GLOBAL ENVIRONMENT FACILITY
PROJECT DOCUMENT

PROJECT TITLE: Strengthening resilience to Climate Change through integrated agricultural and pastoral management in the Sahelian zone in the framework of the Sustainable Land Management Approach PROJECT SYMBOL: GCP/MLI/038/LDF
Recipient Country: Mali
Resource Partner: Global Environment Facility/Least Developed Country Fund (GEF/LDCF)
FAO project ID: 616182 GEF/LDCF/SCCF Project ID: 4822
Executing Partner(s): Agency for Environment and Sustainable Development (AEDD)
Expected EOD (starting date): January 2015
Expected NTE (End date): December 2018
Contribution to FAO's Strategic Framework[1] a. Strategic objective/Organizational Result: (SO-2), Sustainable Agricultural Production Systems. b. Regional Result/Priority Area: Priority 1 for Africa, Increase production and productivity of crops, livestock and fisheries **c.** Country Programming Framework, Product 2.3: The mechanism and adaptation to climate change are reinforced.
GEF Focal Area/LDCF/SCCF: Climate Change (Adaptation)
GEF/LDCF/SCCF Strategic Objectives: CC-A – 1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level. CC-A – 2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level. CC-A - 3: Promote transfer and adoption of adaptation technology.
Environmental Impact Assessment Category (insert √): A B C √

Financing Plan: **GEF/LDCF/SCCF allocation**:	**USD 2,172,727 million**
<u>Co-financing:</u> **AEDD** Integrating Climate Change into Development planning (PICP)	**USD 11,315,000** USD 4,500,000 (USD 400,000 in kind and USD 4,100,000 in cash)

[1] For projects operated by country offices, it is necessary to link projects in FPMIS at OR level. For all other projects, linkage at product/service level is necessary

Support programme for the implementation of the climate change national strategy	USD 6,815,000 (in cash)
FAO	**USD 2,343,959**
Youth at work: reduction of rural poverty (GCP/MLI/040/MUL/)	USD 1,999,959 (in cash)
Support project for the preparation of the General Agriculture and Livestock Census in Mali (TCP/MLI/3501)	USD 344.000 (in cash)
Ministry of Rural Development	**USD 588,300** (in kind)
Subtotal Co-financing:	14,247,259 USD
Total Budget:	**USD 16,419,986**

EXECUTIVE SUMMARY

West Africa remains one of the poorest regions in the world despite recent progress and a rich natural resource base. It is also one of the regions that is forecasted to be the most affected by climate change (CC). Projections based on latest models suggest that there will be significant increases in temperature, possibility of reduced rainfall, increased variability in rainfall and increased likelihood of storms and other climatic events.

Mali is a landlocked country amongst the poorest in Western Africa with a population estimated at 14.85 million people. Over 60% of the population live in rural areas, and the agricultural sector employs more than 70% of the total labour force. Agriculture is crucial to Mali's economy and represents 35.7% of GDP, 41.6% of which is due to the livestock-raising sector. The prevalence of the primary sector in the economy makes the country extremely dependent on natural resources and vulnerable to CC.

Future climate scenarios predict an even more important drop in the average rainfall and an increase of average temperatures, which is of concern regarding the productivity of crops that are rainfall dependent and for the availability of water resources. Besides these changes in climate patterns, Mali is also affected more and more by extreme climate events such as unpredictable and insufficient rainfall, floods and violent winds. Climate change represents an important risk to Mali's natural resources and ecosystems upon which the population and the economy depend, especially given the predominance of the primary sector.

While institutional and strategic frameworks have been strengthened during the last ten years to incorporate climate change adaptation (CCA) in Mali, the specific adaptation needs of the agro-pastoral system have not been fully taken into consideration. Similarly, while several projects address a variety of issues related to CCA, they do not specifically address the agro-pastoral system and the interdependence between agricultural production and pastoral production.

In response to the above challenges, the objectives of the proposed project is to *"enhance the capacity of Mali's agropastoral sectors to cope with climate change by mainstreaming CCA strategies, practices, and technologies adoption into on-going agopastoral and agricultural development initiatives in the framework of the national Sustainable Land Management (SLM) approach and*

program (CSI-GDT)"

The following six outcomes were identified in order to deliver the above-mentioned objective:

The first outcome is *the institutional capacities of the AEDD, Ministry of Rural Development's structures (MDR), local governments, herders, farmers and customary organizations are strengthened to minimize the exposure of agro-pastoral and agricultural production systems in vulnerable areas to climate variability and risks*. This outcome builds a foundation on which grass-roots and operational CCA measures can be developed on and implemented through the subsequent outcomes.

The second outcome is *agro-pastoralists (of which at least 30% are women) have strengthened capacities to adopt CCA practices and technologies in agro-pastoral systems.* This outcome sets up the Agro-Pastoral Field Schools (APFS) as a tool to enable the uptake of CCA practices amongst vulnerable rural populations.

The third outcome is *livelihoods of targeted agro-pastoralists improved*. It promotes CCA practices and aims to ensure agro-pastoralist participation in APFS to increase their resilience.

The fourth outcome is *agricultural/agro-pastoral productivity in pilot CCA investment areas has increased.* It aims to strengthen agro-pastoralists' adaptation capacities through better natural resource management and improved infrastructure.

The fifth outcome *is APFS-based CCA mainstreamed into integrated rural development and investment policies.* This outcome leads to the institutionalization of the successes achieved and lessons learnt through the former two outcomes. In particular, it focuses on the sustainability of project impacts and guarantee financial support to CCA activities after the end of the project.

The sixth outcome is *project implementation based on result-based management and application of project lessons learned in future operations facilitated*. It covers the monitoring and evaluation of progress and results, based on a system of targets and indicators.

The project strategy lies upon three main components. The first one is to develop CCA strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas. The second one is to strengthen small agro-pastoralists' capacities so they can adopt CCA technologies and best practices. The third one is to mainstream CCA in policies and development programs related to agricultural and livestock production to ensure the sustainable integration and adoption of CCA practices.

By implementing 150 APFS, the project will directly support at least 3,000 agro-pastoralists to develop and implement new approaches, practices and technologies that increase climate resilience. It will also directly address the conflicting situation between farmers and herders over natural resources, which hinders the development of these two sectors.

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LIST OF ABBREVIATIONS AND ACRONYMS

Acronym	Full Name
AEDD	*Agence de l'Environnement et du Développement Durable* (Agency of Environment and Sustainable Development)
AGMPE	*The Plant Production and Protection Division of the Department of Agriculture, Ecosystem Management team*
AMAT	*Adaptation Monitoring and Assessment Tool*
AOPP	*Association des organisations professionnelles paysannes* (Association of Rural Professional Organisations)
APFS	Agro-Pastoral Field Schools
AWP/B	Annual Work Plan/Budget
BH	Budget holder
CBD	Convention on Biological Diversity
CC	Climate Change
CCA	Climate Change Adaptation
CNOP	*Coordination Nationale des Organisation Paysannes* (National Coordination of Rural Organisations)
CP	Climate Proofing
CSI-GDT	*Cadre Stratégique d'Investissement pour la Gestion Durable des Terres* (Strategic Investment Framework for Sustainable Land Management)
CTA	Chief Technical Advisor
DFF	Diversity Field Fora
DNA	*Direction Nationale de l'Agriculture* (National Directorate for Agriculture)
DNEF	*Direction Nationale des Eaux et Forêts* (National Directorate for Water and Forests)
DNPIA	*Direction Nationale des Productions et Industries Animales* (National Directorate for Animal Production and Industry)
DNRG	*Direction Nationale du Génie Rural* (National Directorate for Rural Infrastructures)
EVRCC	*Economie Verte et Résiliente aux Changements Climatiques* (Green Economy Resilient to Climate Change)
FAO	Food and Agriculture Organization
FE	Final Evaluation
FFS	Farmer Field School
GCU	GEF Coordination Unit
GDP	Gross Domestic Product
GIZ	German Agency for International Cooperation
GPRSF	Growth and Poverty Reduction Strategy Framework (*Cadre stratégique pour la croissance et la réduction de la pauvreté*)
IER	*Institut d'Economie Rurale* (Institute of Rural Economy)
IPPM	West African Regional Integrated Production and Pest Management Program
IPTA	International Project Technical Advisor

JFFLS	Junior Farmer Field and Life Schools
LOA	*Loi d'Orientation Agricole* (Agricultural Orientation Law)
LoAs	Letters of Agreement
LTA	Lead Technical Officer
LTU	Lead Technical Unit
M&E	Monitoring and Evaluation
MDR	*Ministère du Développement Rural* (Ministry of Rural Development)
MEEA	*Ministère de l'Environnement, de l'Eau et de l'Assainissement* (Ministry of Environment, Water and Sanitation)
NAPA	National Adaptation Programme of Action
NCU	National Coordination Unit
NGOs	Non-Governmental Organizations
NTFP	Non-Timber Forest Products
PADESO	*Programme d'Appui au Développement Durable de l'Elevage au Sahel Occidental* (Support Programme to Sustainable Development and Animal Husbandry in Western Sahel)
PANC	*Plan d'Action sur le Changement Climatique* (National Climate Change Action Plan)
PAPAM	*Projet d'Accroissement de la Productivité Agricole au Mali* (Fostering Agricultural Productivity Project)
PCDA	Programme de Compétitivité et de Diversification Agricole (Program on Competitiveness and Diversification of Farming)
PDA	*Politique de Développement Agricole* (Agricultural Development Policy)
PDESC	*Plan de Développement Economique, Social et Culturel* (Social, Economic and Cultural Development Plan)
PICP	*Projet d'Intégration des CC dans la Planification pour le Développement* (Integrating CC into Development Planning project)
PIR	Project Implementation Review
PNCC	*Politique Nationale sur les Changements Climatiques* (National Policy for Climate Change)
PNIP-SA	*Plan National d'Investissements Prioritaires dans le Secteur Agricole* (National Plan for Priority Investment in the Agricultural Sector)
PNISA	*Programme National d'Investissement du Secteur Agricole* (National Programme for Investments in the Agricultural Sector)
PNSA	*Programme National sur la Sécurité Alimentaire* (National Programme on Food Security)
PPR	Project Progress Report
PQAP	*Plan Quinquennal d'Aménagements Pastoraux*
PSC	Project Steering Committee
PTF	Project Task Force
RF	Results Framework
SEAGA	Socio-Economic and Gender Analysis
SLM	Sustainable Land Management
SLPIA	*Service Local des Productions et des Industries Animales* (Local Livestock Production and Industry Service)

SNCC	*Strategie Nationale sur les Changements Climatiques* (National Strategy on Climate Change)
SNSA	*Stratégie Nationale de Sécurité Alimentaire* (National Strategy for Food Security)
TCID	Investment Centre Division Budget Group
TKLM	Térékollé – Kolimbiné – Lac Magui Catchment
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nation Framework Convention on Climate Change
WB	World Bank

SECTION 1 – RELEVANCE AND GENERAL CONTEXT

1.1 INTRODUCTION

- **Mali, Climate and Climate Vulnerability**

Mali is a landlocked West African country with a surface area of 1,240,192 km^2, [2] which lies between 10° and 25° North latitude and the longitudes 4° East and 12° West. The country shares 7,000 km of land borders with Mauritania, Algeria, Niger, Burkina Faso, Ivory Coast, Guinea and Senegal. Mali is divided into the district of Bamako, 8 administrative regions (Kayes, Koulikoro, Sikasso, Ségou, Mopti in the south and Gao, Kidal and Tombouctou in the north), 49 Districts (*Cercles*) and 703 municipalities (*Communes*).

Figure 1: Administrative Map of Mali[3]

Mali is one of the poorest countries in Western Africa with a per capita Gross Domestic Product (GDP) of US$ 671,[4] and the country is ranked 182 according to the UNDP Human Development Index. The population was estimated at 14.85 million[5] people in 2012 with a density of 12.8 people per km^2.

[2] Data UN: http://data.un.org/CountryProfile.aspx?crName=MALI
[3] Source: United Nations, 2013: http://www.un.org/Depts/Cartographic/map/profile/mali.pdf
[4] Data UN: http://data.un.org/CountryProfile.aspx?crName=MALI
[5] Data World Bank: http://data.worldbank.org/country/mali

In Mali, 63.78%[6] of the population lives in rural areas. The agricultural sector employs 72.94% of the total labor force,[7] and this prevalence of the primary sector in the economy makes the country extremely dependent on natural resource and vulnerable to Climate Change (CC).

Mali's topography is characterized by large plateaus, sandy plains and the alluvial plain of the interior delta of the Niger River in the centre of the country where most of the agricultural activity happens.

Figure 2: Topographic Map of Mali[8]

The climate is dry tropical with two alternating seasons: a dry one lasting between 9 months (from October to June) in the North and 6 months (from November to April) in the South, and a humid one from May to October in the South and from July to September in the North.

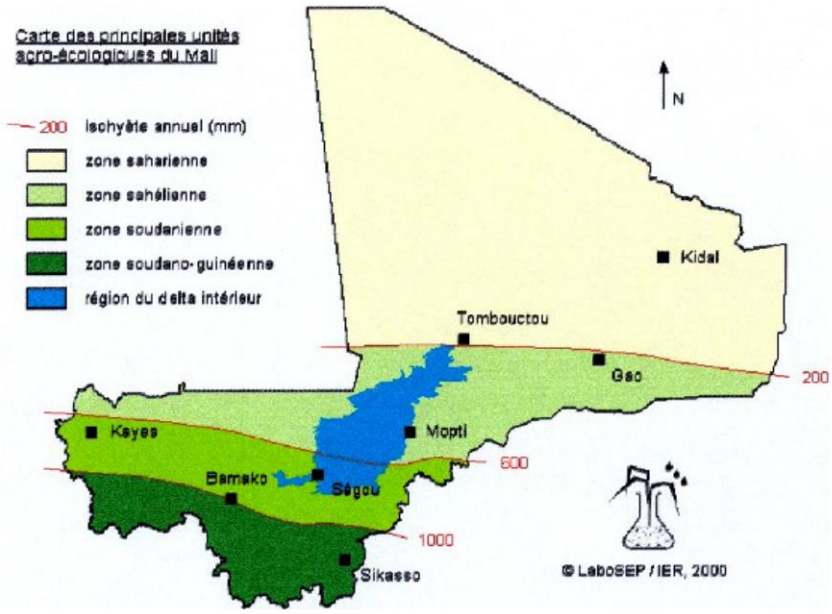
Four main climate zones can be found in Mali:

(i) Saharan climate (desert) in the North with an annual rainfall inferior to 200mm;
(ii) Sahelian climate in the centre with an annual rainfall between 200 and 600mm;
(iii) Sudanese climate in the South with an annual rainfall between 600 and 1,000mm; and
(iv) Sudano-Guinean climate in the extreme South with an annual rainfall superior to 1,000mm.

[6] FAO Stat: http://faostat.fao.org/CountryProfiles/Country_Profile/Direct.aspx?lang=en&area=133
[7] FAO Stat: http://faostat.fao.org/CountryProfiles/Country_Profile/Direct.aspx?lang=en&area=133
[8] World Atlas: http://www.worldatlas.com/webimage/countrys/africa/lgcolor/mlcolor.htm

These four zones and their annual isohyets are represented in the map below:

Figure 3: Climate zones in Mali[9]



When considering the impacts of climate change over the last 60 years, Mali's National Adaptation Programme of Action (NAPA) has come to the following conclusions:

1. While isohyets varied from 500mm to 1,500mm in the 1950s, the maximum they have reached in the last 15 to 20 years is 1,300mm.
2. While vegetation cover included wooded savannahs and gallery forests in the 1950s, over the last 15 to 20 years the savannah has become much more open and desert areas have progressed towards the south of the country.
3. While the average flow of the Niger River reached 1,300 m^3 in 1978, it was only 895m^3 in 2002.

Future scenarios predict an even more important drop in the average rainfall and an increase of average temperatures, which is worrying for the productivity of crops that are rainfall dependent and for the availability of water resources. Besides these changes in climate patterns, Mali is more and more affected by extreme climate events such as unpredictable and insufficient rainfall, floods and violent winds. Since 1968, dry years and prolonged droughts have been more recurrent causing a severe negative impact on livelihoods. It has contributed to the deterioration of ecosystems and to increased vulnerability of the rural population. Climate change represents an important risk to Mali's natural resources and ecosystems upon which the population and the economy depend, all the more so given the predominance of the primary sector.

According to an assessment of climate risks for different sectors presented in the NAPA, agriculture is the most exposed sector together with health. Livestock is of high risk to droughts and is ranked 6th among 12 sectors. The results of this assessment are presented in the table below.

[9] *National Adaptation Programme of Action* (NAPA), 2007

Table 1: Sensibility to climate risks of different sectors

SECTEURS A RISQUE CLIMATIQUE	RISQUES CLIMATIQUES				INDICATEUR D'EXPOSITION	*CLASSEMENT*
	Sécheresse	Inondation	Vents forts	Fortes variations de température		
Agriculture	5	3	3	3	**14**	*1er*
Elevage	5	1	1	1	**8**	*6è*
Pêche	5	1	3	2	**11**	*3è*
Energie	5	1	2	3	**11**	*3è*
Santé	4	4	3	3	**14**	*1er*
Ressource en eau	5	1	1	2	**9**	*5è*
Forêt	5	1	1	1	**8**	*6è*
Faune	5	1	1	1	**8**	*6è*
Transport	2	3	2	1	**8**	*6è*
Education	1	1	1	1	**4**	*12è*
Industrie	2	1	1	1	**5**	*11è*
Habitat	1	3	3	1	**8**	*6è*
Indicateur d'impact	**45**	**21**	**22**	**20**		

This assessment enables as well to rank the different climate risks in the following order of priority: (i) droughts, (ii) strong winds, (iii) floods and (iv) strong temperature variations.

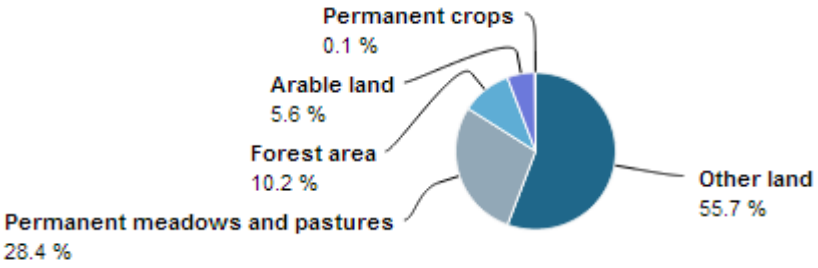
Climate change will affect particularly the agricultural sector in semi-arid and arid areas through a general decrease in areas fit for agriculture, lengths of the growing season and crop production. The livestock sector will be affected as well with a decrease in the availability of fodder and natural pastures. It could also impact animal health with new emerging diseases. Finally, as resources will become scarcer, climate change is likely to accentuate potential conflict between farmers and pastoralists over water and land.

- **The Agricultural and Livestock Sectors**

Agriculture is a key sector for Mali's economy representing 35.7% of GDP. The livestock sector itself represents 15% of total GDP and 41.6% of the agricultural GDP.[10]

Given the diverse climate patterns of the country, diverse production systems exist in Mali. Herders are usually based in the Sahelian zone while a combination of farmers, herders and agro-pastoral people with mixed production systems coexist in southern regions, mostly along the Niger River. The figure below illustrates the land-use division in Mali as of 2011.

