and travel
Terminal Report	NPC, LTO, TCSR Report Unit	At least two months before the end date of the Execution Agreement	Covered by NPC and National Technical Experts salaries. LTO's involvement is covered by the fee.
Best practices publication	PCU, LTO & Participating Units	Between the second and last year	USD 20,000 for publication preparation and printing
Auditing	External Unit, PCU	Annual	USD 15,000
Impact Assessment	External Consultant and PCU	At the beginning and the end of the project	USD 30,000 for external consultant assessment
Total Budget			USD 228,000

4.7. Communications and Visibility

To provide increased visibility to the project and to ensure efficient communication, the project message will be the object of a certain number of activities, which have been integrated into the project concept. They include: (i) the recruitment of a communication and media management expert who will be part of the PCU; (ii) the preparation of communication documents and tools which will report on the economic, ecological and social benefits of the project; (iii) several regional and national workshops necessary to raise awareness and advocate for the project, and (iv) several other awareness raising activities.

These contributions and activities will be integrated into the project work plan and, as such, will stand out as technical project activities not as independent activities. In particular, as part of component 2, support for field schools and CLCs will include the development of: (i) training material on communication and multimedia; (ii) material and tools to spread the agro-meteorological information as well as GTP bulletins; (ii) demonstration material to increase understanding of the use of adapted plant varieties for food and fodder; (iv) several training workshops to raise awareness amongst local institutions, stakeholders, and populations in the intervention zones; (v) a distributed breakdown of activity results from the project, and (vi) videos and magazines to distribute the results of the FFS/APFS and CLC.

Component 3 will be included into at least three policy steering notes on the practices of CCA based on the FFS/APFS approach. Additionally an Internet site for the project will be set up and will regularly make announcements on the project. It will post specific publications on best practices linked to the project.

SECTION 5 – Sustainability of results

5.1. Social Sustainability

The project approach is based on the active participation of local populations through field schools, community radios, POs and on the promotion of local know-how which will guarantee social sustainability. Social groups sharing common interests and language, faced with the same threats from Climate Change (CC), will be put in contact to share their experiences and their worries. The pertinence of the recommended actions to respond to the issues posed within the organisations is a key element to the social sustainability of the project since by being pertinent to the people; the groups' cohesion is strengthened (collective actions around an integrated, integral approach). Dialogue on the collaborative management of natural resources will ensure exchanges between the populations using the resources and the institutions involved, thus increasing the social sustainability of the actions (reduction of conflicts, improvement in access to information, local dialogue and participation, etc.).

Additionally, to guarantee a certain level of social sustainability, the activities of the project will specifically consider gender. So, both men and women will be supported, always keeping in mind the limitations and needs of each individual.

5.2. Environmental Sustainability

Since a majority of the target population relies directly on natural resources for their livelihoods, the main problem that the project will try to resolve will be that of the degradation of natural resources, whether that be pastures, water resources, or the impoverished agricultural land due to poor soil fertility management. The project aims, through its actions, to increase environmental sustainability for those using the resources, by strengthening the environmental capital of people's livelihoods and the resilience of the ecosystems to the harmful effects of Climate Change.

- The field school approach (FFS) promoted in this project is based on an integral and systematic intervention, which considers production systems to be interrelated and complementary. In this way, the practices and innovations tested and adopted will be chosen based on their potential to strengthen the resilience of ecosystems to CC in the mid-long term. Promoting the use of inputs will take into account aspects relating to contamination through the tested integrated management of production and pests (IPM) already used in Senegal;
- The majority of the intervention areas chosen by the Project present advanced levels of land degradation (see selection criteria for zones) either due to human or climate causes. In these areas, the objective is to improve the management of the agro-sylvo-pastoral resources by introducing techniques which take into consideration the harmful actions of man and which provide an adapted response to CC; and
- The training sessions developed by the Project will take into account the practices of sustainable production intensification, the use of organic material and green fertilizers, and the introduction of plant varieties adapted to the agricultural, soil and climate conditions of each zone, etc.

5.3. Financial and Economic Sustainability

Economic Sustainability: By including the livelihoods of populations and implementing tested, complementary activities, the project aims to ensure the economic sustainability of the results. The project will introduce techniques and innovations, which will contribute to the economic development of the agro-sylvo-pastoral producers targeted. The development plans,

and the POs, including services dedicated to members, will also finance income-generating activities (IGAs) for said members, which should strengthen the economic viability of households. By supporting the implementation of a local system of participative popularisation (CE through existing popularisation institutions), the project ensures the economic sustainability of the effect in the mid-term.

Financial sustainability: Despite the economic improvements introduced by the project, which contribute to the financial sustainability of the majority of the interventions, certain aspects of the project require specific attention.

Firstly, the sustainability of the field schools developed must be ensured after the closure of the project through the total commitment of the POs, the CE participants but also local institutions. The CE approach presents low installation and implementation costs, which should guarantee a certain sustainability in the mid-long term.

Lessons learned from similar projects show that, although it is quite easy to identify, in a participative way, the investments to make to improve the management of resources, there is often a gap in the required financial skills needed to achieve said investments. Similarly, although requiring low cost investment, the participative planning process at the municipal and POs level, are not always achieved.

The project has two strategies to ensure a certain level of financial sustainability for the actions taken: (i) develop POs' action plans integrating measures resilient to CC. The project will support the mobilisation of financial resources for the implementation of these action plans and; (ii) the project will establish a local CCA fund and will develop the capacities to manage it in a sustainable way. This fund will allow POs and municipalities to access resources to implement their development plans.

5.4. Sustainability of Skills developed

The project will take on three dimensions through Capacity Building (CB) as identified in *FAO's Approach to Sustainability*⁵¹ namely: (i) individual skills (small-scale farmers/livestock herders, households, female primary breadwinners); (ii) institutional skills (municipalities, regions, Ministries, popularisation agents, NGOs); and (iii) favourable environmental policy (improve the skills of institutions through training on CCA, strategic partnerships and alliances with development stakeholders, written communal development plans, etc.).

The project will develop capacities at different levels improving the skills linked with CE and the popularisation process in Senegal. These skills will be integrated into existing governmental and non-governmental organisations. The project will not rely on new structures or organisations for issues for which it does not have a mandate.

By integrating CCA into local and national policies, programs and projects, this project will develop the skills of policy decision makers and technicians on approaches resilient to Climate Change in the agro-sylvo-pastoral sector (product 3.1.1 and 3.1.2). It will build a data base and training material, which could be used to raise awareness, to train others and to spread understanding of CCA even after the end of the project.

⁵¹ <http://www.fao.org/capacitydevelopment/the-three-dimensions-of-the-fao-capacity-development-framework/en/20>

5.5. Adoption of introduced technologies

The project will test and approve technologies, for any eventual improvements requested, based on local understanding and know-how in coordination with research-development. These technologies, practices and innovations will have to thereby be adapted to the needs/requests of the agro-sylvo-pastoral producers (e.g. access to climate information through voice messages in order for illiterate producers to be able to access the advice from the ANACIM in the local GTPs). However the project will also work on improving the field school approach through the introduction of new training modules such as CCA, nutrition and gender. Close monitoring will be put in place in order to ensure that the suggested additions are adapted to the local context of populations in the targeted areas.