Figure 4: Mali's land use repartition in 2011[11]

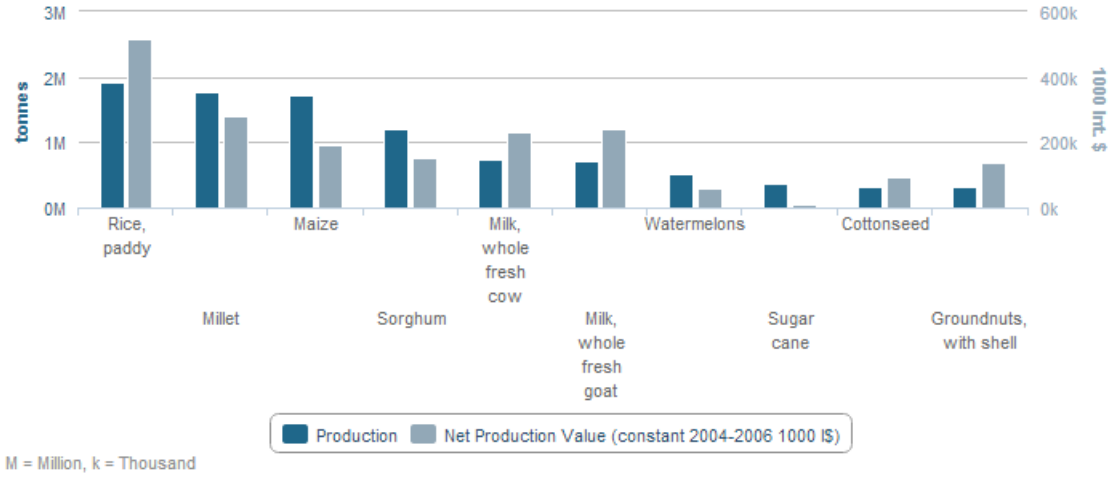


[10] *Livestock Sector Brief*, FAO, 2005
[11] FAO Stat, 2011 : http://faostat3.fao.org/faostat-gateway/go/to/browse/area/133/E

Even though arable land and permanent crops represent only 5.7% of Mali's total land, the agricultural pressure on soil resources has been increasing significantly, leading to progressive soil degradation and a multiplication of cleared areas. This extension of agricultural land over forested areas has contributed to an increase in crop production since the 1970s; however, extensification has not been associated with improved productivity.

Agricultural production in Mali is made up of food crops mostly for household consumption (mainly rice, millet, maize, sorghum) and some industrial crops such as cotton. According to the Second National Communication of Mali, food crops represent 20.7% of primary sector production, followed by livestock-raising and cotton with 9.5% and 6% respectively.[12] The top 10 commodities produced in Mali in 2012 are represented in the figure below.

Figure 5: Top 10 commodities produced in Mali in 2012[13]



The agricultural sector is widely dominated by small-scale traditional farming, with subsistence farmers cultivating over 90% of the land under cultivation. Livestock is also mostly raised by small livestock keepers who benefit from the availability of fodder during the rainy season and rangeland in the interior delta of the Niger River during the dry season. Evolution of livestock populations over the years in Mali is described in the figure below, showing an overall growth over the 1980 – 2002 period.

[12] *Seconde Communication Nationale du Mali sur les Changements Climatiques*, 2011.
[13] FAO Stat, 2012, http://faostat3.fao.org/faostat-gateway/go/to/browse/rankings/commodities_by_country/E

Figure 6: Livestock Populations in Mali[14]

Livestock populations

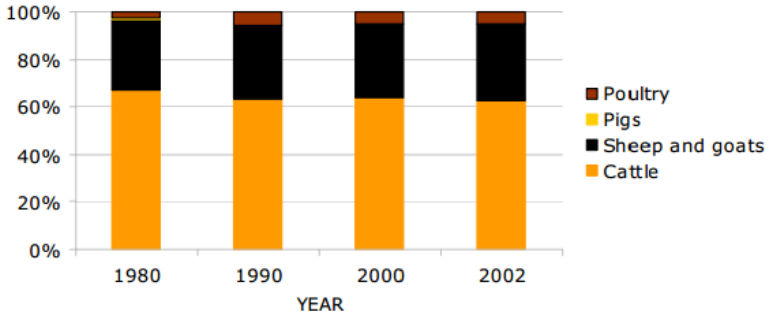
Values expressed in 1,000

Species	Year				Annual growth rate (%)	
	1980	1990	2000	2002	1980-1990	1990-2000
Cattle	5,850	4,996	6,620	6,893	-1.6	2.9
Sheep and goats	13,000	12,172	16,049	17,624	-0.7	2.8
Pigs	48	56	66	67	1.6	1.6
Poultry	12,000	22,000	25,000	28,000	6.2	1.3
Total LUs	4,355	3,946	5,178	5,502	-1.0	2.8

LU: *Livestock unit*; **conversion factors:** cattle (0.50), sheep and goats (0.10), pigs (0.20) and poultry (0.01)

The different species of livestock raised in Mali are represented in the figure below.

Figure 7: Contribution of different species to total livestock units[15]

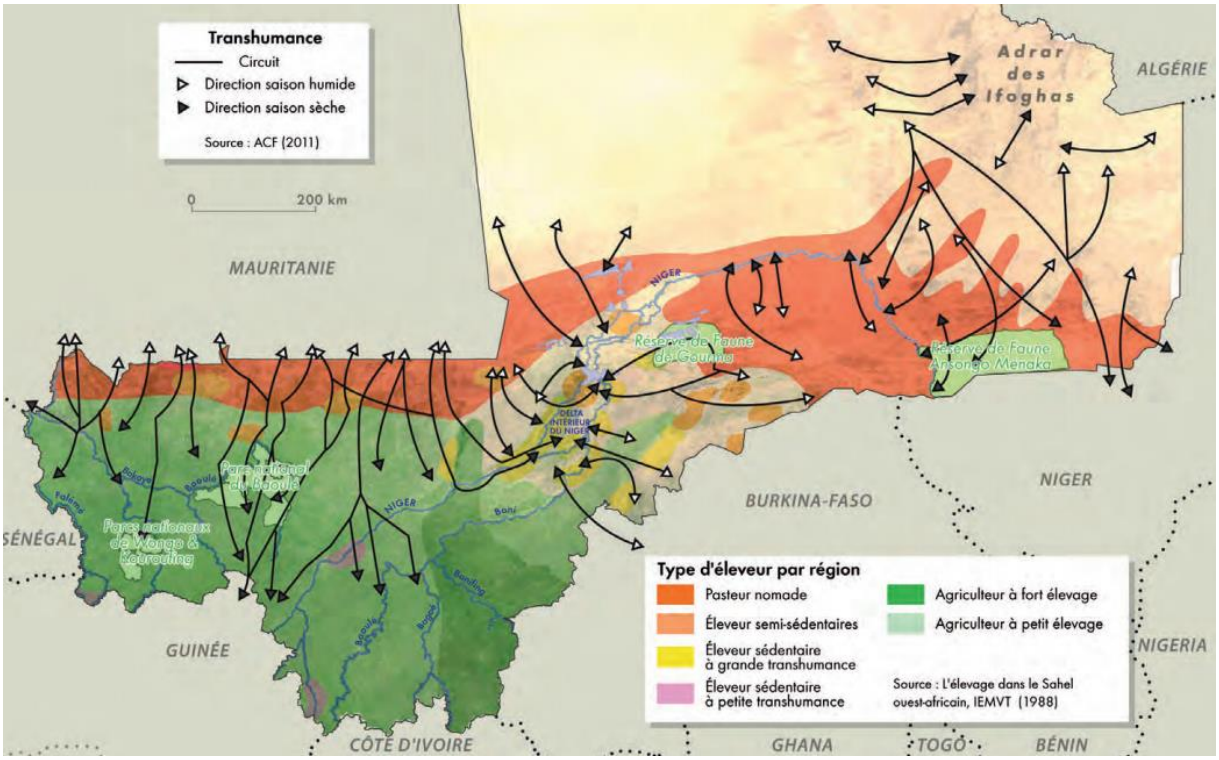


The traditional livestock production system in Mali is based on three main practices: nomadic, transhumant and sedentary animal husbandry. Nomadic people do not return to the same areas each year whereas transhumant people move between the same pre-defined seasonal grazing lands. The pastoralist production system includes nomadic and transhumant practices while the agro-pastoral system is characterized by sedentary animal husbandry.

Transhumance in Mali happens at the transboundary level between countries, between regions, and also at the local level where livestock leave the fields to go to non-flooded areas. The map below illustrates the customary transhumance movements and the different kinds of livestock production systems in Mali. The nomadic pastoral system and transhumance is practiced in the sub-desert zones in the north of the country and northern Sahel. When the rainy season comes, pastoralists take the herds from south to north to remove them from the cultivated land and flooded areas like the Niger Delta. When the dry season arrives, drying up the water points and decreasing the pasture areas in the north, the pastoralists move the herds back to the south.

[14] FAO, 2005
[15] FAO, 2005

Figure 8: Map of customary transhumance movements and livestock production systems[16]



In order to manage the co-existence of these different production systems, the *Charte Pastorale*[17] was voted in 2001. This law defines the fundamental principles governing animal husbandry activities in Mali, including the rights and duties of pastoralists such as the right to move and to access pastoral resources and the duty to preserve the environment and property of others.

1.2 RATIONALE

1.2.1 Baseline Situation

- **Existing policies related to CCA**

Over the past ten years, the Government of Mali has reinforced its institutional and strategic framework in order to cope with and adapt to climate change; the most relevant policies that have been developed so far are as follows:

- Mali adopted its **National Adaptation Programme of Action** (NAPA) in 2007. The objective of the NAPA development was to contribute to minimizing the negative impacts of climate change on the most vulnerable populations, in order to implement sustainable development and fight against poverty in Mali. The NAPA document gives an overview of the priority and urgent activities to be undertaken to cope with and adapt to climate change. These adaptation measures are in line with Mali's ratification of international conventions such as the United Nations Framework Convention on Climate Change (UNFCCC), UN Convention to Combat Desertification (UNCCD) and the Convention on Biological Diversity (CBD). The 19 selected

[16] *Atlas des évolutions des systèmes pastoraux au Sahel 1970-2012*, FAO et CIRAD, 2012
[17] Loi N°01-004/ du 27 février 2001 portant charte pastorale en République du Mali

priority projects cover all the regions and include the following sectors: agriculture, animal husbandry, forestry, fisheries, aquaculture, water resources, energy, health, etc.

- In 2011, the Government launched the ***Politique Nationale sur les Changements Climatiques***, *PNCC* (National Policy for Climate Change), followed by the ***Strategie Nationale sur les Changements Climatiques,*** *SNCC* (National Strategy on Climate Change) and the ***Plan d'Action sur le Changement Climatique 2010-2017***, *PANC* (National Climate Change Action Plan). The PNCC serves as a general framework encompassing interventions regarding climate change from different sectors in Mali. This policy defines an institutional framework together with a funding strategy. The SNCC and PANC are linked to the PNCC and aim to support its implementation. The SNCC focuses on eight strategic areas in which 147 actions were identified. Almost 70% of these actions relate to the integration of Climate Change into sectoral policies which forms the content of the PANC.

- The Government approved in 2014 the ***Cadre Stratégique d'Investissement pour la Gestion Durable des Terres***, *CSI-GDT* (Strategic Investment Framework for Sustainable Land Management). Technical and financial partners (World Bank, UNDP, GIZ, UNCDD and FAO) supported the government of Mali in the development of this framework by financing several analytical studies and coordinating the process on the basis of the programmatic approach promoted by TerrAfrica. Based on this analysis, the six following priorities for investments were defined:
  (i) Supporting the transfer of natural resources management to decentralized entities and local government (regional assemblies and municipalities);
  (ii) Reinforcing the institutional, financial and political framework to support Sustainable Land Management (SLM);
  (iii) Reinforcing counseling and commercial services to support SLM;
  (iv) Developing an effective system for knowledge acquisition and management, monitoring and evaluation (M&E) and disseminating information;
  (v) Implementing a communication strategy to support SLM uptake and the adoption of good practices; and
  (vi) Capacity building of all sectors to support the implementation of SLM.

  The management of the CSI-GDT includes four different levels: national, regional, local and municipal. At the national level, the entity in charge of the CSI-GDT is the National Council for the Environment (*Conseil National de l'Environnement*), which gathers all the ministries involved in sustainable land management (SLM). The Council is made up of 67 members and is under the presidency of the Ministry of Environment, Water and Sanitation, MEEA (*Ministère de l'Environnement, de l'Eau et de l'Assainissement*). Its task is to give advice and submit proposals on SLM at the national level. The Regional Committees for Direction, Coordination, and Monitoring of Development Actions (*Comités Régionaux d'Orientation, de Coordination et de Suivi des Actions de Développement)*, directed by the Regional Governors, lead the CSI-GDT at the regional level by providing advice and recommendations on environmental issues affecting the region. The local committees of the same name, (*Comités Locaux d'Orientation, de Coordination et de Suivi des Actions de Développement*) are in charge of the CSI-GDT at the local level and give advice and recommendations on environmental issues at the *cercle* level. Finally, similar committees at the commune level (*Comités Communaux d'Orientation, de Coordination et de Suivi des Actions de Développement)*, which are overseen by s*ous-préfets*, steer the CSI-GDT and provide advice

and recommendations on environmental issues affecting the commune. The coordination of this framework is ensured by the Agency of Environment and Sustainable Development, AEDD (*Agence de l'Environnement et du Développement Durable*) through a National Coordination Unit (NCU). The activities of the CSI-GDT are implemented by the related Ministries, research and training institutes, the private sector, Non-Governmental Organizations (NGOs), producers' organizations and civil society, according to their expertise and interests.

The CSI-GDT will act as the main reference framework for many of the activities to be implemented under the proposed LDCF project.

- In 2011, Mali developed a framework for an ***Economie Verte et Résiliente aux Changements Climatiques***, EVRCC (Green Economy Resilient to Climate Change), aiming at ensuring the development of the country through successful adaptation to climate change and control over greenhouse gas emissions. According to this vision, significant investments are needed in the following sectors:
  (i) Agriculture, through better land and water resources management and access to improved seeds and meteorological information;
  (ii) Livestock, through sustainable management of pastures;
  (iii) Fisheries, through sustainable development of fisheries, protection of aquatic ecosystems, aquaculture development, etc;
  (iv) Water, through integrated water resources management, water infrastructures, rainwater recovery, water treatment, etc; and
  (v) Health, through the fight against climate sensitive diseases, particularly malaria.

- **Existing projects and programmes related to CCA**

In order to achieve objectives of the frameworks and policies listed above, a significant number of programmes and projects are being implemented or are under preparation, mostly with support from international development and technical partners. The baseline programmes and projects that will co-finance the proposed project are presented in the table below; the present project intends to build upon and complement these.

Table 2: Introduction to related baseline and co-financing projects and programmes implemented in Mali

Title and Project Objective/Description	Lead Agency	Co-financing amount and duration	Co-financing support to project
Integrating Climate Change into development planning (PICP) Identify areas of vulnerability to Climate Change and the most appropriate tools for adaptation in three regions of Mali (Koulikoro, Segou and Kayes). The aim is to integrate CC into PDESC and national policies on development.	GIZ/AEDD through BMU financing	US$ 4,500,000 2014-2018	The project will support components 1, 2 and 3.
Support Project for the Implementation of the SNCC Implement the SNCC through adaptation investments to: improve ecosystem resilience; enable rural stakeholders to cope with climate	GIZ/UNDP through BMU financing	US$ 6,815,000 2014-2018	The project will support components 1, 2 and 3.

change by adopting diversified agricultural activities; and promote community-based adaptation (including CCA/SLM investments in pasture management and water points).			
Support Project for the Preparation of the General Agriculture and Livestock census in Mali (TCP/MLI/3501) Help the Government of Mali prepare in the best conditions the general census for agriculture and livestock so results will contribute to defining more efficient strategies and policies in order to reduce poverty and food insecurity.	FAO/MDR	US$ 344,000 2014-2015 expected to be extended	The project will support components 1, 2 and 4.
Youth at work: reduction of rural poverty (GCP/MLI/040/MUL) Improve the livelihood of young rural producers from the informal and formal sector within Mali's rural economy; in particular through the implementation of Farmer Field School for child labor.	FAO/MDR	US$ 1,999,959 2014-2016 expected to be extended	The project will support components 1, 2 and 4.

The strategy of the proposed project is to link to the projects listed in Table 2 as well as to ongoing and planned rural sector development initiatives in Mali that could start up during project implementation. However, only the 4 projects in Table 2 that have the appropriate geographical, institutional and temporal linkages will co-finance the proposed project. A more detailed description of the concerned projects, their linkages and additional reasoning aspects are provided in Section 1.2.3.

1.2.2 Challenges

Despite progressive investments in rural development and commitments to face climate change impacts, as highlighted in the baseline programmes and projects above, the agro-pastoral sector in the context of a changing climate in Mali still faces various challenges that are summarized below.

- **Climate Change** – As indicated in the previous section, Climate Change has a significant impact on rural development in Mali.

The agricultural sector will suffer more and more from a reduction in production due to decreases in average rainfall, length of the growing season and areas fit for agriculture. The recurrence of extreme climate events (droughts, floods, and strong winds) also affects crop productivity. A study undertaken in the preparation of the NAPA assessed the impact of climate change in five areas with high agricultural potential (Bougouni, Dioila, Sélingué, Koutiala and Sikasso). This study showed that even though there should be enough water to satisfy the water needs of the different crops cultivated in the river basin, this rainwater will be unevenly allocated between areas in different months. Water availability will therefore be insufficient during certain months in certain areas, which will lead to a deficit in crop production (maize, cotton, sorghum, rice) in all the areas by 2025.

The negative impacts of climate change also affect the livestock sector, modifying transhumance routes by contributing to the drying up of watering points, decreasing and deteriorating vegetation cover and damaging pasture lands.

Farmers and pastoralists are especially vulnerable to climate change since they have limited knowledge of and capacity to adapt. Their own weather references are no longer accurate, and they lack access to meteorological data to overcome this new challenge.

- **Agriculture and Livestock Sectors**

Extension of cultivated areas onto pasture lands. The agricultural sector in Mali faces a growing population with increasing food requirements. In order to cope with this trend, the surface area of land under cultivation is continuously increasing, applying in turn growing pressure on natural resources including pasture lands. The extension of arable land over marginal and forested lands contributes to increased risks of soil erosion and desertification. The extension of cultivated land over pasture land, transhumance paths and around watering points modifies customary transhumance routes and prevents free mobility of herds (a crucial component to transhumance practices), which leads animals to gather in the same places.

Degradation of pasture lands. Excessive numbers of livestock in limited areas contributes to overgrazing and its corollaries: trampling of the soil, degradation of vegetation cover and decrease in fodder resources. This overall degradation makes the soil even more vulnerable to erosion, wind and water runoff, all of which stand to be exacerbated by climate change.

Limited access to natural resources. In such context it becomes more and more difficult for pastoralists and their livestock to access natural resources. The available watering points are unevenly distributed through the territory and many need rehabilitation due to the lack of maintenance. Access to natural pasture lands is also decreasing as well as available fodder to feed animals (see following section).

Lack of fodder storage capacities and lack of access to alternative animal feed.
During the rainy season, grass is abundant and of good quality; however, during the dry season fodder becomes more and more rare, and its nutritious quality decreases. As a result, when herds migrate to search for pasture during the dry season, herders have to complement animal feed with mineral licks (to provide the required mineral, protein and energy supplement), extra fodder and crop residues that have been prepared and stored beforehand (such as soy, cattle cake and hay). However, herders lack capacities and infrastructures to provide these alternative feed sources to animals.