5.6. Potential for upscaling

Good CCA practices will be spread locally through local radio. Another efficient way to ensure the replication of good practices and lessons learned will be to use the CLCs which is a powerful approach giving populations an opportunity to speak through a wider coverage than the CE.

The ability to reproduce the CE approach and practices anticipated will also be done through other projects and programs. Already, PADER (Program to support agricultural development and rural entrepreneurship) uses the same pastoral units as those of PRODAM (Agricultural Development Project in Matam) to implement its activities in the pastoral zone. Similarly PASALouMaKaf put in place other pastoral units to provide good national coverage. Thus good local structures can be reproduced or integrated by other projects/programs that possess substantial opportunities to reach expected objectives.

APPENDIX 1 – RESULTS MATRIX

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Objective/Impact of the Project: to improve food security and nutrition in agro-sylvo-pastoral communities through the development of livelihoods resilient to climate change (CC).						
Component 1: Development/fine-tuning CCA strategies and tools based on improved knowledge and information management of CCA practices in agro-sylvo-pastoral systems						
Outcome 1.1: Increased understanding and capacities to systematically gather and disseminate agro-climatic data to identify and improve best CCA practices and innovations in targeted agro-ecological zones	An information management and exchange system of agro-climatic data is developed and operating at both local and national levels (LDCF AMAT Indicator 2.1.2.1)	Currently only 3 local GTP exists and are covered/supported by ANACIM for the transmission of information on Climate and the National GTP does not cover CCA	17 new local GTP are established and the National GTP is revitalized and adapted to the local one	17 local GTP and the national GTP conduct correctly their activities	Reports of Field Schools Agro-meteorological bulletins produced by the National GTP,	ANACIM and CSE are able to produce analytical reports that identify the real needs of information of local GTP and agro-pastoralists in FFS/APFS
	At least four CCA practices are identified in targeted areas (including POAS) in collaboration with the agro-sylvo-pastoralist communities				ANACIM & CSE	
		Agro-climatic information including specific agricultural advice is made available to agro-sylvo-pastoralists through the FFS and the GTPs. (LDCF AMAT indicator 3.1.1.1)	Currently there are no data that are comprehensible by agro-sylvo-pastoral producers and the information is elaborated for the mid-level	Information on agro-climatology and CCA are adapted to the understanding of agro-pastoralists	CCA and agro-climatic information are adapted to the understanding of agro-pastoralists and are available in the field schools	ANACIM Analysis report and Report on mutual workshops ANACIM, CSE
Output 1.1 : ANACIM and CSE ⁵² have analyzed CC related threats, opportunities and	Updated crop calendars/crop management techniques based on an analysis of inter and intra-annual climate variations, in targeted production systems;	Known documents on Climate and CCA knowledge are not shared	Tools and products for the animation of local GTP and Field Schools are developed	Tools and products for the animation of local GTP and Field Schools are applied	Reports on Field Schools (FFS/APFS) Reports on local GTPs Reports	ANACIM and CSE are able to adapt their knowledge and expertise to the needs of Field Schools and

⁵² ANACIM and CSE will implement this output. Detailed terms of reference will be developed at the beginning of project activities by the project coordination unit.

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
constraints and proposed an integrated strategy for CCA by specific project area	An agro-climatic information/advisory system is set up in consultation with local GTPs and FFS networks;				from ANACIM et CSE ANACIM & CSE	local GTP
	Local climate-resilient technologies/innovation/CCA practices are identified and pilot tested in targeted project sites;					
	3 CCA-oriented training materials are produced in consultation with the FFS and local GTPs: One on climate; One on CCA strategies and one on the actions to be implemented by the project.	There are no training materials/awareness at this level of accuracy				
Output 1.2: Information management systems and tools used by the national GTP are strengthened and updated to include information related to climate change and, local GTPs are established and participate in the agro-climate advisory system	The National GTP is strengthened and collects and disseminates agro-climatic information for use by farmers and agro-pastoralists;	The information provided by the GTP is not accessible to farmers	National GTP is strengthened and able to achieve its mission	Information are tailored on the needs of Field Schools and provided by the National GTP	Report on national GTP workshop; National GTP bulletins and reports of local GTP and farmer schools ANACIM & CSE	Members of the national GTP are willing to adapt Climatic and CCA information to the needs of the field schools and local GTP
		GTP is facing problems in ensuring properly necessary budget for their decadal meetings				
	17 local GTP are established and collect and disseminate agro-climatic information during the growing season (May to October)	Only 3 local GTP exists				

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Component 2: Capacity building and dissemination/upscaling of CCA strategies, technologies, and best practices for small agro-sylvo-pastoral producers through a growing network of Farmer Field Schools						
Outcome 2.1: The agro-climatic information is disseminated and improved CCA practices and innovations are adopted by agro-pastoralists.	(i) At least 25% of POs participating to FFS use/adopt agro-climatic information and CCA practices/technologies [LDCF AMAT Indicator 3.1.1] ; (ii) 25,000 people (40% women and young people) are directly affected by the project [LDCF AMAT Indicator 3.1.1.2] ; et (iii) At least 10 action plans for PO are integrated in CCA strategies.	The use of climatic information and of CCA tools are not easily accessible to PO in the project target zones	10% of PO participating to FFS employ climate information	25% of trained farmers and herders adopted CCA practices	Reports on Field Schools	Farmers/producers Organisations have access to climate information and benefit from CCA practices
		Climate resilience activities initiated by projects (INFOCLIM and CCAFS) are not up-scaled			PCU PO Partners institutions (ANACIM, CSE)	
Output 2.1.1: Specific curricula for FFS/APFS is revised in light of CCA , resilience of ecosystems and the integration between agricultural production systems, sylvo-pastoral systems and other cross-cutting themes such as nutrition and gender.	(i) A gender analysis in the targeted project area is conducted and a plan/strategy for mainstreaming gender issues in FFS is available (ii) 4 regional workshops (Louga, Matam, Tambacounda, and Kaffrine) are organized to discuss and validate updated FFS training modules /curricula. Each workshop will involve100 participants (including 40% women and 40 % young people (boys and girls); and (iii) 500 training modules translated and published in local languages, these will include drawing boards (illiteracy) and 2,500 training modules are published in French.	Field schools training curricula exists but still don't integrate information on climate, gender and nutrition.	FFS and APFS training curricula and awareness tools are shared with key stakeholders	FFS and APFS training curricula and awareness tools are reviewed and published	Awareness and training tools are elaborated and edited PCU PO Partners technical units (ANCAR)	FFS/APFS producers training tools have incorporated CCA and nutrition practices

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Output 2.1.2 : Master Trainers are qualified on CCA practices and strategies, on gender issues and nutrition	(i) 13 existing Master Trainers, 10 new Master Trainers, of which 20% will be women and 20% will be youth , are trained on all aspects related to FFS/APFS and CLC; (ii) 2 training sessions for Master Trainers will take place; (iii) 500 trained facilitators (400 in FFS and 100 in APFS) of which at least 25% are women; (iv) 90 facilitators from the IPPM national network of facilitators undertake refresher course in CCA strategies; et (v) 16 training sessions are organized for new facilitators ⁵³ and two refresher courses are conducted for IPPM network facilitators	13 Master Trainers and more than 800 facilitators of which respectively 2% and 35% are women, are trained thanks to the IPPM programme.	13 Master Trainers are recycled on CCA tools 10 new Master trainers are trained (of which 3 are women). 200 facilitators are trained (of which 20% are women (150 in FFS and 50 APFS)	500 facilitators of which 30% are women (400 FFS ad 100 APFS) successfully achieved their training sessions.	Report on training sessions Evaluation report on training sessions Training materials are developed and distributed Reports of FFS/APFS International consultants that trained Master Trainers PCU PO Partner's technical institutions (ANCAR, ANACIM, CSE)	The project intervention areas are equipped with the relevant measures and resources for the animation of FFS and APFS

⁵³ 3 FFS sessions and 1 CEAP (Year 1) ; 6 FdF FFS and 2 in CEAP (Year 2), 3 sessions FdF FFS and 1 CEAP (Year 3).