Limited access to market and loans. The lack of information on prices and unfair competition on the market prevent the successful insertion of pastoralists and agro-pastoralists into the market. It is also difficult for them to obtain credit and loans from financial institutions in Mali.

Lack of infrastructure. The livestock sector in Mali is not particularly diversified. The sector suffers from a lack of infrastructure such as livestock markets, slaughterhouses and roads, which would enable the transformation of livestock products, help diversify the sector and develop pastoral territories, and increase the commercial transactions and added value created in Mali. Storage infrastructures for feed would also allow pastoralists to overcome decreased availability in fodder and limited access to forage seeds.

Limited access to veterinary services and inputs. Traditionally, the government of Mali was in charge of veterinary services, but the lack of human and physical resources failed to address the control, eradication and treatment of animal diseases which play a major role in low livestock production and

productivity in the country. Access to these veterinary services is uneven across the country since animal health workers are not available in all transhumance areas. Moreover, vaccination zones are spread out across the territory which allows some animals to slip through and spread diseases.

Lack of agro-meteorological information. Despite recent investments in developing the hydro-meteorological network, the availability of reliable, timely and pertinent information on weather forecasts is insufficient. The system to provide agro-meteorological information in Mali is undermined by a shortage of equipment, poor equipment maintenance mechanisms, shortage of trained staff at many levels, a supply-oriented approach, and a lack of coordination amongst the government departments involved in collecting data, preparing forecasts and disseminating information.

- **Intersectoral Conflicts**

Increased conflicts between herders and farmers. The increased length of the transhumance cycle due to climate change, together with population growth and a lack of effective planning tools, has led to the encroachment of agricultural land into pasture land used for transhumance. Herds now stay longer in the Niger River Inner Delta and other alluvial plains creating competition between farmers and herders over limited land resources. This intensifies the conflicts between the two sectors and hinders the adaptation capacities and development of the region.

Legal tools, such as the *Charte Pastorale*, the Agricultural Orientation Law (LOA) and a system of local conventions, are in place in Mali to try to minimize and control these conflicts. The *Charte Pastorale*, voted in 2001, defines the fundamental principles of animal husbandry activities in Mali, including rights and duties of pastoralists such as the right to move and access pastoral resources and the duty to preserve the environment and the property of others. The LOA ,voted in 2006, sets the principles of the Agricultural Development Policy (PDA) and supports different provisions of the *Charte Pastorale*, including the fact that (i) herders can move through the whole national territory respecting phytosanitary conditions and protected areas; (ii) pastoral areas owned by the State include community domains, protected forests, areas where the herds stop for night, etc; (iii) local governments have to contribute to the prevention of conflicts by creating space for dialogue between the different actors; (iv) local government and farmers must ensure the promotion of pastoralism through delimitation and maintenance of transhumance routes, disease control, creation of watering points and infrastructure for livestock. They are in charge of the integration between agriculture and pastoralism. Even though such legal tools already exist, they are poorly implemented in practice, and also are poorly known by local stakeholders.

Local conventions have been progressively developed in order to minimize conflicts between farmers and herders and to cope with the degradation of natural resources. They are in line with *Loi 95-034 portant code des Collectivités Territoriales en République du Mali*, law on local government code and municipality Councils, which relates to the protection of the environment, organization of rural activities, and agro-sylvo-pastoral production. Conventions have been developed to govern transhumant herds' access to water and grazing lands; however, the application of such conventions remains very limited and their implementation not effective. Typically once the content of the convention is developed, the involvement of the population drops and no implementation or monitoring processes are put in place.

- **Institutional Challenges** – National and local governments in Mali face many challenges in terms of land management and extension capacities.

Lack of capacities. Even though many legal tools, as described above, already exist, few of them take into account the impacts of climate change, and the capacities of national and local governments are too limited to implement them properly. Local institutions also lack knowledge and capacities to properly manage pastoral infrastructure, which contributes to the weak management of resources and the low productivity of the region.

In the *cercles* targeted by this project, which are described in section 2.1.2 below, the decentralized livestock sector represented by the Local Livestock Production and Industry Service (SLPIA) suffers from insufficient staff, logistical means, training opportunities and communication between the local service and its support units.

The agricultural institutions also face many challenges in the different *cercles*. In Niono they lack capacities, infrastructures and equipment, the administration is not modernized, staff is aging, and they do not offer sufficient training opportunities for producers' organizations. In Kita, they lack qualified staff and logistics while staff is aging. In Banamba, staff (especially support staff) is insufficient and aging as well. They suffer from old and unreliable equipment which prevent them from monitoring and supervising agricultural activities in rural areas, and they do not have enough producers' organizations.

Low sustainability. Repeated development projects that do not adequately include sustainability mechanisms and ongoing monitoring beyond the projects' lifetime can explain to a certain extent why some legal texts are so poorly implemented. This is the case, for instance, for local–level legal agreements; they are usually the final results of development projects and are developed at the end of the process. Projects do not leave enough time for the population to develop a sense of ownership with the content of legal texts, and a lack of monitoring tools in the long term hinders implementation. High staff turnover within the different services also contributes to this lack of implementation. In addition, the limited coordination between the various external donors supporting the implementation of the Social, Economic and Cultural Development Plan (PDESC) hinders the uptake of CCA in local development policies.

Lack of security policies. Conflicts in the region between farmers and herders are accentuated by the fact that the Government is not able to secure pastoral resources or land tenure. More policies are needed in this field in order to resolve the increasing conflicts. Local governments also need to ensure that more local conventions are developed and implemented to prevent conflicts and make the population aware of their responsibilities. This aspect should benefit from the potential development of an agricultural land policy promoted by the Ministry of Rural Development. This bill aims at securing land tenure and ensuring an even access to land resources for all producers in Mali.

Insufficient means for extension services. National and local institutions often lack efficient extension tools. The population is therefore not properly aware of recent policy developments and results of current research, which prevents them from adapting their practices accordingly.

- **Lack of Tools Specific to the Agro-Pastoral System**

While institutional and strategic frameworks have been strengthened during the last ten years to incorporate CCA in Mali (described in Section 1.2.1), the specific adaptation needs of the agro-pastoral system have not been fully taken into consideration. Similarly, while the projects described in Table 2, Section 1.2.1 address a variety of issues related to CCA, they do not specifically address the agro-pastoral system and the interdependence between agricultural production and pastoral production.

1.2.3 Additionality

In the baseline, the 4 on-going co-financing projects[18] listed in Table 2, the Ministry of Rural Development's in-kind co-financing as well as the previous adoption of the Farmer Field School (FFS) approach in Mali, provide entry points for addressing climate change considerations when supporting agro-pastoralist communities. This constitutes a cost-effective opportunity to finance the additional costs of adaptation using the LDCF funds.

With the additional financing from the LDCF, the proposed intervention will (i) develop the basic foundations for mainstreaming climate change adaptation across activities in the agro-pastoralists sectors; (ii) develop the tools and capacities for actually delivering in a cost-effective manner climate change support to vulnerable agro-pastoralist communities; (iii) directly deliver support to a sizeable number of agro-pastoralist communities; and (iv) ensure sustainability by integrating CCA into key policy initiatives and ensuring lessons are learnt and disseminated. Specifically, the proposed project will work through the following four principle components:

Component 1: Development of CCA strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas.

LDCF and co-financing funds will be used under this component to strengthen capacities amongst national and local government, herders, farmers and customary organizations; make data and climate information available; implement the *Charte Pastorale* and develop local agreements between farmers and pastoralists. As a result, the basis for the wide-scale rolling out and up-scaling of climate change adapted agro-pastoral practices will be established.

The additional financing from the LDCF facilitates integration of the agricultural and pastoral sectors, a key challenge for Mali's rural development that has not yet been addressed by any other project, policy or programme. To the contrary, the two sectors are addressed in a divided manner in current projects and policies. Neither the Support Project for the Implementation of the SNCC, nor the PICP, specifically address CCA for transhumant practices and the interaction between transhumance and agriculture. This integration will be done through the innovative approach of the Agro-Pastoral Field School (APFS) promoted by the FAO. This approach builds upon the FAO FFS approach which is developed further in Section 2.1.1 and already implemented in Mali.

[18] (i) Integrating Climate Change into Development Planning project (PICP) implemented by the AEDD, (ii) Support Project for the Implementation of the SNCC, implemented by the AEDD, (iii) Support Project for the Preparation of the General Agriculture and Livestock Census in Mali, funded by the FAO, and (iv) Youth at Work: Reduction of Rural Poverty, funded by the FAO

The integration of these two sectors will alleviate intersectoral conflicts between farmers and herders, which are taking place in Mali and have not been directly addressed by development projects so far. The proposed LDCF project addresses this point through the dissemination and implementation of the *Charte Pastorale* and the development of local agreements between farmers and herders. The *Charte Pastorale* remains unknown at the local, communal and regional level and none of the baseline initiatives currently supports its diffusion.

The proposed LDCF project will raise awareness and strengthen capacities amongst the staff of national and local government, herders, farmers and customary organisations on CCA, APFS and the benefits of agriculture-livestock integration. Awareness-raising at multiple levels will directly benefit the baseline projects such as the PICP, the Support Project for the Implementation of the SNCC, and the Ministry or Rural Development (MDR) staff by helping people better understand climate change challenges and adopt CCA practices. The integration agriculture-pastoralism provides an added value for the Support Project for the Preparation of the General Agriculture and Livestock Census in Mali which will benefit from collaboration between the two sectors. Awareness-raising activities on APFS will also benefit the MDR, which will co-finance and provide staff to the proposed project.

LDCF and co-financing funds will be used to provide access to climate information and meteorological data to vulnerable communities. The proposed project will be in synergy with the Support Project for the Implementation of the SNCC which also aims at improving the availability and collection of climate data in order to increase knowledge on climate change. The Support Project for the Implementation of the SNCC proposes in particular to develop and make available tools, instruments and systems to monitor climate; and to strengthen data collection networks. With LDCF funds, the proposed project will ensure that meteorological data is not only made available but is directly understood and used by agro-pastoralists in the framework of the APFSs, an aspect which is not addressed by baseline projects. The proposed project will also benefit to and from the PICP project which aims to reduce the vulnerability of the population in the Kayes, Koulikoro and Ségou regions. By building a critical mass of agro-pastoralist who can access and use meteorological data, in additional communes not originally covered by the PICP project, the LDCF project will contribute to increase adaptation capacities and therefore reduce vulnerability to climate change of rural population in the three regions of interventions. The meteorological data made available through the proposed project could also be used by the Junior Farmer Field and Life Schools (JFFLS) integrating CCA that will be set up through the Youth at Work project.

<u>Component 2</u>: Capacity building and scaling up of CCA technologies and best practices for small agro-pastoralists

The project will establish APFSs, identify locally relevant adaptation measures, and train facilitators so that the APFSs become vectors to promote integrated, local adaptation strategies. In addition, under this component the project will select four pilot areas to undertake integrated adaptation works including creating wells and modifying ponds to improve water access and therefore respond to increase water scarcity, promoting improved seeds and facilitating better rangeland management. The measures implemented through component 2 will therefore benefit two of the co-financing projects, the PICP and the Support Project for the Implementation of the SNCC, which both aim to identify concrete adaptation action, enhance local capacities to adopt CCA practices, and implement integrated actions resilient to climate change.

Under this component, LDCF funds will strengthen the capacity to adopt CCA practices and technologies for at least 3,000 agro-pastoralists, with 70% of participants going on to adopt promoted practices and technologies. This will facilitate building a critical mass for the adoption of resilient practices to reduce vulnerability of rural communities in Mali to climate change. The proposed project will therefore benefit and work alongside the PICP and the Support Project for the Implementation of the SNCC, which both aim to reduce vulnerability to climate change in Mali.

Moreover, the additional LDCF funds will complement the "Youth at Work" project currently being implemented by the FAO. This project aims at creating 400 new jobs and improving the quality of approximately 1,000 jobs for young rural people. Under component 2 of the proposed project, at least 150 APFS will be established in the 3 regions of intervention. This will create a two-fold synergy with the "Youth at Work" project: (i) the supported APFS network will mainstream decent child labor concepts in its curricula and create additional quality green and climate resilient job opportunities for young people; and (ii) the JFFLSs to be set up through support from the "Youth at Work" project will integrate CCA into their curricula.

Finally, the proposed project will benefit from MDR co-financing, which will make staff from its decentralised services, such as the SLPIA, available for the LDCF project. The additional LDCF funds will also strengthen the capacity of the MDR staff in terms of CCA by involving them in APFS trainings. In the proposed project, APFS trainers will be local people from the vulnerable targeted areas. This will ensure the sustainability of the project and adoption of CCA practices, an aspect that was identified as a challenge for other development initiatives in the past. Current CCA approaches do not sufficiently involve local beneficiaries and communities in identifying relevant adaptation strategies. FAO experience using participatory approaches through the FFS elsewhere in West Africa have shown that involving communities can increase adoption rates and future sustainability of project activities. Through creation of APFSs, in particular, the present project will create a participatory element to knowledge generation and sharing that will also contribute to the Support Project for the Implementation of the SNCC.

<u>Component 3</u>: Mainstreaming CCA in policies and development programs related to agricultural and livestock production

The additional LDCF funds will be used to strengthen an intersectoral cooperation mechanism on CCA at the national level. This will directly benefit the PICP and the Support Project for the Implementation of the SNCC by facilitating dialogue between different sectors and institutions on climate change-related issues. It will strengthen the institutional capacities to deal with climate change in an integrated manner and will support the integration of CCA into the development and governance process.

Under component 3, the LDCF project will promote key tools in order to integrate climate change into development plans such as the PDESCs. This will build upon and extend the geographical scope of the PICP by integrating climate change into the PDESCs of additional communes not covered in the PICP. The proposed LDCF project and the PICP, as they share the same three intervention regions (Kayes, Koulikoro and Ségou), will also complement each other by making people trained in the application of tools to integrate climate change into local development plans available. The Support Project for the Implementation of the SNCC will benefit from the integration of climate change into the PDESCs since one of the objectives of the project is the inclusion of CCA in local and regional governance.

The LDCF additional funding will also be used to mainstream and integrate CCA considerations into an updated version of the Five-year Pastoral Land Use Plan (*Plan Quinquennal d'Aménagement Pastoraux* – PQAP). This investment plan will increase the sustainability of the project by ensuring funds are available for the adoption of CCA practices. It will therefore also benefit the PICP and the Support Project for the Implementation of the SNCC.

Component 4: Project monitoring and dissemination of results

Under this component, LDCF funds will be spent to support project implementation based on results-based management and will reinforce the application of project lessons learned into future operations by the executing partners.

On the one hand, sharing lessons learned will benefit to the Youth at Work project which could use these lessons and integrate them into its JFFLSs. The Support Project for the Preparation of the General Agriculture and Livestock Census will also be able to use lessons learned from the LDCF project in order to propose recommendations. On the other hand, the proposed LDCF project will benefit from the results provided by the Support Project for the Preparation of the General Agriculture and Livestock Census.

Component 4 of the proposed project aims at capitalizing knowledge and building capacities on CCA and APFS in Mali which will be relevant for executing partners as well as for all baseline projects.

1.3 FAO'S COMPARATIVE ADVANTAGES

The FAO is the lead UN agency for agriculture, fisheries, forestry and rural development. Its mandate is to offer Member States the policy and technical ability to raise their levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy while safeguarding natural resources. The proposed project is aligned with the FAO's comparative advantage on multiple levels: i) the FAO's experience in dealing with food security and rural production, ii) the FAO's experience with the FFS and APFS approach and (iii) the FAO's existing involvement in food security in Mali.

In terms of food security and rural production, the FAO has in-house technical expertise in the wide variety of disciplines related to rural development as well as a capacity to respond to the needs of specific countries. These areas include, among others, policy and strategy development, crop and livestock development, forestry, agriculture and food security information systems, early warning systems, agribusiness and enterprises, sustainable land management and planning, forestry, CCA, and livestock and fisheries systems. At a policy level, the FAO has promoted and facilitated coordination between different governmental institutions and relevant stakeholders, all involved in rural development.

The proposed project also supports up-scaling of the FFS/APFS approach developed by the FAO and which will be used for all technology transfer, adoption and related capacity building activities. FAO's Department of Agriculture and Consumer Protection recently completed 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/APFS-based activities under a results-based framework, including in Mali. In addition, the FAO also has experience expanding the FFS approach to cover

agro-pastoral communities through the APFS. In Africa, this was first developed in Uganda in the early 2000's and is now ongoing in over 10 countries.

Finally, the FAO gained extensive experience with FFS through the implementation of a first LDCF project named "Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas of Mali." The experience FAO Mali gained during the implementation of this project represents a significant advantage and will benefit to a large extent the proposed LDCF project. In addition, the FAO currently has a significant project portfolio in Mali with a major focus on food security and sustainable production systems. The FAO has been supporting Mali's efforts both to develop a National Food Security Strategy and to react to drought-driven and market-driven episodes of food insecurity.

1.4 PARTICIPANT AND STAKEHOLDER ANALYSIS

A detailed stakeholder analysis with the different roles to be performed in the project is provided in Appendix 6. It was conducted as part of the project design process, during consultations organized in the three regions and in targeted areas.

The main stakeholders from the government of Mali who will be involved in the project are:

- The **Ministry of Rural Development** (MDR) is responsible for the promotion of agriculture, conservation and utilization of natural resources, and rural development. The MDR includes:
    - the National Directorate for Animal Production and Industry (DNPIA), which coordinates the implementation of all activities linked to animal production and health;
    - the National Directorate for Agriculture (DNA), in charge of developing national policies related to agriculture and ensuring coordination and control of related policy implementation;
    - the National Directorate for Rural Infrastructure (DNGR), which coordinates and monitors development infrastructures in agricultural and pastoral areas; and
    - the Institute of Rural Economy (IER), which conducts research on rural development topics and makes adapted seed varieties available among others.
- The **Ministry of Environment, Water and Sanitation** (MEEA) is the national authority on environment and the lead institution on the formulation of the NAPA. The MEEA includes:
    - AEED, which will be in charge of implementing the project; and
    - The National Directorate of Water and Forests, in charge of reforestation activities.
- The **Ministry of Energy and Water** and its National Directorate of Water which coordinates water activities.
- The **Ministry of Territorial Administration and Local Government,** which is in charge of development plans in the project regions.
- **Mali-Météo**, which will act as a service provider for meteorological data.

Stakeholders from civil society will also take part in the project, including:

- The Permanent Assembly of Agriculture Chambers in Mali (*Assemblée Permanente des Chambres d'Agriculture du Mali);*
- Professional organizations such as the Association of Rural Professional Organizations – AOPP (*Association des organisations professionnelles paysannes)* (AOPP), the National

Coordination of Rural Organizations – CNOP (*Coordination Nationale des Organisation Paysannes*), women's organizations, etc; and
- NGOs such as Alphalog, Amapros, Stop Sahel, etc.

The project beneficiaries will be the agro-pastoral communities of the *cercles* of Banamba (Koulikoro Region), Niono (Segou Region) and Kita (Kayes Region) who face numerous challenges due to climate change. An introductory description of these 3 cercles is provided in Appendix 8. The project will not only benefit the agro-pastoralists directly involved in APFSs, but also the surrounding communities, local government and organizations who will benefit from capacity building, decreased conflicts, increasing ecosystem resilience, improved transhumance paths and water access, improved seed varieties, SLM, etc.

A specific socio-economic analysis was conducted as part of the second component national study. The final version of the report of this study was submitted in July and provides local socio-economic and adaptation solutions and benefits. It explores linkages and identifies win-win solutions for local socio-economic and adaptation benefits, including which stakeholders were consulted.