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Output 2.1.3 : FFS are implemented or strengthened to integrate CCA practices in production systems and producers are trained	(i) At least 1,250 FFS are created or strengthened, including 750 FS focusing on plant and 500 APFS; (ii) 15,000 farmers and 10,000 agro-pastoralists are trained, at least 30% of which are women and 30 % are youth ; (iii) At least 420 CLCs are established in the project areas; (iv) Two exchange visits between FFS are organized once a year (intra and inter agro-ecological zones) [LDCF AMAT Indicator 3.2.1.1]	1366 FFS installed, 843 facilitators and 24.737 producers are trained. Climate information and CCA tools are not easily accessible to PO in the project areas	350 FFS on CCA practices are implemented (140 FFS, and 110 APFS) to train 3500 farmers and 2750 herders	1250 FFS are set-up (750 FFS et 500 APFS) to train 15000 farmers and 1000 herders on CCA best practices	List of participant to training sessions Monitoring and evaluation forms of Field schools training sessions Number of FFS/APFS Master trainers IPPM network of facilitators PCU PO Partners technical institutions (ANCAR, ANACIM, CSE)	The PO beneficiaries of Field Schools training sessions in are willing to apply CCA best practices and to improve their organizational dynamics

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Output 2.1.4: Community Listeners' Clubs (CLC) are established and strengthened and integrated within the Farmer Field school network.	(i) 400 CLCs are set-up; (ii) 50% members of CLCs are women; (iii) 8 training sessions are organized (initial workshop and decentralized training); (iv) 50% of CLC members that received training (initial workshop and decentralized training) are women; (v) 11 follow-up missions carried out; (v) Planned interactive CLC's programmes are achieved and broadcasted	64 CLC already exist in Senegal and demonstrated the relevance of the methodological alliance between Field Schools and CLC.	200 CLC are set-up and operational, and improving the FFS/APFS network	A total of 400 CLC are operational, autonomous and improving the set-up of field schools network Gender behavioural changes are evident Behavioural changes in climate resilience of target populations are evident Target populations have better access to information and participate effectively to CCA thematic	Mid-term evaluation of the impact of CLC; Forums within CLC are used for the assessment and exchange of experiences; monitoring reports of the partner organization, technical monitoring mission reports; Final Study on the Impact of CLC on gender equality and climate resilience FAO-Dimitra et partenaires	
Output 2.1.5: Good practices and lessons learned for better adaptation to climate risk are capitalized on and disseminated locally.	(i) At least five best practices are identified by FFS/PO; (ii) At least one community radio area by zone broadcasts best practices monthly from May to October for the entire project duration.	Few practices are disseminated at the local level and specifically within the concerned eco-geographical areas	At least 5 CCA best practices and the lessons learned at each site are selected and validated	Best CCA practices and lessons learned are broadcasted	Best practices and lessons learned are selected and edited Reports on	

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
					technical meetings and workshops for the validation of good/best CCA practices PCU PO Partners of technical institutions	
Outcome 2.2 : Household incomes and agricultural and livestock productivity of FFS/APFS participants have increased through the use of CCA practices, agro-meteorological information and improved crop and beef production value chains	(i) 20% increase in per capita income of farm households due to adaptation measures applied [LDCF AMAT Indicator 1.3.2]; (ii) At least 30% of agro-sylvo-pastoral projects incorporate budget for CCA components [LDCF AMAT Indicator 1.2.8].	The livelihoods of people in the project target areas are limited and malnutrition indicators are high; The organization of value chains initiated by PAFA project has not experienced scale-up in the sylvo-pastoral area and the Eastern Region of Senegal	60 % of farmers and herders are trained through FFS and APFS have adopted tools for meteorological forecast and applied CCA best or good practices	100 % of targeted farmers and herders Are trained and adopted meteorological forecast tools and increased their incomes up to 20%	PO diagnostic report Report on baseline survey Periodic/annual activity reports PCU PO Partners of technical institutions (DRDR,ANCA R, Projects/programmes, NGO)	The impact of climate disturbances and stresses do not cause shortages or unavailability of agricultural products that could have a negative effect on the food and nutritional security of beneficiaries

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Output 2.2.1: Agro-sylvo-pastoral producer's organizations are strengthened through the adoption of new technologies and innovations for CCA, improved production and the enhancement of value chains.	(i) At least 50 vulnerable households by area of intervention are supported by income-generating activities [LDCF AMAT Indicator 1.2.10]; (ii) 50% of farmers and herders adopt at least one recommended CCA option in field schools [LDCF AMAT Indicator 3.1.1]; (iii) POs support a development plan including CCA priorities and have access to local financing; (iv) At least one PO per area tests warrantage as a practice providing access to finance	Activities and experiences in the project areas focus too little on improving resilience	30% of PO trained in FFS and APFS are able to elaborate their development plans which includes CCA practices	100% of targeted PO developed their resilience through income generation activities incorporated in their development plans	Development plans validated by PO Warrantage systems are functional Periodic/annual activities reports PCU PO Partners of technical institutions (DRDR, ANCAR, Projects/programmes, NGO)	POs are involved in the design and implementation of income-generating activities and are keen to contribute to improving the value chain.
Output 2.2.2: At least one producer per FFS multiplies and marketing CC adapted seeds with high nutritional values	(i) Amount of pre-basic seeds of adapted varieties produced: mil (3 ha for 4 varieties); sorghum (2 ha for 3 varieties); cowpea (3 ha for 3 varieties); peanut (5 ha for 5 varieties); maize (4 ha for 4 varieties); sesame (3 ha for 4 varieties); (ii) Quantity of basic and certified seeds of adapted varieties; (iii) At least two PO by project area benefit from seed storage infrastructure (construction or rehabilitation).	Catalogues of adapted seed varieties (per each agro-ecological zone) of cereal, fruits, vegetable and fodder are not updated and seed producer organizations do not master the production of quality certified seeds	8 PO are strengthened on: - the production and certification of seed - Commercialization of certified/adapted seed Pre-basic seed varieties are developed by agriculture research entities	17 OP are strengthened on the production and commercialization of certified seeds	Catalogues are updated Reports on the production of targeted certified seed varieties PCU PO ISRA DRDR and DA	PO and partners/stakeholders institutions are strongly involved and participate on the production and commercialization of certified seeds adapted to the project ecological areas

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Output 2.2.3: New adapted varieties of cereals, fruits and vegetables and fodder species are introduced into target areas to improve the food and nutritional security of the population.	(i) 50% of beneficiaries adopt the new varieties; (ii) 70% of beneficiaries diversify their diet and meet their nutritional needs	PAFA project is implementing a sliding funding scheme for value chain stakeholders, by funding sub-projects based on above mentioned scheme. The PADAER and PasaLouMaKaf projects are also inspired by this scheme	30 % of trained target farmers and herders are adopting new varieties with high nutritional values, as well meteorological forecasting tools	100 % trained target farmers and herders have ameliorated their conditions of food and nutrition security	Report on baseline survey Periodic/annual activities reports PCU PO ISRA CLM	
Output 2.2.4: The Land use plan and allocation of land uses (POAS) and plans for the management of pastures and livestock grazing areas are reinforced with the participation of farmers' associations, livestock producers and local authorities	(i) At least 17 management plans/POAS/PU supported in the development and implementation; (ii) At least three communication protocols signed and implemented with at least one protocol per zone with three community radios	Les POAS do not favour the questioning the control and monitoring of the implementation of enacted rules.	A diagnostic of the state of the art of land occupation plans (POAS) is achieved ; At least 5 POAS/PU management plans are supported in project target areas	17 POAS/PU management plans are supported in the target project areas	Report on baseline survey at local authorities level	Local authorities and PO are keen to offer the necessary support for the development of Les collectivités locales et les OP plans for POAS/PU management
		CC effects are not seriously considered			Report on implementation plans for POAS/PU management	
		PU advocates modernization of extensive farming based on a contract-management of resources and pastoral areas.			Report on stakeholders/key actors training activities Periodic/annual activities reports	
		PU situated in the sylvo-pastoral area are mostly equipped with range management plans, but			PCU PO Project	

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
		their implementation are not yet effective			partners : DRDR ANCAR, CSE, ONG Local authorities	
Component 3: Mainstreaming CCA strategies into agro-sylvo-pastoral sectoral policies, programs and development frameworks at the national and local level.						
Outcome 3.1 : CCA is mainstreamed into policies, strategies and national programs , shifting from a reactive response to a pro-active preparedness approach	(i) CCA strategies are mainstreamed into at least 30% of agricultural, pastoral and forestry sector policies [LDCF AMAT Indicator 1.1.1.1]; and (ii) At least 30% of agro-sylvo-pastoral projects incorporate budget for CCA components [LDCF AMAT Indicator 1.1.1.2].	CCA strategies are currently limited to some environmental policies and programmes for sustainable development; Absence of weak intersectoral integration	10% of agro-sylvo-pastoral projects integrates CCA into their budgets	30% of agro-sylvo-pastoral projects integrates CCA into their budgets	AWPB Projects/Programmes reports and minutes	The engagement of stakeholders in the development of continuous adaptation scenario is real throughout the implementation of the project.
Output 3.1.1: Awareness-raising modules for policy makers are developed and institutional capacities are strengthened to mainstream CCA in policies, programs and projects	(i) A note on the capitalization of project results is made; (ii) At least two “policy briefs” and two documentary videos are produced and distributed, the website is built and powered and social networks are used; (iii) The identification report of gaps and inconsistencies in inter-institutional competencies and the assessment report of capacities and deficiencies in the formulation of CC adaptation policies are available, discussed and validated in a national workshop (end of Year 1); (iv) The	Modules are not available.	A note on the capitalization of the realised projects A policy brief note and a documentary video are realised A web site is developed and social network are active Diagnostic report elaborated and cleared Consultation platform	(i) A note on the capitalization of the results of achieved projects; (ii) at least 2 “policy briefs” and 2 documentary videos are realized and broadcasted, the web site is realized and social network are exploited ; (iii) A report identifying inter-institutional gaps and inconsistencies and	Narrative report on project activities Capitalization note published Number visitors of the web site Number of exchanges on social networks Number of	

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
	consultation platform is set up and operational (Year 2) and the Memorandum of Understanding and four year work plan is discussed, validated and signed with FNDASP; (v) At least two participatory workshops with decision makers, institutional stakeholders and representatives of POs are organized to share community needs and identify measures to be included CCA in policies, programs and projects at the end of Year 2 and in Years 3 and 4; (vi) At least 50 inter-institutional decision makers, stakeholders, PO leaders and viewpoints will be trained in the design and formulation of public policies and strategies for better management of the CCA in sector policies during Year 3 of the project; (vii) At least two sectoral policies have incorporated CCA proposals at national and municipal levels ⁵⁴ by the end of Year 3 of the project.		<p>is implemented</p> <p>Workplan is prepared, discussed and validated with FNDASP</p> <p>A workshop aiming to share results with institutional decision makers, stakeholders and PO is organized</p> <p>At least 20% of institutional managers are trained on mainstreaming CCA policies into policies into the Country sectorial policies and programmes</p>	<p>an Evaluation report of capacities and deficiencies in the formulation of CCA policies, are discussed and validated (iii) at least 50 main institutional decision makers</p>	<p>consultation and solicitation of the platform</p> <p>Report on participation to evaluation training courses</p> <p>PCU PO Partners Projects/programmes Key sectoral ministries and local authorities NGO</p>	

⁵⁴ Act III of decentralization advocates full communalization.

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
Output 3.1.2: The establishment of a high-level intersectoral group to define and adopt the agenda of CCA activities and resilience to integrate into policies, programs and projects	(i) The diagnosis of the devices in charge of political dialogue (CONSERE, COMNACC, CNDD, CSOASP) on agro-sylvo-pastoral development and inter-sectoral coordination in the inter-institutional governance of climate change is developed, discussed and validated during a workshop (Year 1 of the project); (ii) he draft texts of inter-institutional coordination mechanisms at the national and local level are prepared and/or updated, discussed and validated at workshops and introduced to administrative signature routes and were signed by the end of Year 2; and (iii) Inter-agency coordination mechanisms at the national and local levels as well as operations are functional through support for their operation provided by the project: at least two national meetings (Y2) and at least six local meetings (Y3 and Y4).	Inter-institutional consultation platforms are not functional	<p>Diagnostic report of the forum for policy dialogue is developed, discussed and validated</p> <p>Policy draft texts are Developed and validated</p> <p>At least one meeting of the high-level intersectoral working group is organized</p> <p>At least 5 meetings are organized in the target area of the project</p>	<p>The high-level intersectoral working group is operational</p> <p>The meetings of local committees are held regularly</p>	<p>Diagnostic report</p> <p>Reports /minutes of meetings of the various committees</p> <p>PCU activities report</p> <p>Policies/regulatory texts are broadcasted</p> <p>PCU Projects/programmes partners</p> <p>Sectoral Ministries Local authorities PO NGO</p>	
Outcome 3.2 - A "national CC resilience fund" is in place within an existing funding mechanism to support local CCA activities.	After Y3 of the project implementation, the fund is mobilizing twice the initial contribution from the GEF/LDCF.		<p>Diagnostic report on existing funds is edited, discussed and validated</p> <p>A funds counter is opened</p> <p>An advocacy system</p>	Funding are granted; The initial GEF contribution is doubled and partners contributing to the fund are mobilized		