1.5 LESSONS LEARNED FROM PAST AND RELATED WORK (INCLUDING EVALUATIONS)

From FAO APFS projects. FAO has substantial experience in APFS projects in Africa from which the present project will draw upon. In 2013, FAO conducted an assessment of support mechanisms to agro-pastoral communities in East-Africa, and the summary of lessons learned from the assessment are presented in Table 3 below.

Table 3: Lessons learned from FAO's experience in APFS projects in East Africa[19]

Lesson learnt	Approach suggested
The importance of a holistic livelihood programme (including within a Disaster Risk Management framework)	• Knowledge of the area; • Household Economy Analysis; • Mapping of key productive infrastructure, migratory routes, geospatial distribution of community animal health workers, veterinary supply points, markets etc.
The need to include planning based on natural resources and socio-economic settings	• Catchment-based approach.
The importance of the quality of capacity building processes	• Institutionalization should be done carefully and systematically ensuring that the requisite structure for quality assurance exists and is well-embedded in the overall national delivery of extension services.
The importance of reinforcing the appropriate use of legal instruments by stakeholders and	• Necessary instruments for arbitration including simple constitutions, bylaws, formal registration with the local administration and functional leadership.

[19] *Supporting Communities in Building Resilience through Agro Pastoral Field Schools*, FAO, 2013.

communities	
Gender	• Socio-economic gender analysis tools to articulate appropriate interventions; • Consider distance to training; • Mainstream activities that reduce women's labor burden.
Production intensification practices	• Integrated production and pest management; • Post-harvest handling; • Safeguarding biodiversity; • Diversification of farming system.
Livestock nutrition and health	• Locally available fodder resources, forage preparation & preservation; • Tree nurseries and appropriate tree planting; • Community Animal Health Workers; • Approach for trans-boundary animal diseases.
Rangeland rehabilitation	• Community rehabilitation; • Over sowing with legumes in pasture turf; • Appropriate bush and tree pastures.
Livelihoods	• Markets and market information; • Resilience fund; • Seed/grain banks; • Income-generating activities.
Land management	• Resource sharing agreements; • Conflict management; • Rational utilisation; • Community action plans; • Self-assessment and monitoring; • Valorization of customary institutions; • Community managed disaster risk reduction.
Strategic partnerships	• Research, local governments, customary institutions, specialized NGOs and resident NGOs/CBOs.
Early warning system	• Community based sentinels; • Use of various communication channels (electronic, radio).

The current project also draws upon the lessons learned from each of the projects currently being implemented in Mali that are mentioned in the baseline. A continual information-sharing system will be established with these projects.

From FFS projects. The FFS concept moves away from a traditional top-down approach to extension previously implemented in Mali. FFS recognizes that farmers already have experience with and knowledge of agricultural practices. Farmers play a key role in the FFS process, and the different activities lead them to develop individual capacities in order to properly identify, analyze and interpret what happens in the field. This approach helps farmers to take appropriate decisions based on their own experimentation. Farmer participation is a key component that needs to be applied in the proposed project to ensure the local ownership and project sustainability in the long term.

FAO's West African Regional Integrated Production and Pest Management Program (IPPM) began in 2001 and is now operating in 7 West-African countries, including Mali. The programme promotes the FFS approach with a specific focus on tackling pest issues. The FFSs implemented in the framework of IPPM have trained approximately 180,000 farmers in West Africa. According to a recent FAO study,[20] the FFSs have succeeded in nearly eliminating the use of pesticides by a community of cotton growers in the Bla region of Mali with no negative impacts on yields. A second study[21] conducted under the IPPM programme has also shown the threat that pesticides pose to the health of local people and the environment. A third study from the FAO project reports on the first use of passive sampling devices in the region. These tools sequester and concentrate a large amount of natural pesticides and chemicals found in the environment.

In addition, lessons can already be drawn from the LDCF project "Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas of Mali." This project started in 2011 and aims at developing a network of FFS in order to improve Mali's food security. Even though the pastoral dimension is not integrated in these FFSs, their agricultural CCA curriculum already exists and could be used for the agricultural component of the APFS curriculum in the proposed LDCF project.

From the implementation of the Climate Proofing Tool. The MEEA in Mali, through AEDD, and GIZ have developed an approach to integrating climate change into municipal planning through the Climate Proofing Tool. This tool is easy to use, simple and doesn't require computer skills. It allows for integration of risks due to climate change into development projects and programmes and into budgetary planning. In Mali, the tool was first applied in the two following projects: (i) one at the regional level: Management of Surface Water and Natural Resources in the Térékollé – Kolimbiné – Lac Magui catchment (the TKLM project), and (ii) the second at national level: Support Programme to Sustainable Development and Animal Husbandry in Western Sahel (PADESO). The TKLM project includes the Kayes *cercle* and the PADESO project the Kayes, Koulikoro and Segou regions. During these two experiences, the tool brought interesting results, and its participatory aspect was well received. It was concluded that climate proofing can be applied at the commune planning level where climate change is rarely considered in the PDESC, as well as at the political level where the tool allows for analysis of the vulnerability to climate change of a political program at the national scale. The application of climate proofing follows four successive steps:

1. Analysis of the repercussions of the effects of CC on the project/programme;
2. Development of adaptation options;
3. Organization of adaptation options into a hierarchy; and
4. Integration of results into project design.

For the communes willing to integrate CC into their PDESC, climate proofing proved to be efficient for both the communes that have and did not have a PDESC.

Since these first applications, the Climate Proofing Tool has also been used extensively by the LDCF project "Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas of Mali" and proved to have effective results.

From Local Conventions on natural resource management. In order to better manage transhumance practices, many programmes and projects have supported the development of local conventions

[20] *Reducing pesticide risks to farming communities: cotton farmer field schools in Mali*, FAO, 2014

[21] *Measuring pesticide ecological and health risks in West African agriculture to establish an enabling environment for sustainable intensification*, Jepson & al., Royal Society, 2014.

dealing with access to water and grazing land. The elaboration of such conventions is sensitive due to many conflicts over natural resources between farmers and herders. Five main conclusions have been drawn from the development of the local conventions:

- Local population is mostly involved in the elaboration phase but not in the implementation of the conventions;
- When a convention includes several villages *(convention inter-villageoise)*, it facilitates a positive concerted development of these different rural communes;
- Individuals responsible for the functioning of the conventions do not necessarily have the authority needed within the local social structures to manage resources and/or conflicts that might arise amongst villagers;
- The process usually stops after the elaboration of the convention and there is no implementation of the text since the project/programme helping has come to an end; and
- Funds management in the case of a *convention inter-villageoise* is often an issue while there are usually no problems for individual villages.

From best animal husbandry practices. The FAO undertook a study in 2014 to assess good practices in Mali in terms of sustainable management of pastoral resources. The final report[22] summarizes the good practices, and they are presented in the table below.

Table 4: Summary of good practices for sustainable management of pastoral resources in Mali

Pastoral Practice	Strengths	Weaknesses
	Development policies	
Decentralization	Transfers responsibilities and legitimacy for the administration of goods and services to the whole commune territory	Public administration reluctance but also lack of ownership of their mission by elected representatives of the commune
	Pastoral resources	
Exploitation of temporary ponds	Cheaper construction, water availability	Sandbanks, overgrazing in surrounding areas, lack of management and monitoring
Bourgou floodplains planning	Ensures feeding and watering of herds. Good technical and financial management	Often high implementation costs
Communal land	Ensures the rational management of the natural resources of the village or group of villages	Limited fire-breaks, frequent bushfire, difficult mobilization of the management committee
	Pastoral infrastructures	
Pastoral perimeters	Ensures water and pasture availability, rigorous resources management (pasture load), existing management structures	High implementation costs, recurrent and costly service charges, constant need of monitoring and maintenance
Pastoral wells	Ensures water for herds and herders, and a place to stay the night	Lack of management, overgrazing in the surrounding areas
Watering holes	Wells in the river bed ensure livestock watering for the whole dry season and are inexpensive.	Have to be rebuilt after each flood
Transhumance paths	Ensures easy movement of herds, contains animals, serves as a barrier	High implementation costs, deviations or obstructions due to

[22] *Evaluation des Bonnes Pratiques de Gestion Durable des Ressources Pastorales*, FAO, 2014.

	against bushfires	extension of cultivated areas and roads, recurring conflicts
Livestock market	Facilitates sales and various transactions related to commercialization	Income poorly used, lack of maintenance of equipment and infrastructures
Vaccination parks	Supports disease prevention and daily care, facilitates animal immobilization.	Lack of management and maintenance of infrastructures
Animal resources		
Transhumance	Good natural resource management (water and pastures), satisfies needs with limited costs	Extensive livestock breeding systems, requires movement, conflicts between farmers and herders over land use
Diversification	Species diversification	Important labor and livestock keeping involvement, high costs for disease prevention and care
Conventions		
Local conventions	Pragmatism and consideration of everyone's aspiration regarding various constructions (path, well, no go areas, etc.)	Reluctance of some local governments, lack of understanding of *inter-communalité* concept
Information system		
Information	Crucial, enables herders' awareness about the state of pastures, watering points, crops. Designated scout.	Poorly organized and only benefits herds from an area going towards another area.

From Diversity Field Flora. The Diversity Field Fora (DFF) approach builds on the FFS concept; it is a specific form of Field School aiming at protecting and enriching the species and genetic diversity available to farmer-herders through the region. It was developed in West Africa to strengthen the capacity of farmers to analyze and manage their own crop genetic resources. In the Sahel region, the heterogeneous and unpredictable environment makes it difficult for the local population to breed adaptive seed varieties. DFF promotes a participatory approach which generates options that farmers are able to use instead of technology transfer from outside sources. In DFF, teams of men and women (25-30 people) assess genetic diversity by testing both improved and local seeds. The selected adaptive seeds are then multiplied and disseminated within and outside the group. This assessment and seed selection improves farmers' capacities to adapt to climate change. The DFF approach creates a forum for exchange between farmers, offers training opportunities and facilitates partnership between farmers, researchers and extension services.

1.6 LINKS TO NATIONAL DEVELOPMENT GOALS, STRATEGIES, PLANS, POLICY AND LEGISLATION, GEF/LDCF AND FAO STRATEGIC OBJECTIVES

Alignment with national development goals, strategies, plans, policy and legislation

Over the past decade, Mali has developed a comprehensive framework of laws, policies, strategies, programmes and action plans addressing rural development, adaptation to climate change and the agricultural and livestock sectors specifically. The proposed project is in line with this overall framework and contributes particularly to the following:

Laws:

- Agricultural Orientation Law (LOA, Law N° 06-845 from 2006);
- *Charte Pastorale* (2001) and its implementing statute (2006).

Development policies and strategies:

- National Adaptation Programme of Action (NAPA, 2007);
- Strategic Investment Framework for Sustainable Land Management (CSI-GDT, 2010);
- National Policy for Climate Change (PNCC, 2011);
- National Strategy on Climate Change (SNCC, 2011);
- National Action Plan on Climate Change 2010-2017 (PANC);
- Green Economy Resilient to Climate Change (EVRCC, 2011); and
- Growth and Poverty Reduction Strategy Framework (GPRSF, 2000).

Sectoral policies, plans and programmes:

- Agricultural Development Policy (PDA, 2014). This policy promotes a sustainable, modern and competitive agriculture, aims at ensuring food security, and endeavors to turn the agricultural sector into the driving force of the national economy.
- National Programme for Investments in the Agricultural Sector (PNISA, 2009). This initiative led to the development of a National Plan for Priority Investment in the Agricultural Sector (PNIP-SA) in 2009.
- National Strategy for Food Security (SNSA, 2003). This strategy aims at meeting the basic needs of the population. Its objectives are to increase and diversify agricultural production, to improve the income of the population and develop the transformation of local products.
- National Policy for Animal Husbandry Development (*Politique nationale de développement de l'élevage*, 2004). This policy recognizes that this sector rests upon the exploitation of natural resources and agricultural and agro-industrial sub-products through different system of animal production. Therefore this policy aims at improving animal nutrition and genetics, and reducing the degradation of natural resources by safeguarding biodiversity.
- Five-year Plan for Pastoral Planning 2008-2012. The objective of this plan was to overcome the challenges pastoralism faces in Mali in terms of livestock watering, bushfire, obstruction of pastoral paths, anarchic use of pastoral resources, etc. The plan included several infrastructure projects which could not be implemented due to a lack of funding.

Alignment with GEF/LDCF Strategic Objectives

The proposed project has been developed in line with the GEF-LDCF objectives. Specifically, the project supports objectives under focal areas CCA-1, CCA-2 and CCA-3, working directly towards the following outcomes and outputs under each focal area.

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

- Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas
- Output 1.1.1: Adaptation measures and necessary budget allocations included in relevant frameworks
- The project works towards the GEF/LDCF CCA-1 objective specifically through Component 3, which will link APFSs to national frameworks so that CCA can be promoted into agricultural and livestock development. The project will promote climate proofing tools at the

national and regional level through the CSI-GDT as well as the Five-year Plan for Pastoral Planning.

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

- Outcome 2.2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses.
- Output 2.2.1: Adaptive capacity of national and regional centers and networks strengthened to rapidly respond to extreme weather events
- Both Components 1 and 2 to the proposed project will contribute to this by working with local structures and beneficiaries to identify pertinent information needs and adaptive strategies and subsequently promoting these strategies through the APFS approach and carrying out works in the four pilot investment areas for the project.

Objective CCA-3: Adaptation Technology Transfer: Promote transfer and adoption of adaptation technology.

- Outcome 3.1: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas
- Output 3.1.1: Relevant adaptation technology transferred to targeted groups
- Component 2 of the proposed project supports this outcome by enhancing the adaptive capacity and transferring the relevant adaptation technologies to agro-pastoralists through the implementation of the APFSs.

- Outcome 3.2: Enhanced enabling environment to support adaptation-related technology transfer
- Output 3.2.1. Skills increased for relevant individuals in transfer of adaptation technology.
- By the end of the project, component 1 of the proposed project will have contributed to the achievement of Outcome 3.2.

Alignment with FAO Strategic Objectives

The project will be inserted under the FAO strategic objective SO2: 2010303 - Support technical capacity development of, and cross-sectoral collaboration among, institutions and organizations for the development and implementation of practices that increase and improve the provision of goods and services in a sustainable manner.

The project will be developed in conformity with FAO Mali Country Programme Framework, product 2.3: the mechanisms of mitigation and adaptation to climate change are reinforced.

The FAO Representation in Mali is staffed with technical and operational personnel and can mobilize complementary national and international technical expertise within the pool of projects it manages and provide in-country support for the execution of the proposed project.

SECTION 2 – PROJECT FRAMEWORK AND EXPECTED RESULTS

2.1 PROJECT STRATEGY

As seen in Section 1.2.1 above, a comprehensive legal and policy framework is in place in Mali. A large number of projects and programmes are underway or planned; they represent a real opportunity to achieve sustainable rural development in the context of a changing climate. If properly implemented, they could lead to improved livelihoods, increased food security, improved natural resources and an overall increase in resilience to climate change. However, these programmes and projects face many challenges that were described in Section 1.2.2. The majority of the projects and programmes mentioned do not address the issues faced by the agro-pastoral sector in particular. They do not take into account the necessary integration of climate change into the key activities of this sector in order to improve its resilience. The proposed project will therefore build upon the lessons learned of the baseline projects and programmes and will supplement them by reinforcing their approach through integration of the APFS approach.

2.1.1 The Integrated FFS, APFS and JFFS Approach

The Farmer Field School (FFS)[23] is an approach to extension that is based on the concepts and principles of people-centered learning and was developed as an alternative to the conventional, top-down, extension approaches. It uses innovative and participatory methods to create a learning environment, including learning networks, in which land users have the opportunity to learn for themselves about particular production problems, and ways to address them, through their own observation, discussion and participation in practical learning-by-doing field exercises. The approach can be used to enable farmers to investigate, and overcome, a wider range of problems, including soil productivity improvement, conservation agriculture, control of surface runoff, water harvesting and improved irrigation.

The FFS approach was originally developed for training rice farmers on integrated pest management in Southeast Asia. The farmers meet every week from planting to harvest to check on how the crops are growing, look at the amount of moisture in the soil, and count the numbers of pests and beneficial creatures, such as earthworms and spiders. They do experiments in the field. Over the years, FFS has evolved to be used on many crops and to address many issues in many geographical settings across the world. A group of farmers gets together in one of their own fields to learn about their crops and things that affect them. They learn how to farm better by observing, analysing and trying out new ideas on their own fields. They are supported by a Facilitator, who is trained and may be responsible for more than one FFS. The Facilitators are trained by Master Trainers through the use of detailed curriculum and training modules. The Facilitators also ensure that a range of top-level scientific expertise is brought to FFS through the Master Trainers and the training modules. The FFS are therefore an ideal approach for linking field to extension services to scientific research, with, most importantly, information and knowledge flowing equally in all directions.

[23] Source: www.fao.org; FAO 2013 (op cit.)

The Facilitator of an FFS is normally an extension worker or another farmer who has "graduated" from another field school.[24] The Facilitator guides the group, helps them decide what they want to learn and to think of possible solutions, and advises them if they have questions. The farmers draw on their own experience and observations and make decisions about how to manage the crop. During a cropping season, the supported group is required to hold two or more open field days to show other farmers what they are doing.

The farmers also host exchange visits for members of other field schools, and visit the other field schools themselves. This allows them to share ideas and see how others are dealing with similar problems. At the end of the cropping season, the farmers graduate: i.e. they receive a certificate from the field school organizer. The members are then qualified to start a new field school as a facilitator. The curriculum of the field schools includes team building and organization skills, as well as covering special topics suggested by the field school members themselves. The field schools are a way for farming communities to improve their decision making skills and to stimulate local innovation for sustainable agriculture. The emphasis is on empowering farmers to implement their own decisions in their own fields.[25]

FFS is an empowering approach. A typical FFS will have 15-25 members, who, through the FFS experience, become empowered to identify, analyse and understand challenges and mobilize solutions. This organizational capacity can be applied to many challenges, not just productivity. Notably, the organizational capacity can be applied throughout the value chain - to credit and other financing modalities, to processing, to marketing, and to sales and investments.

The FFS approach aims at reinforcing rural populations' CCA capacities. The concept spread through the integration of new resilient practices such as the use of meteorological data in farmer decision processes, use of resilient seed varieties, agricultural facilities, integrated pest management, etc.

Despite these successes and improvements, the FFS approach in Mali currently faces some challenges. An important challenge is that the FFS approach in Mali – as in other parts of West Africa - has until now mostly focused on integrated pest management and on crop/field approach. This approach applies mainly to farmers who focus on a limited number of crops, especially cash crops. However, a great number of farmers in Mali implement a form of integrated crop/livestock/tree systems. In many cases, their central activity is livestock-raising, and many crops are produced for animal feed. They may also grow many important crops for subsistence. The standard FFS model is not applicable for such farmers because: (i) the technical needs are different, with a need for technical support to livestock-raising and to the different crops; (ii) the social approach is different - the livestock and the animal herd and the grazing land are the focus of the approach, and not a small plot of land, and; (iii) as the technical demands are more diverse, the institutional approach needs to ensure that a diverse range of technical support is available to farmers from national agencies and experts. For example, this could include expertise on animal husbandry and rangeland rehabilitation. Moreover, as mentioned earlier, the traditional livestock production system in Mali is based on three main practices: nomadic, transhumant and sedentary animal husbandry. The current FFS approach promoted in Mali is not adapted to nomadic and transhumant livestock production. It is these two main weaknesses that the proposed project will address by following the APFS approach.