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
			is set-up doubling the funds resources			
Output 3.2.1: A "National Resilience Fund" is created through an open window at the level of existing funds.	(i) The diagnostic report and analysis of existing funds is developed, discussed and validated in Year 1; (ii) The negotiations and the implementation protocol terms of the Fund are conducted and discussed and the draft texts are also developed, discussed and validated in the second half of Year 1; the documents signed at the end of Year 1; (iii) The Fund is operational in the winter of Year 2 of the project and includes resources for strengthening the capacities of municipalities and POs, potential project promoters; and; (iv) The Government and at least two technical and financial partners have expressed strong commitment to replenish the funds to double them by the end of Year 3 of the project	No local funds for CCA activities exist.	(i) A diagnostic and analytical report on existing funds is elaborated, discussed and validated during Y1 ; (ii) Documents are signed by the end of Y1; (iii) Negotiations and protocol modalities for the implementation of the fund are set-up and validated and related draft texts is prepared, discussed and validated during the second half of Y1; (iii) The fund is operative during the Y2 agricultural season, and integrates the necessary resources for reinforcement/capacity building of communes, and PO	The fund/counter is active	Diagnostic report on fund raising Regulations texts on funds raising, management and replenishment Number of sub-projects financed by the fund PCU activities report Accession protocol to the fund PCU Projects/programmes partners Sectoral	

Result Chain	Indicators	Baseline	MILESTONE		Means of Verification and Responsible Institution	Assumptions
			Mid-Term Targets	Targets at the End of the Project		
			involved in the development of local projects; and (iv) The Government and at least 2 technical and financial key partners expressed their strong commitment to replenish the fund doubling it by Y3 of the project.		Ministries Local authorities PO NGO	
Component 4: Project monitoring and evaluation						
Outcome 4.1: Project implementation based on results based management and application of project lessons learned in future operations facilitated						

APPENDIX 2: WORK PLAN

Outcomes	Activities	Responsible institution/ entity	Year 1			Year 2			Year 3			Year 4			Year 5		
			Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3
Component 1- Development/fine-tuning CCA strategies and tools based on improved knowledge and information management of CCA practices in agro-sylvo-pastoral systems																	
Output 1.1.1: ANACIM and CSE have analyzed CC related threats, opportunities and constraints and proposed an integrated strategy for CCA by specific project area	Preparation of a technical paper on local knowledge on climate related issues, existing perceptions of CC and climate variability, and collection and dissemination of climate information	PCU ANACIM															
	Improve/enhance the existing network of weather stations	ANACIM PCU															
	Conduct a participatory diagnosis of climate-related threats, constraints and opportunities and on endogenous knowledge regarding adaptation measures	CSE PCU															
	Prepare a technical note identifying CC related threats, opportunities and constraints and develop a strategy /adaptation measures based on existing studies, the lessons learnt from other projects and the participatory diagnosis	ANACIM CSE PCU															
	Organize FFS exchange visits to validate/agree on the introduction of proposed adaptation measures identified by the agro-sylvo-pastoral producers through the FFS network	PCU PO MAER ANACIM CSE															

	Organize a national workshop to distribute and validate technical documents prepared by ANACIM and CSE, bringing together all actors involved in the project (Ministries, research institutes, POs, NGOs.)	ANACIM CSE PCU														
	Collect the information\ needed to develop FFS/APFS trainings and awareness raising materials	ANACIM CSE PCU MAER														
	Piloting tests of climate-resilient agro-pastoral innovations in project sites through FFS/APFS	PCU MEPA ANACIM														
	Develop specific and localized strategies for addressing CCA in each project area	ANACIM CSE PCU														
	Organize a national validation workshop for mainstreaming CCA into national policies and programmes	ANACIM CSE PCU MAER														
Output 1.1.2: Information management systems and tools used by the national GTP are strengthened and updated to include information related to climate change and, local GTPs are	Elaboration of a four-year work plan defining tasks, roles and responsibilities of the various institutions that are part of the national GTP and are responsible for collecting and disseminating agro-climatic information ;	PCU National GTP ANACIM MAER														
	Increase the capacity of institutions that are part of the national GTP	PCU National GTP ANACIM MAER														

established and participate in the agro-climate advisory system	Establish new and strengthen local GTP	PCU National GTP ANACIM MAER MARE (DRDR)															
	Define a strategy and establish a mechanism for information management and exchange (via broadcast channels, Android tablets, computers, etc.)	PCU National GTP ANACIM MAER															
	Strengthen and increase availability and access to reliable and user-friendly agro-meteorological information at multiple levels in collaboration with mobile operators (by promoting the use of voice messages for weather forecasting)	PCU ANACIM															
	Train media personnel (community based radio clubs, private radio stations) on the development and distribution of agro-meteorological information	PCU ANACIM MCT MESR															
Component 2 - Capacity building and upscaling of CCA strategies, technologies, and best practices for small agro-sylvo-pastoral producers through a growing network of Farmer Field Schools																	
Output 2.1.1: Specific curricula for FFS/APFS is revised in light of CCA , resilience of ecosystems and the integration between agricultural	Developing/reviewing existing FFS/APFS curricula to incorporate CCA issues, gender and nutrition;	PCU MAER MEPA PO															
	Organizing regional workshops to validate curricula bringing together project stakeholders;	PCU MAER MEPA PO															

production systems, sylvo-pastoral systems and other cross-cutting themes such as nutrition and gender	Translating FFS training materials into the local languages and using illustrations and drawing boards;	PCU MAER MEPA PO														
	Raising awareness on gender mainstreaming and nutrition into the FFS curricula	PCU MAER MEPA PO														
Output 2.1.2: Master Trainers are qualified on CCA practices and strategies, on gender issues and nutrition	Training of 23 Master trainers;	PCU MAER MEPA PO														
	Additional training to 90 facilitators who are members of the national IPPM network (at least 25% women) with 60 facilitators being trained in Year 1 and 30 in Year 2;	PCU MAER MEPA PO														
	Training of 500 new facilitators (25% women);	PCU MAER MEPA PO														
	Organizing facilitator's refresher courses	PCU MAER MEPA PO														
Output 2.1.3: FFS are implemented or strengthened to integrate CCA practices in production systems and producers are trained	60 FFS conducted in Year 1, 250 FFS and 110 APFS in Year 2, 300 FFS and 240 APFS in Year 3, 150 FFS and 150 APFS in Year 4;	PCU MAER MEPA PO														
	Organizing field visits from one agro-ecological zone to the other to share best practices	PCU MAER MEPA PO														

Output 2.1.4: Community Listeners' Clubs (CLC) are established and strengthened and integrated within the Farmer Field school network	<u>Preliminary phase</u>															
	Identifying and training the partner NGO Identifying target areas where to establish CLC's	PCU CLC Coordination Unit														
	Developing an inventory of participatory venues	PCU CLC Coordination Unit														
	Raising awareness among targeted communities on the advantages of CLCs	PCU CLC Coordination Unit														
	Identifying potential partners	PCU CLC Coordination Unit														
	<u>Implementation of 400 CLCs</u>															
	Organizing launching workshops	PCU CLC Coordination Unit														
	Conducting decentralized training	PCU CLC Coordination Unit														
	<u>Capacity building: gender, nutrition, etc.</u>															

	Conducting technical training for CLC according to their needs	PCU CLC Coordination Unit														
	Training radio partners	PCU CLC Coordination Unit														
	<u>CLC and FFS networking</u>															
	Producing and disseminating interactive gender-sensitive radio broadcasts	PCU CLC Coordination Unit														
	Using video and other means to share experiences	PCU CLC Coordination Unit														
Output 2.1.5: Good practices and lessons learned for better adaptation to climate risk are capitalized on and disseminated locally	Identify, analyse and select the best practices to recommend;	PCU ANACIM CSE MAER														
	Develop a dissemination strategy based on targets and identify the main distribution channels.	PCU ANACIM CSE MAER														
Output 2.2.1: Agro-sylvo-pastoral producer's	Conduct a baseline survey to select POs and identify their support needs;	PCU MAER MEPA PO														

organizations are strengthened through the adoption of new technologies and innovations for CCA, improved production and the enhancement of value chains	Train PO members and leaders as facilitators for FFS/APFS	PCU MAER MEPA PO															
	Institutionally support PO in governance and gender;	PCU MAER MEPA PO															
	Support POs in the design of their development plan incorporating priorities, development opportunities around priority sectors, diversification, improving the quality of agro-sylvo-pastoral products and AGR;	PCU MAER MEPA PO															
	Train PO on themes included in the development plan;	PCU MAER MEPA PO															
	Facilitate access to inputs as well as farm advisory and management services;	PCU MAER MEPA PO															
	Provide operating funds for FFS and APFS on the basis of a revolving fund;	PCU MAER MEPA PO															
	Integrate agro-forestry activities (wind breaks, living hedges, forested villages, alley cropping, improved fallows, small ruminants, poultry farming and beekeeping) within the same geographical area of FFS and APFS at the same time or sequentially;	PCU MAER MEPA PO															

[illegible]

	Strengthening seed producers capacities in planning, production, marketing;	PCU MAER PO															
	Building storage warehouses	PCU MAER PO															
Output 2.2.3: New adapted varieties of cereals, fruits and vegetables and fodder species are introduced into target areas to improve the food and nutritional security of the population	Supporting the development and use of adapted varieties of seeds from different levels (base, R1, R2) to increase production for food security;	PCU MAER PO															
	Raising awareness about nutritional practices, nutrition and good hygiene practices	PCU MAER PO															
	Organizing communication campaigns on project activities to accompany the introduction of new varieties at important events on the national (International Agriculture and Animal Resources Fair (FIARA), pastoralist open days, etc.) or local (major events organized by project intervention area) agro-sylvo-pastoral agenda, farmers open days, etc	PCU MAER PO															
Output 2.2.4: The Land use plan and allocation of land uses (POAS) and plans for the management of pastures and livestock grazing	Supporting the development of POAS/pasture management plans, cattle grazing management plans, and a pastoral charter encouraging preliminary consultation meetings between stakeholders to foster communication and awareness about resource management issues;	PCU MAEP PO															

areas are reinforced with the participation of farmers' associations, livestock producers and local authorities	Supporting the implementation of POAS and existing pasture management plans;	PCU MAEP PO																	
	Signing and implementing protocols with local radio stations for the production and dissemination of public issues throughout the development and/or implementation of POAS and pasture management plans.	PCU MAEP PO																	
Component 3 – Mainstreaming CCA strategies in a coordinated manner into agricultural and livestock related policies, development framework programs and projects at the national level and in selected vulnerable areas																			
Output 3.1.1: Awareness-raising modules for policy makers are developed and institutional capacities are strengthened to mainstream CCA in policies, programs and projects	Capitalizing project results	PCU																	
	Preparing “policy briefs” and making videos for decision makers	PCU																	
	Supporting websites and using social networking sites	PCU																	
	Identifying gaps and inconsistencies in inter-institutional skills and assessing capacities and deficiencies in the formulation of policies on CC adaptation	PCU MEDD																	
	Establishing a consultation platform within the SNCASP/FNDASP with roles and operating mechanisms defined and including a Memorandum of Understanding and a five year work plan	PCU																	

	Organizing participatory workshops with decision makers, institutional stakeholders and representatives of POs to share community needs and identify key CCA measures to be included in policies, programs and projects	PCU MEDD															
	Developing and formulating training modules to build the capacity of officials in the implementation of policies and strategies for better recognition of CCA in sectoral and intersectoral policies on the basis of a resilience analysis models developed by the High Level Inter-Sectoral Group and the FAO	PCU MEDD															
	Formulating proposals for the integration of the CCA in political, national and municipal programs and projects	PCU MEDD															
Output 3.1.2: The establishment of a high-level intersectoral group to define and adopt the agenda of CCA activities and resilience to integrate into policies, programs and projects	Identifying strengths, weaknesses, obstacles and opportunities of the mechanisms responsible for agro-sylvo-pastoral development political dialogue and inter-sectoral coordination in the institutional governance of climate change	PCU MAER MEDD MEPA Local Regional Authorities															
	Preparing and/or updating the draft texts of the intersectoral coordination mechanisms	PCU															
	Organizing sharing workshops and the validating draft texts at national and local levels	PCU MAER MEDD MEPA															

	Supporting the operation of these institutional governance arrangements.	PCU															
	Identifying investment needs to support the growing awareness of CCA through field schools;	PCU MEDD															
	Reviewing the National Agricultural Investment Plan by incorporating aspects of CCA;	PCU MAER MEDD MEPA Local Regional Authorities															
	Educating national institutions on the consideration of CCA in their budgetary planning frameworks	PCU MEDD MAER															
Output 3.2.1: A "National Resilience Fund" is created through an open window at the level of existing funds	Conduct technical workshops on sharing and validation;	PCU															
	Prepare the promotion and operationalization of funds	PCU															
	Identify common needs of capacity building among municipalities and PO to integrate CCA aspects into their planning;	PCU															

	Support and conduct awareness campaigns and advocacy for raising Fund contribution funds	PCU															
Component 4 - Project monitoring and evaluation																	
Output 4.1: System for systematic collection of field-based data to monitor project outcome indicators made operational	Inception workshop	PCU FAO															
	Preparation and validation of the AWPB	PCU FAO															
	Preparation & validation of the M&E plan	PCU FAO															
	Regular monitoring and reporting requirements (PPRs)	PCU FAO															
	PIRs	PCU FAO															
Output 4.2 Midterm review and final evaluation reports	Mid-Term Review	PCU FAO															

	Final Evaluation	PCU FAO															
Output 4.3 Communication strategy developed	Identification of best practices and lessons learned from project activities	PCU FAO															
	Preparation of technical reports on best practices and lessons learnt for dissemination	PCU FAO															
	Project website design and update	PCU FAO															
Project Management																	
Project Management	Contracting of project management staff	FAO															
	PSC bi-annual meetings	PSC Chairperson Project Coordinator PCU FAO															

APPENDIX 3: RESULTS BUDGET



Budget.LDCF_Seneg
al_ProDoc_submissior

APPENDIX 4: PROJECT ENVIRONMENTAL AND SOCIAL SCREENING (ESS) CHECKLIST / RISK CLASSIFICATION CERTIFICATION FORM

ANNEX 6 OF FAO ENVIRONMENTAL AND SOCIAL MANAGEMENT GUIDELINES

PROJECT ENVIRONMENTAL AND SOCIAL SCREENING (ESS) CHECKLIST -For Risk Classification use during Project Identification

For each question only 1 of 4 boxes must be checked: Not Applicable (N/A), No, Yes or Unknown⁵⁵.