[24] His/her competency is based on field experience and update training and not necessarily on formal training. Notably, in West Africa there is not diplomas, there is no graduation document, nor graduation procedure

[25] As mentioned above in West Africa there is no graduation process or certificate. However, a Facilitator can only start a new FFS if s/he has completed a cycle

Solutions to these challenges have been found in other parts of Africa, notably in East Africa. In Uganda, a form of FFS programme based on crop–livestock production and land and water management, including disaster and risk management, and a holistic catchment-based approach has been developed.[26] The programme has developed community action plans jointly with the pastoralists and agro-pastoralists in order to develop measures that minimize the effects of climate variability on livelihoods. The programme also introduces sustainable crop production intensification, community animal health, natural resource management and alternative revenue generation, within a single Field School approach. It promotes increased use of local landraces, in recognition of their potential for increasing resilience against the vagaries of climate. The schools also provide animal disease surveillance and diagnostic services complementing the dramatic shortage of veterinary services in the region. In a bid to improve animal nutrition and to increase health and resistance of livestock, forage trees legume have been planted, and grasslands oversown with legumes to improve their nutritional value for livestock. Finally, vegetable production and beekeeping have been introduced as alternative livelihood sources.

This approach, known as the Agro-Pastoral Field Schools (APFS) approach, provides an excellent platform for fostering capacity building and supporting agro pastoralists (males and females) and rural communities in the adoption of more climate-resilient agricultural technologies and livelihoods practices. The APFS concept integrates the agriculture and livestock sectors together with SLM in an ecosystem-based approach. The heart of this model lies in a participative process that encourages farmers and herders to actively get involved in order to try out and adopt CCA practices and technologies. Trainings are given by local facilitators in order to ensure continuity and ownership of the learning process by the local population. The Field Schools give farmers and herders the opportunity to strengthen and gain knowledge through observation and experimentation. This learning process helps them adapt to climate change, reinforce the resilience of their practices, reduce conflict between herders and farmers and minimize land degradation.

In Uganda, it has been demonstrated that the APFS approach is particularly adapted to field learning activities that require specific practical hands-on management skills and conceptual understanding over time. The training integrates various topics in a local agro-ecosystem specific context, and involves disseminating new technologies and practices while building on the local experience, such as the ones related to climate resilience, by involving farmers in local technology transfer processes.

The APFS have been shown to be flexible in that they can respond to local demands or problems as they are identified. They are based on an "experiential learning cycle" (with duration of 18 months or more, during which farmers' groups are followed and supported on a weekly basis). During the APFS, groups of farmers/herders are encouraged to meet at regular intervals to go through tailored learning sessions in the fields so as to study the "how and why" of a given context, to identify problems, to consider different options for problem solving and implement the best available solution. The learning process is systematic and guided by a situation-specific but holistic curriculum that follows the natural cycles of the subject. The method of interaction is non-formal and is based on field observations and group discussions, as well as simple experiments, drawings, models, fables and other such tools.

[26] See 'Field Schools for agro-pastoralists' in "Mountain Farming Is Family Farming: A contribution from mountain areas to the International Year of Family Farming 2014." (FAO, 2013

The integral learning-by-doing, validation and experimentation approach facilitates the adaptation of the technologies to local agro-ecological contexts, including accounting for climate risks and production practices and the adoption by farmers in the wider area. Farmers participating in the APFS also gain organizational skills, knowledge and practical skills that carry over beyond the end of the project, thus setting a solid base for resilience and sustainability.

A key component of the proposed project is to introduce and develop the APFS approach, in complement to the existing FFS approach in Mali. This project will work with agro-pastoralist communities as well as with the extension services for agriculture and livestock-raising. It will work with experts on CCA and resilience. The Field School approach is a process of information, partnership-building, reflection, assessment, prioritization, planning and addressing needs at various levels (farm, community, district and national).

The Junior Farmer Field and Life School (JFFLS) approach aims to empower vulnerable youth, and provide them with the livelihood options and gender-sensitive skills needed for long-term food security while reducing their vulnerability to destitution and risk coping strategies. One of the other major objectives of the JFFLS is to promote the creation of gender-equal attitudes, by enabling youth to exercise the same roles and responsibilities and developing their capacities to critically assess relationships and understand the risks and resources present within their community.

In Mali, JFFS concepts were introduced in 2011-2012, mainly through the integration of youth employment and decent child labor aspects in FFS curricula. A specific curriculum on that topic was developed. Some pilots were then conducted in some FFS in the cotton production area in Bla in close collaboration with the International Labour Organisation (ILO). However, following the 2013 crisis, these pilots were stopped and no further activities were conducted to promote decent child labor and JFFS in Mali. Recently, the FAO "Youth at Work" project started to build on those pilots and promote decent jobs for young women and men. This program aims to promote at least 400 new jobs and to strengthen the quality of 1,000 current jobs in the agro-business sector through the implementation of JFFLS. This USD2 million project is currently in its inception phase and will run until Mid-2016, creating concrete opportunities of collaboration and complementarities with this GEF LDCF project.

Around 98 million[27] children (ILO, 2013) work in the agricultural sector across the world, including in the livestock-raising sector. On the one hand the tasks performed by children shouldn't be considered as "child labor" to be eradicated since it is deeply rooted in herders' culture and way of life. On the other hand some aspects of children's work are dangerous and hinder their education and development. They usually take care of animals and keep herds, tasks where they can be exposed to toxic products, wounds, diseases, mistreatment and stress. This type of work is usually poorly paid and prevents children from going to school. In this sense, many efforts need to be made to improve the situation of children working in the livestock-raising sector such as: collecting more data on this type of work, adapting and ensuring education for the children, raising awareness on the dangers of some tasks left to children, improving the political and legal framework, reducing durably the demand for child labor, and promoting responsible behavior in the private sector.[28]

[27] ILO. 2013. Mesurer les progrès dans la lutte contre le travail des enfants. Estimations et tendances mondiales 2000-2012. BIT, Genève. Carr-Hill, R. et Peart, E. 2005. The Education of Nomadic Peoples in East Africa: Djibouti, Eritrea, Ethiopia, Kenya, Tanzania and Uganda. Review of relevant literature. Nations Unies (UNESCO-IIPE).

[28] FAO.2013. Child labor in livestock sector.

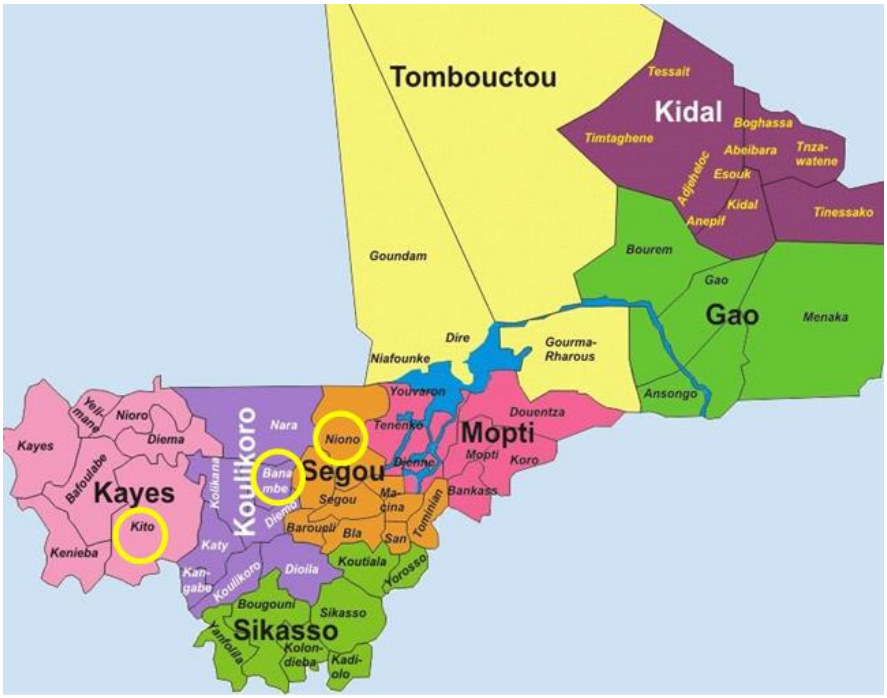
A close collaboration between those two initiatives will on the first hand allow to strengthen decent child labor and to create green and climate resilient job opportunities for young people within the APFS network that will be set-up, mainstreaming youth and child labor aspects within APFS curricula. On the other hand, the GEF LDCF project will contribute to mainstream CCA aspects within the JFFLS network that will be set-up and their specific curricula.

2.1.2 Testing in Diverse Sites: the Project Intervention Area and the Project Sites

The project will test approaches across a geographically and socio-economically diverse set of circumstances. Activities will take place in three different regions: Kayes, Koulikoro and Ségou; with a focus on the three following *cercles* represented in the map below:

- Banamba, in the Koulikoro region;
- Niono, in the Ségou region; and
- Kita, in the Kayes region.

Figure 9: Map representing the project intervention zones[29]



In these three *cercles* the project will address the entire transhumance process, from pasture rehabilitation to animal health. The project also proposes to assist agro-pastoralists along the transhumance paths as represented in the maps in Appendix 7. Despite focusing on these three specific *cercles*, the project will also consider at a larger scale the whole transhumance paths in order to adopt an ecosystem approach.

Kayes is one of the least populated regions in Mali. Its topography is characterized by plateaus that are cut into a number of divisions by water bodies. The region benefits from important water and mineral resources. The Kita *cercle*, located between the Sudanese zone in the south and Sahelian in the north, suffers from irregular and decreasing rainfall, which accentuates desertification risks. The Kayes

[29] Source: http://bani.kono.free.fr/geographie.php

region is crossed by many migrants including transhumant herders. Transhumance practices put significant pressure on natural resources in this *cercle*, especially soil, wood, grass and water resources.

Koulikoro is one of the most densely populated regions in Mali. The economy is mostly based on the primary sector since the agriculture sub-sector employs around 90% of the working population. More than 80% of the population practices livestock-raising, mostly in transhumance for the Banamba *cercle.* The hydrographic regime is bi-seasonal with a humid and a dry season. This alternation between non-existent and excess rainfalls is a limiting factor for human beings and agriculture resources.

The Ségou region is located in the Sahelian zone with its semi-arid climate. The Niono *cercle* is an attractive territory for the population due to the presence of large grazing lands and the numerous hydro-agricultural infrastructures of the Niger Office[30]. Niono is a significant agricultural and livestock-raising area. This *cercle* is crossed by two types of transhumance: a short one where herds go from rice fields to highlands; and a long one where herds leave the Mopti region to go to Mauritania. Environmental degradation in Niono is significant due to many factors such as bush fires, deforestation, infrastructures, insufficient rainfalls, etc.

A more in-depth description of each of the selected circle is provided in Appendix 8.

2.1.3 Multiplying the Climate Resilient Approach through Baseline Projects

As mentioned in section 1.2.1 above, the Government of Mali and development partners are implementing a series of rural development and sectoral projects across Mali, including in the three regions supported by the project. Table 2 in section 1.2.1 lists the existing projects and programmes the most relevant and providing cofinancing to the proposed project.

The proposed project will build upon and learn from these projects and programmes. It will help and empower the Field Schools approach. It will ensure that the integrated, climate resilient, participatory approaches that are developed through the present project are mainstreamed through the above-listed projects, thereby having a significant multiplier effect, and ensuring that a much larger community indirectly benefits from a better adaptation to climate change.

Various natural resources management practices and technologies are known and understood in Mali. This project focuses on resilient agricultural and pastoral practices (agricultural methods, species/varieties/livestock management methods) that are not yet used amongst Mali's rural population. There are many barriers to the large uptake of these resilient practices by local communities. By working with and empowering the local communities and farmer groups (through an innovative approach), this project will directly increase the uptake of appropriate agricultural and pastoral technologies.

[30] The Niger Office (*Office du Niger* in French) is a semi-autonomous government agency in Mali that administers a large irrigated area in the Inner Niger Delta in the Ségou region.

2.2 PROJECT OBJECTIVE

The objective of the project is to "enhance the capacity of Mali's agro-pastoral sectors to cope with climate change, by mainstreaming CCA strategies, practices, and technology adoption into on-going agro-pastoral and agricultural development initiatives in the framework of the national Sustainable Land Management (SLM) approach and program (CSI-GDT)."

To achieve this general objective, activities have been organized in the four following components. The specific objectives, methodologies, activities and key outputs of each component are described in detail below.

2.3 EXPECTED PROJECT OUTCOMES, INDICATORS AND TARGETS

In order to deliver the above-mentioned objective, and in line with the four components, the project includes four outcomes. These outcomes are designed based on the current baseline in which the PICP, the Support Project for the Implementation of the SNCC, and the Youth at Work Project contribute to CCA in Mali without specifically addressing the unique needs of the agro-pastoral sector and without including the APFS approach as a robust technology transfer method for rural farmers and agro-pastoralists.

Outcome 1.1: The institutional capacities of the AEDD, Ministry of Rural Development's structures (MDR), local governments, herders, farmers and customary organizations are strengthened to minimize the exposure of agro-pastoral and agricultural production systems in vulnerable areas to climate variability and risks.

- **Outcome Indicator 1.1(a):** (AMAT Indicator 2.2.1) Number and type of targeted institutions with increased adaptive capacity to minimize exposure to climate variability (describe number and type).
    - The baseline for this indicator is that institutions currently have low capacity to reduce vulnerability to climate variability, specifically for agro-pastoralists, and especially within the DNPIA and its decentralized structures.
    - The target for this indicator is that 10 staff from AEDD, 10 staff from MDR, 10 staff from local government, and 15 herders and staff from customary organizations are trained on the APFS approach and climate resilient pastoral practices, that a multi-year work plan and a strategy to spread the APFS approach is developed following a participative process, and that two local Participatory and Negotiated Territorial Development (PNTD) pilots are developed and implemented by local organizations to reduce conflicts linked to climate change impacts.

- **Outcome Indicator 1.1(b)**: Level of use of weather forecasts by targeted agro-pastoralists.
    - The baseline is that ten-day weather forecasts are developed by Mali-Meteo, but the level of access and use of these forecasts by agro-pastoralists is very low. Forecasts are not widely disseminated to agro-pastoralists in a timely fashion.
    - The target is that 70% of the 3,000 agro-pastoralists targeted through the APFS network have access and use of ten-day weather forecasts.

Outcome 2.1: Agro-pastoralists (of which at least 30% are women) have strengthened capacities to adopt CCA practices and technologies in agro-pastoral systems.

- **Outcome Indicator 2.1(a)**: Number of agro-pastoralists (gender disaggregated) who have strengthened capacities to adopt CCA practices and technologies due to project activities.
    - The baseline value for this is zero since no APFS are in place in the regions of interventions.
    - The target is that 3,000 agro-pastoralists have strengthened capacities to adopt CCA practices and technologies due to project activities. 30% are women.

- **Outcome Indicator 2.1(b)**: (AMAT Indicator 3.1.1) Percent of targeted groups adopting adaptation technologies by technology type (disaggregated by gender).
    - The baseline for this indicator is that no agro-pastoral adaptation technologies have been adopted yet.
    - The target for this indicator is that 70% of beneficiaries (30% women) adopt promoted CCA practices through the 150 APFSs established.

Outcome 2.2: Livelihoods of targeted agro-pastoralists improved.

- **Outcome Indicator 2.2:** (AMAT Indicator 1.3.2) Percent increase in per capita income for agro-pastoral and agricultural households due to adaptation measures applied.
    - The baseline for this indicator is the per capita income of households supported to implement the 12 local adaptation strategies, as determined once these households are selected.[31]
    - The target for the indicator is a 5% increase in income, attributable to the extent possible to adopted CCA measures. The method used to determine the baseline per capita income of households will be replicated while measuring progress towards achievement of this target. This will be reflected in the monitoring and evaluation plan that would have to be define at project inception (see section 4.5 "monitoring and reporting" below).

Outcome 2.3: Agricultural/agro-pastoral productivity in pilot CCA investment areas has increased.

- **Outcome Indicator 2.3:** (AMAT Indicator 1.2.5): Increase in agricultural productivity in targeted areas (tons/ha).
    - The baseline for this indicator is the livestock productivity of the targeted agro-pastoralists benefitting from the 4 investments pilots, as determined once the APFS will be set-up.
    - The target for this indicator will be a 5% increase, attributable to the extent possible to adopted CCA measures.

Outcome 3.1: APFS-based CCA mainstreamed into integrated rural development and investment policies

[31] The most feasible method for establishing baseline information within the project's M&E budget will be discussed and determined in the project's inception phase, i.e. how household income will be reported by beneficiaries and tracked.

- **Outcome Indicator 3.1:** (AMAT Indicator 1.1.1.1) Development frameworks that include specific budgets for adaptation actions (list type of development framework and briefly describe the level of the action).
    - The baseline for this indicator is that the National Plan for Priority Investment in the Agricultural Sector and the Five-Year Pastoral Development Plan do not currently account for climate change impacts, where the latter does not include a budget for climate adaptation actions, and that the PDESC of the targeted communes in the three *cercles* of implementation do not currently include climate change considerations.
    - The target is that climate change aspects are mainstreamed within the National Plan for Priority Investment in the Agricultural Sector and the Five-Year Pastoral Development Plan, that the latter plan is updated for the 2016 – 2018 period including an evaluation of the cost of investment and budget allocations for resilient actions to climate change, and that 3 PDESCs are revised to account for climate change impacts.

Outcome 4.1: Project implementation based on result-based management and application of project lessons learned in future operations facilitated.

- **Outcome Indicator 4.1**: Fulfillment of planned M&E activities including establishing baseline values for all project indicators, yearly updating of indicators, a mid-term and a final project evaluation and dissemination of lessons learned.
    - The baseline for this indicator is non-applicable
    - The target will be that each planned activity in the M&E plan is completed.

2.4 PROJECT OUTPUTS AND ACTIVITIES

A set of project outputs and related activities will lead to the four substantive Outcomes. Outputs under Outcome 1 will build the foundation for all technical activities conducted under Outcome 2. Outputs under Outcome 1 will popularize the APFS approach, which is not yet present, to a wide variety of stakeholders in target areas building on the existing FFSs. This includes building local capacity, enhancing understanding of pertinent legal statutes and generating climate information. Enhanced capacity building, knowledge, and information will have synergies with the four project co-financing projects.

Outputs under Outcome 2 constitute the main technical implementation and investment of the project. By establishing APFSs, which includes the necessary training to create the APFSs as well as implementing activities to beneficiaries, Outputs under Outcome 2 will increase the adaptive capacity and livelihood quality of agro-pastoralists in the target regions, creating synergies with the PICP and the Support Project for Implementation of the SNCC, both of which aim to improve rural livelihoods in the target zones. In addition, curricula from the Youth at Work project will be used in the APFSs, enhancing overlap between the JFFLS and the APFS.

Outcome 3 encompasses outputs and activities that will mainstream CCA planning into local plans and processes, included budgeting of CCA activities. By working with the PDESCs, the present project will extend the reach of the PICP to additional communes. In addition, the project will advocate incorporating CCA into the Five Year Pastoral Land Use Plan. Both activities complement, in turn, the Support Project for the Implementation of the SNCC, which also aims to integrate CCA into local plans.

Outcome 4 focuses on measuring and communicating successes, best practices and results achieved under the three first outcomes and paves the way for communication and dissemination in later years. The Outputs and Activities for the project, along with their baseline, are listed below.

Component 1: Development of CCA strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas

Outcome 1.1: The institutional capacities of the AEDD, Ministry of Rural Development's structures (MDR), local governments, herders, farmers and customary organizations are strengthened to minimize the exposure of agro-pastoral and agricultural production systems in vulnerable areas to climate variability and risks.

Output 1.1.1: APFS concepts and approaches are circulated and popularized amongst the staff of AEDD, MDR's structures, local government, herders, farmers and customary organizations, to contribute to strengthening adaptation capacities of agro-pastoral and agricultural production systems in vulnerable communes of the Koulikoro, Ségou and Kayes regions.

In the baseline, the APFS concepts and approaches are not being promoted at the national level and in the project target areas. None of the baseline co-financing projects (PICP, Support Project for the Implementation of the SNCC, Youth at work and in-kind MDR co-financing) address CCA for transhumant practices and the interaction between transhumance and agriculture. The APFS approach will be used to promote a better interaction both sub-sectors.

With additional LDCF funding the project will organize workshops and planning activities in PY1 to introduce the APFS approach to the relevant local institutions in the interest of laying a solid foundation for activities under Component 2. Awareness-raising of various stakeholders will directly benefit the PICP, the Support Project for the Implementation of the SNCC, and the MDR staff by increasing understanding of climate change challenges and CCA practices.

The following activities will be organized:

- In PY1, organization of 3 regional workshops to launch and introduce the concept of APFS.
- In PY1, training in the use of SHARP (*Schéma Holistique pour l'Auto-évaluation paysanne de la Résilience climatique*) and support implementing it.
- In PY1, establishment of a multi-year work plan and a strategy to spread the APFS approach.

Output 1.1.2: Climate information and meteorological data related to climate variability and change are made available and used in targeted vulnerable regions, and institutional actors' capacities are strengthened to better analyse and diffuse this data.

In the baseline, there is a lack in use and access to climate information and meteorological data in the project intervention zones. The Support Project for the Implementation of the SNCC aims at improving the availability and collection of climate data in order to increase knowledge on climate change. Even though the Support Project for the Implementation of the SNCC proposes in particular to develop and make available tools to monitor climate, and to strengthen data collection networks; it doesn't take into account the integration of available meteorological data directly into agro-pastoralists' practices.

With additional LDCF funding this output aims to use participatory practices to identify information needs that will then be collected and diffused through the APFSs set up throughout PY1, 2 and 3. Meteorological data generated by the proposed project will be understood and used by agro-pastoralists in their daily practices through the APFS network. This integration of meteorological data directly into agricultural and pastoral practices has the potential for use with the PICP, the Support Project for the Implementation of the SNCC, and the JFFLSs.

Under this output, Mali-Meteo will play a role of service provider of climate and agro-meteorological data. The proposed project will build on the work of ACMAD and AGRYMET on meteorology and on climate modelling, forecasting, and prediction. Mali-Meteo and other national stakeholders will continue collaborating with ACMAD and AGRYMET throughout the project in order to facilitate the flow of accurate information for developing this project Output. This output will improve the quality of agro-meteorological information available to farmers and pastoralists at various scales in time and space. The agro-meteorological data will be tailored to agro-pastoralists' local needs to enable better understanding of climate variability and climate change in their region, and highlight risk levels thereby improving their decision-making ability in terms of agricultural risk management.

With the support of Mali-Meteo, DNA and DNPIA, relevant weather and climate information will be introduced in the APFS learning-by-doing training. The activity will start with the identification of agro-meteorological information needs in APFS. Further to that, the DGM/DGPV/INERA staff will be trained in order to respond to farmer's needs in APFS. Finally, under the supervision of facilitators, the APFS will receive agro-meteorological information and determine ways to use the forecast. Agro-meteorological data collection, archiving, processing and analysis capacity will be achieved mainly by Mali-Meteo that strictly collaborates with ACMAD and AGHYMET.

The following activities will be organized:

- In PY1, participatory identification of climate information needs by agro-pastoralists.
- In PY2, Training in data collection and analysis, and in the use of ten-day weather forecasts and meteorological data to inform crop and livestock cycles as well as transhumance practices via the APFS network, for 10 staff from DNA, DNPIA and local government and 15 herders and staff from customary organizations.
- Throughout PY2 and 3, use of decadal meteorological data to inform crop and livestock cycles as well as transhumance practices via the APFS network.

Output 1.1.3: The Charte Pastoral *and its statutes are distributed and implemented. Agreements between local agro-pastoralists are put in place to reduce conflicts linked to climate variability and transhumance paths.*

In the baseline, fundamental principles of transhumant livestock-raising exist in Mali in documents like the *Charte Pastorale*, but they are not known to agro-pastoralists and are not being implemented. The *Charte Pastorale* remains unknown at the local, communal and regional level and none of the baseline initiatives currently supports its diffusion.

With additional LDCF funding, throughout PY1, 2 and 3, the project will promote existing policies related to agro-pastoralism in addition to identifying policy gaps. Based on the results of these analyses, two pilots will be carried out to implement agreements between agro-pastoralists and

transhumant herders to reduce conflicts related to land-use and natural resource use, which will complement both the PICP and the Support Project for the Implementation of the SNCC. The following activities will be organized:

- Throughout PY1, 2 and 3, dissemination and popularization of the *Charte Pastorale* and application of its statutes at the local level through the FFSs and the APFSs as well as at a wider scale.
- In PY2, analysis of current policy and gaps related to identifying transhumance corridors and establishing use rights through participatory negotiations.
- Implementation of two pilot Participatory and Negotiated Territorial Developments (PNTDs), one in PY2 and one in PY3, identification of transhumance corridors and implementation of agreements between local agro-pastoralists.

Component 2: Capacity building and scaling up of CCA technologies and best practices for small agro-pastoralists.

Outcome 2.1: Agro-pastoralists (of which at least 30% are women) have strengthened capacities to adopt CCA practices and technologies in agro-pastoral systems

Output 2.1.1: At least 200 APFS facilitators are trained (of which at least 30% are women) through agreements with associations of livestock-raisers and agro-pastoralists.

In the baseline, there are a large number of facilitators for FFS in Mali. However, they are only trained in the farmer-field school approach focussing on crops; they do not have the skills and knowledge related to agro-pastoralist systems and communities.

With additional LDCF funding, activities under this output are designed to establish the APFS approach in particular through training methods that build on shared best-practices and promote cross-learning. Curriculum for training activities will be established through participatory practices, tools for trainings developed based on chosen curriculum, master trainers at the national level and then facilitators will be trained to create an established presence for implementing the APFSs. Creation of the APFSs will involve MDR staff, helping promote sustainability by training government staff. The following activities will be organized:

- In PY1, organization of an exchange visit on the APFS approach in East Africa for DNPIA, DNA, AEDD, Mali Météo and DNEF experts, including some future master trainers.
- In PY1, participatory identification of a training curriculum for agro-sylvo-pastoral activities within the APFS. The curricula will integrate topics including animal health, nutrition, genetic improvement, climate change, links with farming practices, pasture management, use of wild seeds to rehabilitate community pasture lands, water and soil management including applying crop residues, improvement of soil fertility by managing crop and livestock cycles, composting, agroforestry, early warning systems, community supervising systems, land rights and the pastoral chart, SHARP, agroecology principles, perennial crops etc. The curricula will also include decent child labor and youth employment aspects through support of the "Youth at work" project.

- In PY1, training and provision of equipment for 10 master trainers in the national-level livestock sector who are affiliated with DNPIA and retraining of master trainers at DNA on integrating crop/livestock systems into FFSs.
- In PY1, development of training tools for trained facilitators.
- At the end of PY1 and throughout PY2, 3 and 4, training of 200 APFS facilitators (including staff from the Local Livestock Production and Industry Service (SLPIA), livestock associations, local NGOs, civil society, and private veterinarians) through Memorandum of Understandings and retraining of DNA trainers on the integration of crop/livestock systems into FFS.
- Organization of a wrap-up workshop at the end of each 18 months training cycle to share and disseminate lessons learned

Output 2.1.2: 150 APFS are put in place and integrate CCA and sustainable land-use principles in their curriculum, with an accent on best practices, ecosystem resilience, and integration of agricultural and pastoral production systems.

In the baseline, no APFS are in place in Mali.

With additional LDCF funding and drawing on activities under component 1, target zones to position the APFSs within the targeted communes will be chosen through participatory practices and based on defined selection criteria. Following selection, and based on the multi-year work plan also established through component 1, the APFSs will be set up and training activities for agro-pastoralists undertaken. Training strategies will include follow-up activities, training of the trainers, and facilitated communication across different FFSs and APFSs. This output has synergies with the PICP and the Support Project for Implementing the SNCC by putting in place structures to promote adaptive practices to rural agro-pastoralists. The following activities will be organized:

- In PY1, participatory identification of beneficiaries and target zones for implementing the APFSs by using diverse tools (SHARP) and defining specific selection criteria.
- From the end of PY1 and throughout the whole project implementation, progressive implementation of 150 APFSs in selected zones and training of 3,000 agro-pastoralists (30 individuals maximum per training group with at least 30% women) in the APFS approach according to the training curriculum established by the project: training over the course of 18 months, training targeted to small transhumance and large transhumance, monitoring of groups by 2 or 3 trainers with complementary skills (animal health, nutrition, genetic improvement, pasture management, links between agriculture and livestock, agroecology principles, perennial crops etc.).
- From the end of PY1 and throughout the whole project implementation, organization of bi-monthly sessions to retrain facilitators, including the FFS facilitators.
- Facilitation of communication between the FFSs and the APFSs through open-house days, exchange visits and national meetings at the beginning of PY2, 3 and 4.

Output 2.1.3: Adaptation technologies and practices are distributed to the 150 APFS created by the project.

In the baseline, adaptation technologies and practices fit for both the agriculture and livestock sectors are not yet distributed through APFS network since no APFS are in place in the project intervention areas.

With additional LDCF funds, in each of the established APFSs, agro-pastoralists will identify pertinent CCA measures. These practices will then be tested and diffused through the APFS. Adaptation measures will include identifying the best species for different types of fodder species, creation of no-trespassing areas in specific places and an assessment of seed and livestock varieties. Similar to Output 2.1.4, this output has direct synergies with the PICP and the Support Project to Implement the SNCC through promotion of technology transfer of adaptive practices to rural agro-pastoralists. In addition, content related specifically to youth will be drawn from the Youth at Work Project and JFFLSs.

Activities under this output will seek balance between drawing on technological expertise of the IER and including local knowledge and measures as well. The following activities will be organized:

- In PY2, participatory community analysis of climate risks by each APFS and identification of local CCA measures and technologies.
- Throughout PY2, 3 and 4, distribution and testing of best practices through the APFSs, including bush-fire prevention techniques.
- Throughout PY2, 3 and 4, identification and testing of seed for wild fodder species, local varieties and adapted varieties that are resistant to drought and climate variability, and adoption/testing of other resistant fodder species (services contracted through the Institute of Rural Economy – IER).
- Throughout PY2, 3 and 4, creation of no-entry zones ("*zones de mise en défens*") to conserve available pastures in 3 pilot zones (maximum of 600ha): participatory delineation of zones, establishment and implementation of compensation for a community guardianship system, and definition of use rights based on Activity 1.1.3.
- Throughout PY3 and 4, strengthening and improvement of animal genetics: development of animal genetics (*Sation du Sahel* in Niono), training of inseminators and provision of genetic animal seed.
- Throughout PY2, 3 and 4, development of improved animal feeding practices: creation of salt blocks/lick-blocks, conservation of fodder, etc.
- Throughout PY2, 3 and 4, assessment of crop genetic diversity through the Diversity Field Fora (DFF) approach in APFSs.

Outcome 2.2: Livelihoods of targeted agro-pastoralists improved.

Output 2.2.1: At least 2,500 livestock-raisers and farmers (of which at least 30% are women) participate in the implementation of integrated local adaptation strategies.

In the baseline, no local adaptation strategies for both livestock-raisers and farmers have been implemented in a participative manner before.

With additional LDCF funds and following the participatory influence of the project, activities under this output will be carried out to identify and define revenue-generating activities and adaptation options for agro-pastoralists. Once identified, revenue-generating activities and adaptation options will be promoted in 12 pilots. Similar to other outputs under this component, this output has direct synergies with the PICP, the Support Project to Implement the SNCC through participatory identification and direct promotion of adaptive practices to rural agro-pastoralists, and the Support Project for the Preparation of the General Agriculture and Livestock census in Mali which share the aim of improving livelihoods and decreasing vulnerability to climate change. The following activities will be organized:

- In PY2 and 3, participatory definition at the APFS level of integrated local adaptation strategies that include developing the beef sector, improved management of transhumance corridors, strengthening the integration of farming and livestock, identification of revenue-generating sectors for agro-pastoralists to commercialize non-timber forest products (NTFP), etc.
- Throughout PY3 and 4, implementation of 12 pilots on integrated local adaptation strategies with 4 pilots per targeted region.

Outcome 2.3: Agricultural/agro-pastoral productivity in pilot CCA investment areas has increased

Output 2.3.1: Four pilot investments in adaptation are supported to improve ecosystem resilience and contribute to strengthening the capacity of agro-pastoralists to adapt to climate change.

In the baseline, there is a lack of investments to support climate change adaptation in the agriculture and livestock sector. Agro-pastoralists have limited capacities to adapt to climate change and improve ecosystem resilience.

With additional LDCF funds, a number of specific works will be designed to improve agro-pastoral productivity. Activities under this output build on activities under previous outputs to identify adaptation measures and create effective training networks. Works include water management, improved seed multiplication and distribution, and promotion of fodder species. The pilots will inform best adaptation activities for the PICP and the Support Project for the Implementation of the SNCC. The following activities will be organized:

- In PY2 and 3, strengthening the network of wells and boreholes together with their management and maintenance along transhumance paths to reinforce water access for herds: participatory analysis of water access in target zones, creation of 3 pasture wells per *cercle*, deepening of 5 ponds located in two different directions along the most significant transhumance routes in each *cercle* (9 pasture wells and 15 ponds in total, and training in infrastructure management and maintenance.
- In PY3, multiplication and distribution of seed for local fodder species that are resistant to drought and climate variability in addition to adoption and testing of other resistant forage species (service contract with the IER).
- In PY4, pasture planning and management.
- In PY2 and 3, installation of community nurseries (one per commune with APFSs) and land for plant regeneration and agroforestry along transhumance corridors.

Component 3: Mainstreaming CCA in policies and development programs related to agricultural and livestock production.

Outcome 3.1: APFS-based CCA mainstreamed into integrated rural development and investment policies

Output 3.1.1: National cooperation frameworks that use APFS to better integrate CCA into agricultural/livestock development are strengthened.

In the baseline, an inter-sectoral National Committee on Climate Change already exists in Mali. However, this committee is inactive and there is a lack of cooperation framework at national level to support CCA. CCA supported activities by the PICP and the Support Project for the Implementation of the SNCC, among others, are not well coordinated.

With additional LDCF funds, activities under this output aim to coordinate agricultural and livestock policy in a way that is specifically conducive to promoting CCA in the long-term. To do this, the project anticipates building institutional relationships across pertinent government Ministries, training relevant individuals within those Ministries, and facilitating communication between Ministries. By facilitating dialogue between different sectors and institutions in addition to increasing institutional capacity to address CCA, this output makes contributions to the PICP and the Support Project to Implement the SNCC. The following activities will be organized:

- In PY1, implementation and formalization of an inter-sectoral team (drawn from the thematic group on adaptation in the National Committee on Climate Change) by official decision of the Ministry of Environment, Water and Sanitation (MEEA).
- Throughout PY2, 3 and 4, support to the functioning and cooperation within the inter-sectoral team.
- In PY2, organization of an awareness-raising session for the inter-sectoral team on advantages and challenges associated with integrating climate change into development planning.
- Throughout PY2, 3 and 4, organization of 10 analysis and planning sessions on integrating CCA into farming and livestock policies and strategies.
- At the end of PY1, establishment by official decision of the MEEA of the project steering bodies (including at the national, regional, local and communal levels) following the structure of the National Climate Change Committee.
- Throughout PY2, 3 and 4, organization of 17 meetings (2 at the national level, 6 per region, 6 per *cercle*, and 3 per commune) on cooperation and planning for coordination bodies.
- Throughout PY2, 3 and 4, distribution of best-practices through the above cooperation structures.

Output 3.1.2: The Climate Proofing tool is applied at the local level through the Strategic Framework for Investing in Sustainable Land-use Management (CSI-GDT).

In the baseline, the Climate Proofing tool has been applied by the LDCF FAO project *Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas* as well as by other partners and has proven to be efficient. In the baseline the PICP is aiming to integrate CCA into the planning process through the PDESC.

With additional LDCF funds, the project will promote the use of climate-proofing tools through trainings and creation of learning materials in the three selected communes. It will complement the PICP by integrating CCA into the PDESCs of additional communes. Similarly, the Support Project for the Implementation of the SNCC will benefit from this Output through general inclusion of CCA in local governance processes.

As with other outputs in the project, this output will draw on the information and tools identified through participatory approaches in components 1 and 2 of the project. The following activities will be organized:

- In PY2, application of the climate proofing tool at the local level on the PDESC of the 3 selected communes. The PDESCs will be revised by introducing the practical data identified in the APFS.
- At the end of PY1, training of 12 trainers (4 per region) on tools to integrate climate change into local development planning through climate proofing and the APFS approach.
- At the end of PY1 and beginning of PY2, organization of 10 sessions (1 national, 3 regional, 3 local, and 3 at commune level) to familiarize members of the steering committee in tools and methods that support the process of integrating climate change into planning.
- In PY3, creation of a booklet in French and Bambara on integrating climate change and sustainable land-use management into local development planning through the APFS approach.
- At the end of PY3 and beginning of PY4, organization of 3 workshops to share revised documents.

Output 3.1.3. The Five-Year Pastoral Land Use Plan (PQAP) is revised to support integration and mainstreaming of CCA in the agro-pastoral sector.

In the baseline, the Five-Year Pastoral Development Plan is outdated and does not include a specific budget for adaptation actions.

With additional LDCF funds, the PQAP will be revised and the revisions will be promoted to relevant individuals through appropriate training sessions. By increasing the likelihood for sustainable CCAs, this output will have synergies will benefit the PICP and the Support Project for the Implementation of the SNCC. The following activities will be organized:

- In PY2 and PY3, carry out a revision of the PQAP evaluating the cost of investment and integrating resilience to climate change by the inter-sectoral team.
- In PY3, organization of 4 budgeting and planning sessions.
- In PY3, organization of validation workshops for the investment plan at the national and regional levels.

Component 4: Project monitoring and dissemination of results

Outcome 4.1: Project implementation based on result-based management and application of project lessons learned in future operations facilitated.

The baseline for outputs under component 4 is not applicable.

With additional LDCF funds, component 4 stands to benefit the baseline projects through sharing and documenting lessons learned. In particular, the Support Project for the Preparation of the General Agriculture and Livestock Census will benefit from two-way information sharing with the proposed project, and the Youth at Work project will benefit from lessons learned from the present project that can be potentially included in the JFFLS.

Output 4.1.1. Monitoring and Evaluation System put in place, including systematic collection, analysis, compilation, and operational implementation of data.

- Implementation of a performance measurement framework defining roles, responsibilities, and frequency for collecting and compiling data that informs project performance monitoring indicators.

Output 4.1.2. Mid-term and final evaluations are conducted.

- After 18 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, in consultation with the project team including the FAO-GEF Coordination Unit, the LTO, and other partners.

Output 4.1.3. Best practices and lessons learned from the project are disseminated.