Would the project, if implemented?	Not Applicable	No	Yes	Unknown
I. FAO VISION/STRATEGIC OBJECTIVES				
Be in line with FAO's vision?			X	
Be supportive of FAO's strategic objectives?			X	
II. FAO KEY PRINCIPLES FOR SUSTAINABILITY IN FOOD AND AGRICULTURE				
Improve efficiency in the use of resources?			X	
Conserve, protect and enhance natural resources?			X	
Protect and improve rural livelihoods and social well-being?			X	
Enhance resilience of people, communities and ecosystems?			X	
Include responsible and effective governance mechanisms?			X	
ESS 1 NATURAL RESOURCES MANAGEMENT				
❖ Management of water resources and small dams				
Include an irrigation scheme that is more than 20 hectares or withdraws more than 1000 m ³ /day of water?		X		
Include an irrigation scheme that is more than 100 hectares or withdraws more than 5000 m ³ /day of water?		X		
Include an existing irrigation scheme?			X	
Include an area known or expected to have water quality problems?		X		
Include usage of non-conventional sources of water (i.e. wastewater)?		X		
Include a dam that is more than 5 m. in height?		X		
Include a dam that is more than 15 m. in height?		X		
Include measures that build resilience to climate change?			X	
❖ Tenure				
Negatively affect the legitimate tenure rights of individuals, communities or others ⁵⁶ ?		X		

⁵⁵ "Show stopper" questions are marked in red colour. If any issues are identified in answering these questions then the project is no longer a low risk project and needs to be brought to the attention of relevant technical divisions and the ESM unit.

ESS 2 BIODIVERSITY, ECOSYSTEMS AND NATURAL HABITATS				
Make reasonable and feasible effort to avoid practices that could have a negative impact on biodiversity, including agricultural biodiversity and genetic resources?			X	
Have biosafety provisions in place?	X			
Respect access and benefit-sharing measures in force?			X	
Safeguard the relationships between biological and cultural diversity?			X	
❖ Protected areas, buffer zones and natural habitats				
Be located such that it poses no risk or impact to protected areas, critical habitats and ecosystem functions?			X	
ESS 3 PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE				
❖ Planted forests				
Have a credible forest certification scheme, national forest programmes or equivalent or use the Voluntary Guidelines on Planted Forests (or an equivalent for indigenous forests)?	X			
ESS 4 ANIMAL - LIVESTOCK AND AQUATIC- GENETIC RESOURCES FOR FOOD AND AGRICULTURE				
Involve the procurement or provision of pesticides?		X		
❖ Aquatic genetic resources				
Adhere (Aligned) to the FAO Code of Conduct for Responsible Fisheries (CCRF) and its related negotiated instruments?	X			
Be aligned, where applicable, with FAO's strategic policies established in the FAO Technical Guidelines for Responsible Fisheries (including aquaculture)?	X			
❖ Livestock genetic resources				
Be aligned with the Livestock Sector Strategy including the animal disease, public health and land degradation provisions?			X	
ESS 5 PEST AND PESTICIDES MANAGEMENT				
Involve the procurement or provision of pesticides?		X		
Result in increased use of pesticides through expansion or intensification of production systems?		X		
Require the disposal of pesticides or pesticide contaminated materials?		X		
ESS 6 INVOLUNTARY RESETTLEMENT AND DISPLACEMENT				
Avoid the physical and economic displacement of people?			X	
ESS 7 DECENT WORK				
Adhere to FAO's guidance on decent rural employment, promoting more and better employment opportunities and working conditions in rural areas and avoiding practices that could increase workers'			X	

⁵⁶ In accordance with Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT) <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>

vulnerability?				
Respect the fundamental principles and rights at work and support the effective implementation of other international labour standards, in particular those that are relevant to the agri-food sector?			X	
ESS 8 GENDER EQUALITY				
Have the needs, priorities and constraints of both women and men been taken into consideration?			X	
Promote women's and men's equitable access to and control over productive resources and services?			X	
Foster their equal participation in institutions and decision-making processes?			X	
ESS 9 INDIGENOUS PEOPLES AND CULTURAL HERITAGE				
Are there any indigenous communities in the project area?			X	
Are project activities likely to have adverse effects on indigenous peoples' rights, lands, natural resources, territories, livelihoods, knowledge, social fabric, traditions, governance systems, and culture or heritage (tangible and intangible)?		X		
Are indigenous communities outside the project area likely to be affected by the project?		X		
Designed to be sensitive to cultural heritage issues?			X	

ANNEX 7

Risk Classification Certification Form

After completing the Environmental and Social (E&S) Screening Checklist, the Lead Technical Officer (LTO) completes and certifies this Certification Form and attached the E&S Screening Checklist to this form.

Project symbol: GCP/SEN/066/LDF

Project title: Mainstreaming ecosystem-based approaches to climate-resilient rural livelihoods in vulnerable rural areas through the Farmer Field School approach

A. RISK CLASSIFICATION

☒ Low ☐ Moderate ☐ High

1. Record key risk impacts from the E&S Screening Checklist

A. _____

C. _____

B. _____

D. No adverse Impacts

2. Has the project site and surrounding area been visited by the compiler of this form?

☒ Yes

☐ No

B. STAKEHOLDER CONSULTATION/ENGAGEMENT

Identification of Stakeholder(s)	Date	Participants	Location
PPG Inception Workshop: Ministry of Agriculture and Rural Equipment (MAER), through its Department of Agriculture, its Seeds Division, the Senegalese Institute of Agricultural Research (ISRA) and the National Agency for Agricultural and Rural Council (ANCAR); National Agency of Civil Aviation and Meteorology (ANACIM); Centre de Suivi Ecologique (CSE); IFAD Senegal; Agence Nationale de Conseil Agricole et Rural (ANCAR) ; Ministère de l'Elevage et des Productions Animales (MEPA); Ministère de l'Environnement et du Développement Durable (MEDD)	June 2014	15	Saly
Meeting of PPG National Team of Consultants with Stakeholders: - Matam : Projet de Développement Agricole de Matam (PRODAM), Société d'Aménagement des terres du Delta (SAED), USAID YAAJEENDE et la Direction Régionale du Développement Rural (DRDR) ; Louga : Direction Régionale du Développement Rural, Direction de Zone Sylvopastorale de l'Agence Nationale de Conseil Agricole et Rural ANCAR, Projet des Villages du Millénaire, Directoire Régionale des Femmes en Elevage (DRFEL), Réseau des Facilitateurs GIPD (Gestion Intégrée des	July 2014	5 per meeting	Matam Louga Thiès