- In PY1 a website will be established for sharing the project's experiences and lessons learned. The website will be maintained and updated by project staff during project implementation and hosted by FAO on behalf of the Government of Mali after the end of the project implementation.
- By PY4 five publications will be issued on the project's best practices and lessons learned. All publications will be uploaded to the project website, and will be distributed through (limited) printed copies to local partners and government staff.

2.5 GLOBAL ENVIRONMENTAL BENEFITS/ADAPTATION BENEFITS

The LDCF project is expected to increase resilience to climate change in the intervention areas through an integrated ecosystem-wide approach that focuses specifically on the interactions between agricultural and pastoral production systems. The project will generate both direct and indirect adaptation benefits for agro-pastoralists in the project's target areas.

Directly, the project will support at least 3,000 agro-pastoralists to develop and implement new approaches, practices and fodder varieties that increase climate resilience. The project will also contribute directly to organizational strengthening in these communities – leading indirectly to improvements in terms of gender, youth, land tenure, and access to and use of agro-meteorological information. As a result 3,000 families, approximately 18,000 people, will benefit from increased resilience to climate change.

The project will lay the ground-work for introduction of adaptation measures by building capacities within local entities and creating access to improved information:

- APFS concepts and approaches are circulated and popularized amongst the staff of AEDD, MDR's structures, local government, herders, farmers and customary organizations, to contribute to strengthening adaptation capacities of agro-pastoral and agricultural production systems in vulnerable communes of the Koulikoro, Ségou and Kaye regions;
- Climate information and meteorological data related to climate variability and change will be made available and used in targeted vulnerable regions and institutional actors' capacities are strengthened to better analyse and diffuse this data;
- The Pastoral Charter and its statute will be distributed and implemented; and
- Agreements between local agro-pastoralists will be put in place to reduce conflicts linked to climate variability and transhumance paths.

The project will also directly train local facilitators in APFS approaches:

- 200 APFS facilitators will be trained (of which at least 30% are women) through agreements with associations of livestock-raisers and agro-pastoralists;
- 150 APFS will be put in place that integrate CCA and sustainable land-use principles in their curriculum, with an accent on best practices, ecosystem resilience, agroecology and integration of agricultural and pastoral production systems; and
- Adaptation technologies and practices will be distributed to the 150 APFS created by the project.

The project will directly improve the livelihoods of agro-pastoralists in tangible ways:

- Revenues and benefits of agro-pastoralists will increase by 5% for APFS participants;
- At least 2,500 livestock-raisers and farmers (of which at least 30% are women) will participate in the implementation of integrated local adaptation strategies;
- There will be a 5% increase in the agricultural/agro-pastoral productivity in pilot CCA investment areas; and
- Four pilot investments in adaptation are supported to improve ecosystem resilience and contribute to strengthening the capacity of agro-pastoralists to adapt to climate change.

The project will create sustainable benefits by mainstreaming CAA into policies and plans:

- APFS-based CCA will be mainstreamed into integrated rural development policies in a coordinated manner under the inter-institutional collaborative framework of the Strategic Framework for Investment in Sustainable Land-use Management;
- National cooperation frameworks that use APFS to better integrate CCA into agricultural/livestock development will be strengthened;
- The climate proofing tool will be applied at the national and regional levels through the Strategic Framework for Investing in Sustainable Land-use Management;
- Investment to scale up CCA strategies and practices in agro-pastoral production systems is increased through specific budget allocations identified by AEDD, the MDR and decentralized administrations; and
- The PQAP is revised to support integration and mainstreaming of CCA in the agro-pastoral sector.

2.6 COST EFFECTIVENESS

Cost-effectiveness is at the heart of FAO's Department of Agriculture and Consumer Protection's strategy for incorporating CCA concerns into its regular institutional support to sustainable

agricultural development in LDCs such as Mali. The proposed project design is expected to be highly cost-effective since it builds on: i) existing FFS structure that is already operational in several regions; ii) on-going activities with similar objectives; iii) synergies with existing programs; and iv) avoiding overlap and coordination of interventions with other CCA projects funded by LDCF in the country.

Cost-effectiveness will be achieved by a combination of the following basic principles:

Building on FFS already in place through FAO-supported projects will allow for a significant reduction in costs for the proposed LDCF project. The proposed project builds directly on previous collaboration between FAO and Mali on FFS. FAO has been supporting FFS in Mali and has created a core capacity of technical expertise and experience. This includes legal and technical capacity in the government as well as the cadre of FFS experts that have worked on previous FAO projects. By building on these past initiatives, the project capitalizes upon previous FAO work. In the preparation of the FAO/GEF project "Integrating climate resilience into agricultural production for food security in rural areas of Mali", a comparison of costs for FFS and standard training approaches to extension was undertaken. Although not directly transferable to this project, the finding was that "building upon 400 existing FFS and 233 experienced facilitators (for crops such as rice, cotton and vegetable gardening) will save 251,540 USD in training costs alone and 220,000 USD in FFS operation over the project cycle." Although not a solid economic analysis, this does strongly indicate the cost-effectiveness of the FFS approach.

Adopting cost-effective CCA technical options and practices is a central tenet of the project strategy. A number of cultivars and varieties of fodder have been identified by the IER and local farmers as more drought-stress resistant and with shorter vegetative cycle. Testing and piloting those cultivars into various eco-regions and contributing to develop local seed production centers should have a high rate of return, since most of the more capital intensive (but complementary) solutions, including water and soil management, are being implemented by partner institutions and projects.

Cost-effectiveness will also be achieved through knowledge management, synergies and complementarities. Precious knowledge on CC threats and mitigation practices and strategies does exist both at grass-roots and institutional levels, but it is poorly systematized, shared and disseminated. A specific line of action has been introduced in Component 4 in order to systematically foster CCA-related knowledge management systems in a cost-effective manner. The project also encompasses specific mechanisms to establish synergies with the on-going GEF-UNDP NAPA-implementation projects, as well as with a series of other externally funded initiatives.

Several alternative designs and approaches were considered for cost-effectiveness during project design. These alternatives included focusing on providing more hardware, or on focusing all capacity development efforts on national government agencies, or by FAO directly providing extension services to agro-pastoralists. Ultimately, it was decided that these approaches would not have as much impact per input, hence the selected focus of transforming agriculture and livestock-raising through the FFS approach was selected. This approach underlies Outcome 2.

The project also intends to minimize the use of international consultants where national expertise is available. This will reduce the travel costs and the costs of consultancy fees. Notwithstanding, where international expertise is unique or exceptionally credible, it will be utilized. For example, given the innovative nature of the project related to agro-pastoral field schools, expertise on this will be sought from the East Africa and International Project Technical Adviser position established. However, this

key position will be shared with a similar FAO/GEF/LDCF project starting up in Burkina Faso, thereby making significant savings to this project's budget.

Finally, the project design has excluded very remote areas and others where mobilization and security costs could pose an excessive burden on project resources.

2.7 INNOVATIVENESS

The most significant innovation brought by the project is the APFS approach, as previously used in East Africa. Although FFSs are already in place in Mali, the livestock sector has not been integrated in these previous initiatives.

As described in the challenges listed above, the agricultural and livestock sectors face a conflicting situation over land and natural resources. To overcome these conflicts, the innovative approach taken in the proposed project will bring together the agricultural and livestock sectors through APFS and different cooperation initiatives such as the development of local agreements.

The APFS approach is also innovative in terms of learning process for the local population. The successful APFS used in East Africa adopts a holistic method to extension and community support. For example, the article "*Farmer Field Schools in rural Kenya: a transformative learning experience*[32]" reveals the significant impacts demonstrated by a personal transformation; changes in gender roles and relations, customs and traditions, community relations, and an increase in the economic development of households. Further, Friis-Hansen *et. al*.[33] suggest that the most significant impact of innovative FFS could be viewed in terms of building the capacity of local people to make choices and make decisions that ultimately lead to an increased uptake of agricultural innovations, access to services and market access, as well as collective action. A major conclusion of the study is that agricultural development programs should focus more on the processes of empowering farmers as opposed to the technical solutions that characterize most programs, in order to create an appropriate mix of technological and social advancements for a development process that is sustainable. Finally, the recent FAO publication "*Supporting communities in building resilience through APFS*" explores potentials for the success story in Uganda to be converted to a framework for policy recommendations.

The proposed project will also introduce new climate resilient tools such as SHARP and the PNDT approach.

i. SHARP is a scheme for farmers and herders to self-assess their climate resilience. It has been developed in collaboration with the University of Leeds, UK, and has been tested in various FAO FFS/APFS projects in Africa. The tool is integrated in the FFS/APFS curricula and is being used in various FAO GEF projects working in land degradation and climate adaptation through FFS/APFS. The scheme takes place within the initial FFS/APFS community dialogues and baseline assessments and allows for an assessment of climate resilience during different phases of project implementation.

[32] Duveskog et al., 2010.
[33] 2012. "The Empowerment Route to Well-being: An Analysis of Farmer Field Schools in East Africa."

ii. The Participatory and Negotiated Territorial Development (PNTD) is a participatory land delimitation approach that seeks to support community tenure security.[34] The approach is based on participation and raising awareness on people's rights and their local customary use of natural resources.

SECTION 3 – FEASIBILITY (FUNDAMENTAL DIMENSIONS FOR HIGH QUALITY DELIVERY)

3.1 ENVIRONMENTAL IMPACT ASSESSMENT

Based on the project objective, outcomes and outputs, adverse environmental or social impacts are not likely, and it conforms to FAO's pre-approved list of projects excluded from a detailed environmental assessment (i.e. Category 'C'). To the contrary, the project and the GEF resources invested are expected to have positive impacts on cultivated and grazing lands. The project will support the sustainable use of agro-pastoral resources, which will create global environmental benefits. The investments in agro-pastoral areas for SLM will follow Mali's standards and legislation.

3.2 RISK MANAGEMENT

3.2.1 Risks and mitigation measures

A detailed risk table including identified potential risks to the project, estimated levels of risks, and proposed mitigation measures for each risk is provided in Appendix 6.

3.2.2 Fiduciary risk analysis and mitigation measures

Not required as this is not a Nationally Executed Project (NEX).

SECTION 4 – IMPLEMENTATION AND MANAGEMENT ARRANGEMENT

4.1 INSTITUTIONAL ARRANGEMENTS

4.1.1 General institutional context and responsibilities

The project will be implemented with the support of National, Regional and local Government(s), and Communal Administrations and their Technical Services.

[34] The approach is described in the document "Participatory land delimitation: An innovative development model based upon securing rights acquired through customary and other forms of occupation" Land Tenure Working Paper 13, FAO, 2009.

The Ministry of Rural Development (MDR) is responsible for the promotion of agriculture, the conservation and utilization of natural resources and rural development in Mali. The key technical departments of the MDR that will be involved in the implementation of the projects are:

- The National Directorate for Animal Production and Industry (DNPIA), which coordinates the implementation of all activities linked to animal production and health;
- The National Directorate for Agriculture (DNA), in charge of developing national policies related to agriculture and ensuring the coordination and control of its implementation; and
- The Local Livestock Production and Industry Service (SLPIA) in charge of the livestock sector at local level.

The Ministry of Environment, Water and Sanitation (MEEA) is the national authority on environment and the lead institution on the formulation of the NAPA. AEDD, which will be in charge of implementing the project, is an agency of the MEEA.

The AEDD ensures the coordination and implementation of the National Policy on Environmental Protection and the integration of environmental aspects into all policies. More specifically, the agency is in charge of:

- strengthening capacities of people involved in environmental management, fight against diversification, climate change and sustainable development, through the elaboration of modules, information support tools, education and communication, information and awareness-raising trainings;
- monitoring financial mechanisms and mobilizing funds for the protection of the environment, fight against diversification, climate change and sustainable development;
- ensuring coordination, monitoring and implementation of Conventions, Agreements and International Treaties ratified by Mali with regards to the environment, fight against diversification, climate change and sustainable development;
- contributing to the integration of environmental aspect in the design of projects, programmes and land use plans through the development of guides on environmental action coherence, and support to local governments;
- elaborating the National Report on the state of the environment;
- collecting data and producing statistics on the environment and sustainable development;
- diffusing research results on biotechnology regarding environmental protection, fight against diversification, climate change and sustainable development; and
- participating in the implementation of the Environmental Action Plan's programmes.

In the framework of the LDCF project, AEDD will be responsible for coordinating project activities and undertaking any activity aimed at supporting the implementation or integration of CC into local or national policies (especially under Component 3).

Other governmental institutions such as Mali-Météo (the National Directorate for Meteorology) and the Institute of Rural Economy (IER) will also play an essential role in the technical implementation of the project.

Mali-Météo is under the supervision of the Ministry in charge of equipment and transports. It is in charge of observing and studying the weather, climate and atmospheric constituents of the environment to ensure the security of people and goods and contribute to the economic and social development of the country through providing adequate meteorological information to all users. Mali-

Meteo will play a role of service provider of climate and agro-meteorological data. Mali Meteo already works with FAO through the first FAO/LDCF project. Among others, rain gauges were installed in some of the targeted areas.

The IER is the main research institution in Mali for the implementation of the national policy on agricultural research. Its mission is to contribute to agricultural productivity through research better adapted to the needs of the rural population, to safeguard natural resources, increase food security and the income of farmers, and to ensure a sustainable rural development.

The role the above-mentioned institutions will play within the project is described in more detail below.

4.1.2 Coordination with other ongoing and planned related initiatives

Coordination will be ensured by the FAO office in Mali and by the other members of the Project Steering Committee (see below). MEEA and MRD will ensure coordination with national initiatives, while FAO will facilitate coordination with internationally supported initiatives and with initiatives in other West African countries. Coordination mechanisms will be supported and optimized by the cross-sector team that will be established under Component 3 of the proposed project.

The project will be implemented in close collaboration with a large number of partner projects, and coordination across the projects will be important. The collaboration with projects will take the form of co-financing agreements and/or sharing of best practices and lessons learned. These partner projects fall into two categories: (i) Baseline projects in Mali. These are the related projects and programmes in Mali that the present project will directly collaborate with through co-financing arrangements; and (ii) Related projects with which coordination will focus on exchanging lessons and sharing inputs and technical expertise.

The project will support national coordination with other LDCF projects at national and policy level. In 2015, two LDCF projects will be executed by the National Directorate for Agriculture (UNDP[35] and FAO[36] as implementing agencies) and two will be executed by the AEDD (UNDP[37] and FAO as implementing agencies). Those national institutions will ensure collaboration and coordination between the initiatives they respectively execute. Furthermore, a National Climate Change Committee was created in 2011 in Mali. This Committee includes several national stakeholders including the AEDD (which acts as Secretary) and the MDR. This Committee should therefore play a role of coordination among climate change adaptation initiatives in Mali. As part of the proposed project, an inter-sectoral team will be established, including representatives from AEDD, DNA, DNPIA, etc. This team should play a key role in coordinating and bringing synergies between the four LDCF projects to be implemented in Mali. To conclude, the projects are implemented in similar regions: UNDP/LDCF project "Strengthening the Resilience of Women Producer Groups and Vulnerable Communities in Mali" targets the following regions: Segou, Koulikoro, Sikasso and Kayes; the present FAO/LDCF project targets the following regions: Segou, Koulikoro and Kayes. Regional Government and regional sector officers will also play a key role in ensuring coordination of activities on the ground.

[35] Enhancing Adaptive Capacity and Resilience to Climate Change in the Agriculture Sector in Mali, started in 2010

[36] Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas, started in 2011

[37] Strengthening the Resilience of Women Producer Groups and Vulnerable Communities in Mali, under preparation

Baseline and Collaborative Projects in Mali

The present project has identified the following projects with which to collaborate and coordinate to increase synergies and sustainability of project results. Coordinated activities will be organized with the four baseline projects previously mentioned with which co-financing agreements have been signed. Cooperation will be set up with the other projects (non- co-financing) mentioned in the table below in order to share best practices and lessons learned.

Table 5: Approach to Coordination and Collaboration with other projects

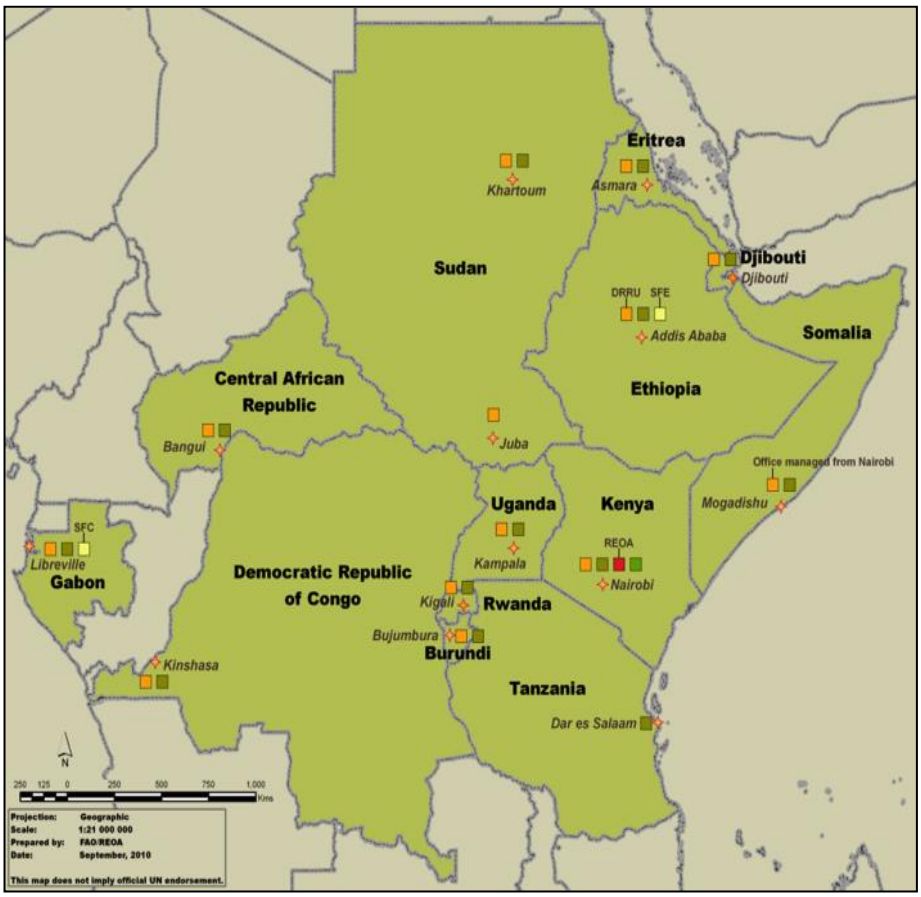
Project Title and description	**Type of collaboration**
Youth at work: reduction of rural poverty (GCP/MLI/040/MUL) The goal of the project is to improve the livelihoods of young, rural producers from the informal and formal sector within Mali's rural economy. FAO will co-finance 2M USD and will align with two outputs from the project – modification and implementation of an integrated model on promoting youth employment in agricultural/food value chains in Mali and support for political dialogue on promoting youth employment in value chains.	Co-financing agreement (USD 1,999,959)
Support Project for the Preparation of the General Agriculture and Livestock census in Mali (TCP/MLI/3501) The aim of the project is to help the government of Mali to prepare the general agricultural and livestock census so that data can be used to define policy and strategies that are effective in reducing poverty and food insecurity.	Co-financing agreement (USD 344,000)
Integrating Climate Change into development planning – PICP Identify areas of vulnerability to Climate Change and the most appropriate tools for adaptation in three regions of Mali (Koulikoro, Segou and Kayes). The aim is to integrate CC into PDESC and national policies on development	Co-financing agreement (USD 4,500,000)
Support Project for the Implementation of the SNCC Implement the SNCC through adaptation investments to: improve ecosystem resilience; enable rural stakeholders to cope with climate change by adopting diversified agricultural activities; and promote community-based adaptation (including CCA/SLM investments in pasture management and water points).	Co-financing agreement (USD 6,815,000)
National Climate Fund (Fonds Climat) Finance the implementation of activities that are related to climate change.	Cooperation during project implementation and withdrawal in order to support projects activities and support their continuity.
Enhancing Adaptive Capacity and Resilience to Climate Change in the Agriculture Sector in Mali To enhance adaptive capacities of vulnerable rural populations to the additional risks posed by climate change on agricultural production and food security in Mali.	Cooperation, sharing of best practices and lessons learned
Integrating Climate Resilience into Agricultural Production for	Cooperation, sharing of best

Food Security in Rural Areas Enhance the capacity of Mali's agricultural sector to cope successfully with climate change by incorporating Climate Change Adaptation (CCA) concerns and strategies into on-going agricultural development initiatives and mainstreaming CCA issues into agricultural policies and programming.	practices and lessons learned
Strengthening the Resilience of Women Producer Groups and Vulnerable Communities in Mali Enhance the adaptive capacity of women producer groups to secure livelihood production from climate impacts and increase socio-economic resilience in Mali's vulnerable communes (Kayes, Koulikoro and Sikasso)	Cooperation, sharing of best practices and lessons learned

FAO Network for FFS across Africa.