1 Project Cycle Annexes 13 May 2015

<p>Déprédateurs et de la Production), Antenne PASALOU MAKAF/Volet Eaux Souterraines ; Thiès : Direction Régionale du Développement Rural DRDR, Association des Unions Maraichères AUMN, RESOPP (Réseau des Organisations Paysannes et Pastorales du Sénégal du Sénégal) ; Fédération des ONG du Sénégal (FONGS), Direction Zone Niayes ANCAR</p> <ul style="list-style-type: none"> - Direction régionale du Développement Rural (DRDR) ; BAMAARE/SODEFITEX ; Projet d'Appui aux Filières Agricoles (PAFA) ; Projet d'Appui au Développement Agricole et de l'Entreprenariat Rural (PADAER) ; PASA LouMaKaf - Direction régionale du Développement Rural (DRDR) and PASA LouMaKaf 	<p>Septembre 2014</p>	<p>5 to 8 per meeting</p>	<p>Tambacounda, Kaffrine, Kaolack</p>
	<p>Octobre 2014</p>	<p>6</p>	<p>Louga, Matam, Tambacounda, Kaffrine and Kaolack</p>
<p>PPG Validation Workshop: Ministry of Agriculture and Rural Equipment (MAER), through its Department of Agriculture, its Seeds Division, the Senegalese Institute of Agricultural Research (ISRA) and the National Agency for Agricultural and Rural Council (ANCAR); National Agency of Civil Aviation and Meteorology (ANACIM); Centre de Suivi Ecologique (CSE); IFAD Senegal; Agence Nationale du Conseil Agricole et Rural (ANCAR) ; Ministère de l'Elevage et des Productions Animales (MEPA); Ministère de l'Environnement et du Développement Durable (MEDD) ; Ministère de l'Elevage et des Productions Animales (MEPA) ; Société de Développement et des Fibres Textiles (Sodefitex) ; Comité National de Changement Climatique (COMNACC) ; Direction de l'Environnement et des Etablissements Classés (DEEC) ; Programme d'Appui au Développement agricole et à l'Entreprenariat Rural (PADAER) ; Projet d'Appui aux Filières Agricoles (PAFA) ; Projet d'Appui à la Sécurité Alimentaire dans les régions de Louga, Matam et Kaffrine (PASALOU MAKAF) ; Base d'Appui aux Méthodes et Techniques pour l'Agriculture, les autres Activités Rurales et l'Environnement de la SODEFITEX (BAAMTARE) ; Programme de Développement Agricole et Nutritionnel pour la sécurité Alimentaire au Sénégal (YAJEENDE)</p>	<p>April 2015</p>	<p>34</p>	<p>Dakar</p>
<p>Separate meetings of PPG national and international team with relevant Key stakeholders and partners</p> <ul style="list-style-type: none"> - The National Agency of Civil Aviation and Meteorology (ANACIM) - The Ecological Monitoring Centre (CSE) - The Senegal Agency of the Great Green Wall (ANGMV) - Projet d'Appui aux Filières Agricoles (PAFA) - Projet d'Appui à la Sécurité Alimentaire dans les régions de Louga, Matam et Kaffrine (PASALOU MAKAF) - DGA/MAER 	<p>April 2015</p>	<p>6 6 5 5 5 4</p>	<p>Dakar</p>

1. Summarize key risks and impacts identified from the stakeholder engagement

A. _____

C. _____

B. _____

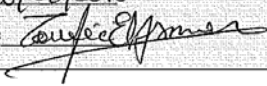
D. No adverse Impacts

2. Have any of the stakeholders raised concerns about the project?

None of the Stakeholders raised any concern about the project

The LTO confirms the information above

Date 20/08/2015

Signature 

APPENDIX 5 - TERMS OF REFERENCE (TORS) FOR INTERNATIONAL AND NATIONAL CONSULTANTS

Position Titles	Unit	N. of units	Unit Cost (USD)	Tasks to be performed
For Project Management				
Local				
National Project Coordinator	Year	5	33,600	Overall project management, interface with local counterparts, responsible for all project deliverables, reporting. The project coordinator will also have technical responsibility over Component 1 activities.
Procurement and Finance	Year	5	29,664	Procurement and financial reporting
Operations and Admin	Year	5	29,664	Administrative services and office operations
Travel: Travel will be required to coordinate with project local stakeholders (in the pilot areas targeted by the project). There will be trainings in the field and needs for the Dakar based team to attend and coordinate activities in the targeted regions. There will also be times when the Project staff in the field that are being paid by project partners, will be needed to assist in activities in Dakar. The project will be requested to cover this travel as well.				
For Technical Assistance				
Local				
Agronomist	Year	5	19,200	Assisting the Project Coordinator in the daily management, technical supervision and coordination of all project activities related to crop management and sustainable land management.
Livestock/Pastoralist Expert	Year	5	19,200	Assisting the Project Coordinator in the daily management, technical supervision and coordination of all project activities related to livestock management and pastoralist production.
Socio-Institutional Expert	Year	5	19,200	Assisting the Project Coordinator in the daily management and technical supervision by providing overall support and guidance on social issues related to the project's implementation especially on safeguards and social inclusion.
Agro-forestry Expert	Month	30	1,600	Supporting the project team by

				identifying technically, economically and socially viable options for agroforestry that will support sustainable land management within the project intervention areas.
Gender/Nutrition Specialist	Month	30	1,600	Conducting training and providing technical inputs in designing training material/modules, introducing nutrition and mainstreaming gender into the FFS and PFS curricula
National Policy Specialist	Month	20	1,600	Supporting the project team to achieve and monitor outputs related to the strengthening of institutional capacities to mainstream climate resilient agro-pastoral and agricultural systems into sectoral policies and programmes.
Microcredit/Warrantage and Marketing Specialist	Month	12	1,600	Conducting training and providing technical inputs in designing training material/modules on micro-credit operating mechanisms and access conditions to the Local Adaption Investment Fund fund
M&E Expert	Month	30	1,600	Conducting regularly field M&E visits to project sites and monitoring progress in achieving project outputs and outcome indicators.
Communication expert	Month	60	1,600	Developing a communication strategy and communication plan to disseminate project information through various communication tools.
Dimitra CE National Focal Point	Month	30	1,600	Developing an integrated strategy which link CE activities with those of FFS
International				
Agrometeorology/Climatology Expert	Week	4	3,000	Providing technical support and training of project team on agrometeorological tools adapted to farmers
MTE and Final Evaluation/Review Expert	Lumpsum	2	40,000	Conducting MTE and Final Evaluation missions
Anthropologist	Week	12	3,000	Providing support and guidance to the project team on social-cultural issues related to the project's implementation

				especially on safeguards and social inclusion
APFS/Agro-pastoral/Livestock Expert	Week	2	3,000	Providing technical advice in preparing curricula, guidelines and strategies for APFS and conducting training for Master Trainers
Assessment Tools Expert (Climate Proofing, SHARP, etc.)	Week	2	3,000	Providing guidance for undertaking multi-stakeholder and participatory assessments on knowledge systems and on adaptive capacities
Land Management and Land Tenure Expert	Week	2	3,000	Providing guidance and supporting project team on land management, land tenure and issues related to farmer-herders conflicts
FFS M&E Expert	Lumpsum	1	12,000	Providing guidance to the national consultant on the FFS M&E system
Dimitra CE Expert	Week	10	2,700	Providing guidance to the national consultant on developing an integrated strategy which link CE activities with those of FFS
Travel: International consultants will be required to travel to Senegal and spend their assignment in-country. Travel within Senegal when in assignment will be paid by the project. Local consultants hired for technical assistance will need to travel to the field most of the time to implement trainings or collect necessary information. The project will cover all project related travel costs.				