The APFS approach was introduced into East Africa in 2001. It has since been replicated and disseminated across several African countries (see Map in Figure 8).

Figure 10: Map locating countries that have introduced Pastoral Field Schools in East Africa



The present project will collaborate notably with FAO APFS activities in the Horn of Africa. In particular the present Project will collaborate with the following:

- Improving Food Security and Diversification of Livelihood Opportunities for Communities in Karamoja (OSRO/UGA/101/EC, US$3.5 million);

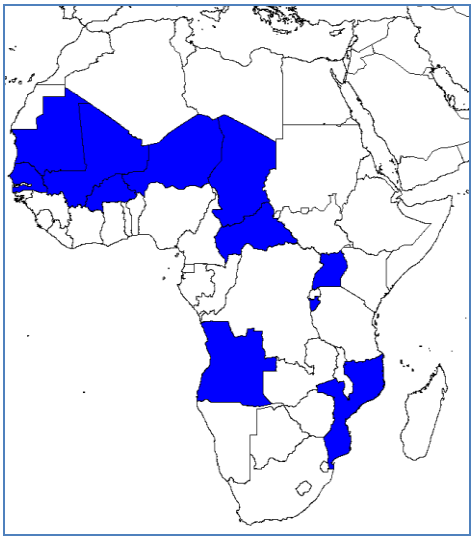
- Strengthening Resilience and Adaptive Capacity of Agro-Pastoral communities and the Local Government to Reduce Impacts of Climate Risks on Livelihoods in Karamoja, (GCP /UGA/042/UK, US$12 million).

It will also collaborate with the related FAO projects in Burkina Faso and Angola:

- Integrating Climate Resilience into Agricultural and Pastoral Production for Food Security in Vulnerable Rural Areas through the Farmer Field School Approach - GCP/BKF/054/LDF. This project in Burkina Faso aims to enhance the capacities of the agricultural and pastoral sectors to cope with CC through CCA integration into agricultural development initiatives and policies, and through a network of established FFSs; and
- Land Rehabilitation and Rangeland Management in Smallholder's Agro-pastoral Production Systems in Southwestern Angola. This project in Angola is paving the road for the introduction of land tenure rights in Field School modules.

Figure 9 below provides a map of FAO projects financed by GEF and LDCF that support the APFS approach.

Figure 11: Map locating FAO/GEF APFS initiatives across Africa



4.2 IMPLEMENTATION ARRANGEMENTS

4.2.1 Roles and responsibilities of the executing partners

FAO will be the GEF Agency responsible for supervision and provision of technical guidance during the project implementation. In addition, FAO will act as executing agency and will deliver procurement and contracting services to the project using the FAO's 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 Mali represented by the Ministry of Environment, Water and Sanitation through AEDD.

As presented above, the key partners that will be involved in the project are:

At national level:
The institutions involved in the project's implementation will be:

- The Ministry of Environment, Water and Sanitation (MEEA);
- The Agency of Environment and Sustainable Development (AEDD);
- The Ministry of Rural Development (MDR);
- The National Directory for Agriculture (DNA);
- The National Directory for Animal Industry and Production (DNPIA);
- The Institute of Rural Economy (IER); and
- Mali- Météo

AEDD, as part of the MEEA, will be the lead government counterpart and the project implementing partner. FAO will execute the project as requested by the Mali Government in close cooperation with AEDD and the other project partners. AEDD will be responsible for coordinating project activities and undertaking any activity aimed at supporting the implementation or integration of climate change into local or national policies (especially in the Component 3 framework).

The IER and Mali-Meteo will play a role of service providers and will provide technical services to the projects. The IER will intervene in activities involving fodder seed varieties and Mali-Météo will provide the necessary agro-meteorological data for the project.

At local level:
The MDR which will contribute to local activities by organizing APFSs through collaboration between the **decentralized services of the DNA** and the **DNPIA**. These two directorates will play a role of technical implementation partners and will sign a letter of agreement with FAO. A memorandum of Understanding will be signed between AEDD and DNA and DNPIA, respectively. The DNA and decentralized agricultural services will ensure transfer of FFS best practices and lessons learned, support the capacities of FFS facilitators, and will actively contribute to the development of APFS curricula. The DNPIA and **SLPIA** will be responsible for the implementation of APFS with technical support provided by the project.

The following additional partners will play key roles in the coordination and implementation of the project at local level:

- The *Cercle* Council will be responsible for supporting/monitoring activities at the *cercle* level, ensuring integration with the activities of partner projects;
- The Commune Council will be responsible for coordination and technical support at the commune level;
- Traditional authorities;
- Local NGOs such as ALPHALOG, AMAPROS, and Stop Sahel will participate in the implementation of activities at local level;
- Herders' and farmers' professional organizations such as the *Coordination Nationale des Organisations Paysannes* (CNOP*), the Association des Organisation Professionnelles paysannes* (AOPP), *Interprofession élevage and Femmes Rurales*.

The project will achieve a number of key outputs through letters of agreements (LoAs). These letters will be elaborated and signed between the FAO and collaborating partners (service provider). The service provider will then be administratively managed by the FAO Mali. Funds received by the service provider under a LoA will be used to execute the project activities in conformity with the

FAO's rules and procedures. The respective LoAs are listed under the "Contracts" budget line of the project budget. Proposed and tentative LoAs are summarized in Table 6 below.

Table 6: Proposed LoA for the execution of the project

Output	Activity (to be covered under the LoA)	Service provider
1.1.1	Training of core group of managers	International NGO (not yet identified. It will be identified at project inception)
1.1.1	Organization of three regional meetings per region to prepare the multi-year work plan	MDR
1.1.2	Data collection and data transfer system (3 regions)	Mali-Meteo
1.1.2	Contract with radio for agro-meteo forecast (3 regions)	Mali-Meteo
1.1.2.	Training in the use of weather forecast	Mali-Meteo
1.1.3	Contract with radio for dissemination of *Charte Pastorale* and its statute	MDR/DNPIA
1.1.3	Awareness raising sessions regarding the *Charte Pastorale* and its statute	Local NGO through MDR/DNPIA
1.1.3	PNTD Pilots	MDR (in collaboration with scientific partners to be identified, and international experts paid separately by the project)
2.1.1	Organization of training of Master trainers	MDR (in collaboration with scientific partners to be identified, and international experts paid separately by the project)
2.1.1	Support design and/or revision of APFS curricula and training materials	MDR (in collaboration with scientific partners to be identified, and international experts paid separately by the project)
2.1.1	Training of APFS animators	MDR (in collaboration with local NGO and/or farmer organisation)
2.1.3 and 2.3.1	Support improved fodder and natural grass production	DFF/Bioversity/IER and Local NGO or association

2.1.3	Support animal breeding	Station Niono Du Sahel
2.2.1	Definition and implementation of local adaptation strategy, including support commercialization of NTFP products to improve revenues	Local NGO or association
2.3.1.	Wells and ponds rehabilitation work and training in maintenance and management	Private companies
2.3.1	Support to pasture planning and management	Local NGO or association
2.3.1	Support to plant regeneration and agroforestry	National Forestry Directorate
2.3.1	Community nurseries	Local NGO or association
3.1.1	Climate proofing of PDESC	Local NGO or association
3.1.2	Climate proofing of National Plan for Priority Investment in the Agricultural Sector and the Five-Year Pastoral Development Plan	MDR/AEDD and Local NGO or association
3.1.2	Update of Five-Year Pastoral Development Plan	MDR/AEDD and Local NGO or association
3.1.2	booklet in French and Bambara on integrating climate change and sustainable land-use management into local development planning through the APFS approach	MDR and Local NGO or association
4.1.2	Mid-term and final evaluation	International experts
4.1.3	Study on best practices and lessons learned	International experts and national NGO

4.2.2 FAO's role and responsibilities, as the GEF Agency (and as an executing agency, when applicable), including delineation of responsibilities internally within the FAO

Executing Responsibilities (Budget Holder). Under the FAO's Direct Execution modality, the FAO Representative in Mali 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 a timely operational as well as 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 the 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 the 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 Unit (LTU). The Plant Production and Protection Division of the Department of Agriculture, Ecosystem Management team (AGPME) at FAO HQ will be the LTU for this project and will provide overall technical guidance in its implementation.

FAO Lead Technical Officer (LTO). The team leader of the ecosystem management team of the AGPME 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 LoAs and contracts;
- In close consultation with AEDD, 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 materials, manuals, etc.;
- Monitor technical implementation as established in the project results framework;
- 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 BH 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 at least of the BH, Lead Technical Unit (AGPM) and the GEF Coordination Unit.

FAO 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.

4.2.3 Project technical, coordination and steering committees

The institutional arrangements are described in the organization chart in Figure 7 below.

The FAO will be the GEF implementing and executing agency. In the framework of this project, the FAO will recruit an administrator/operational expert who will be in charge of the operations of the project.

A Project Steering Committee (*Comité de Pilotage*, PSC) will be established and chaired by the MEEA. It will be comprised of representatives from FAO, AEDD, MDR, DNA, DNPIA, Mali-Meteo, IER, Regional administrators or the three regions of implementation and Chiefs of the *cercles* of implementation. The National Coordinator (see below) will be the Secretary to the PSC. The PSC will meet at least two times per year to ensure:

- Oversight and assurance of technical quality of outputs;
- Close linkages between the project and other ongoing projects and programmes relevant to the project;
- Timely availability and effectiveness of co-financing support;
- Sustainability of key project outcomes, including up-scaling and replication; and
- Effective coordination of government partner work under this project.

The PSC will also approve the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget.

The members of the PSC will each assure the role of Focal Point for the project in their respective agencies. Hence the project will have a Focal Point in each concerned national ministry. As Focal Points in their agency, the concerned PSC members will (i) technically oversee activities in their sector, (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project, (iii) facilitate coordination and links between the project activities and the work plan of their agency, and (iv) facilitate the provision of co-financing to the project.

A National Coordination Unit (NCU) will be established. The NCU will be hosted by AEDD and led by the National Project Coordinator (NPC), a full-time project position, in close collaboration with a half-time Chief Technical Advisor (CTA). The NCU will be comprised of a small core group of operational and technical staff, namely: the NPC, the CTA, a secretary and an M&E expert. The ToRs of NCU staffs are provided in Appendix 5.

The NCU staff will be recruited by the project and report (through the NPC) to the BH. The NCU will carry out its functions in line with FAO rules and regulations.

The following are some of the key functions of the NCU:

- Technically identify, plan, design and support all activities;
- Liaise with government agencies and regularly advocate on behalf of the project;
- Prepare the Annual Work Plan and Budget (AWP/B);
- Be responsible for day-to-day implementation of the project in line with the AWP;
- Ensure a results-based approach to project implementation, including maintaining a focus on project results and impacts as defined by the results framework indicators;
- Coordinate project interventions with other ongoing activities;
- Monitor project progress;
- Be responsible for the elaboration of FAO Project Progress Reports (PPR) and the annual Project Implementation Review (PIR); and
- Facilitate and support the mid-term review and final evaluation of the project.

The NCU will also be supported by a series of national and international consultants to provide short-term inputs to the project. These will be finalized during the project implementation.

The NCU will be supported by a secretary running the daily operations of the unit, and by an M&E expert who will ensure the design and sound implementation of the Monitoring and Evaluation System.

The National Project Coordinator (NPC) will lead the NCU and work closely with the FAO office and AEDD. The NPC reports to the BH on operational issues and to the LTO on technical issues. The NPC is a full-time position. The NPC will lead and organize the day-to-day execution of the project. The NPC will also take the lead in communications with government agencies and advocacy. The NPC will also be responsible for providing technical advice and guidance in his/her area of technical expertise. The NPC will report regularly on project progress in line with the FAO procedures, and will develop and submit semi-annual PPRs and annual PIRs (the PIRs will be prepared in collaboration with the LTO and with the contribution of the CTA). In addition to technical and substantive duties, the NPC will:

- Oversee creation of a participatory monitoring system for the Project's work;
- Ensure real-time monitoring of Project progress and the alerting of AEDD, BH and LTO to potential problems that could result in delays in implementation;
- Help identify consultant candidates and work with the BH to ensure their timely recruitment;
- Ensure the Project's effective and efficient work with stakeholders in the pilot areas;
- Help organize and supervise consultant inputs;
- Oversee creation of the Project's approach to managing and sharing knowledge, and to identifying and disseminating lessons learned;
- Communicate, advocate and engage in policy dialogue;

- Coordinate activities with cofinancers donors and other projects related to FFS.

The NPC will also take a lead in the organization and technical implementation of many activities.

A Chief Technical Adviser (CTA) will directly support the NPC and the NCU and ensure best international technical and management practices are integrated into the Project work plan and activities. The CTA reports to the BH on operational issues and to the LTO on technical issues. The CTA is a half-time position. The CTA will be an internationally recognized expert on livestock raising in sub-Saharan Africa and will have significant experience with extension systems and with the agro-pastoral field school approach.

The CTA will support all aspects of the day-to-day execution of the Project. The CTA will support the NPC in reporting on Project progress, and will contribute to the development of semi-annual PPRs and annual PIRs. In addition the CTA will:

- Ensure latest and best international practices and approaches are reflected in the design and planning of Project Activities;
- Design and propose a participatory monitoring system for the Project's work;
- Support real-time monitoring of Project progress and the alerting of the BH and the LTO to potential problems that could result in delays in implementation;
- Help identify consultant candidates, especially international candidates;
- Support design of the Project's work with stakeholders in the pilot areas;
- Help organize and supervise consultant inputs;
- Propose an approach to managing and sharing knowledge, and to identifying and disseminating lessons learned;
- Provide on-the-job capacity development to all members of the NCU; and
- Communicate, advocate and engage in policy dialogue.

An FAO Operations and Administration Officer, under the direct supervision of the FAO BH and in consultation and close coordination with the NPC, will ensure a smooth and timely implementation of project activities in support of the results-based work plan, through operational and administrative procedures according to FAO rules and standards.

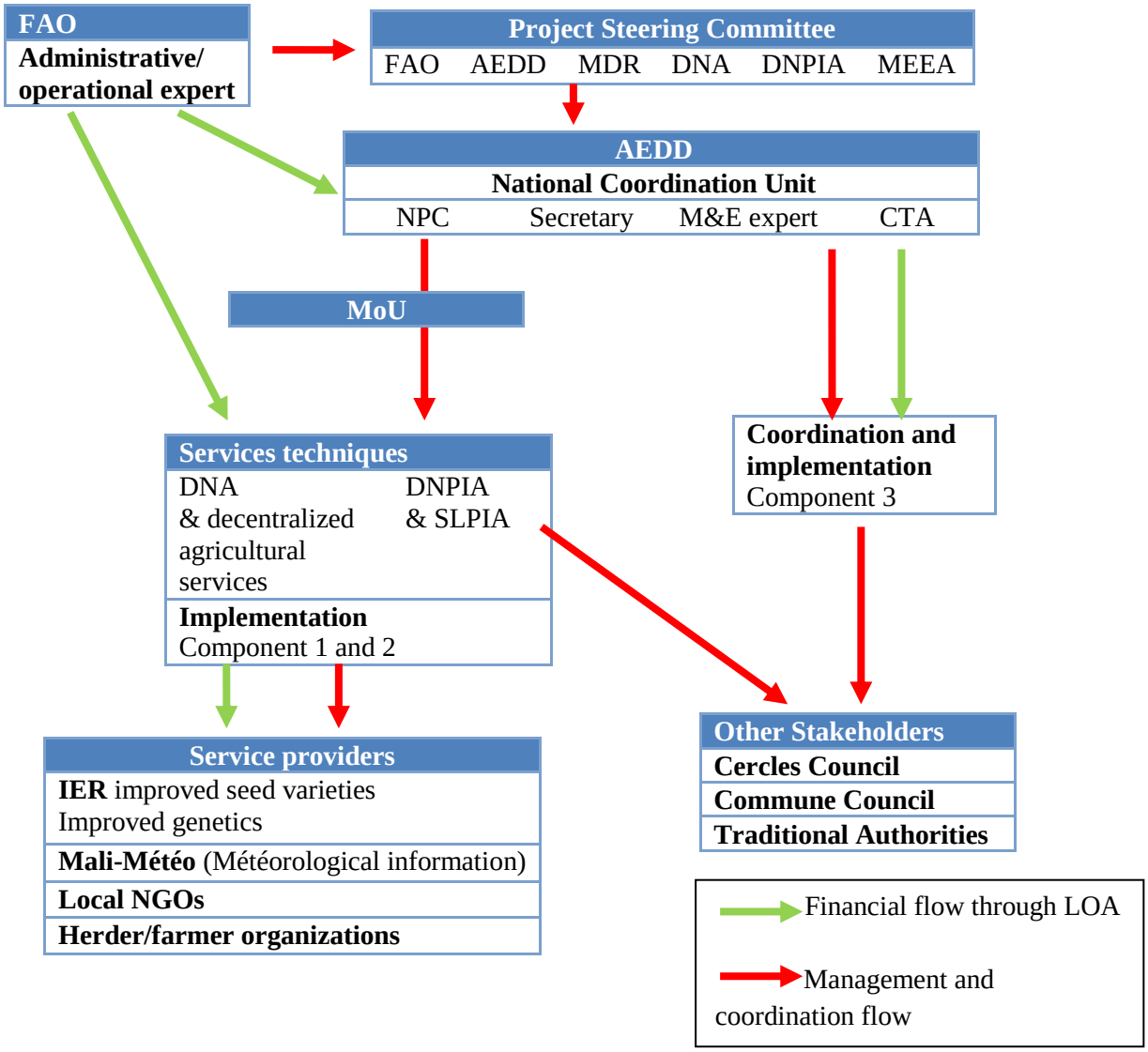
Technical Partners and local service providers will provide technical services to the Project.
The following agencies will play key roles in the coordination and implementation of the Project:

- The DNA and decentralized agricultural services will ensure transfer of FFS best practices and lessons learned, support to FFS facilitators' capacities, will actively contribute to the development of APFS curricula;
- The DNPIA and SLPIA will be responsible for the implementation of APFS through technical support provided by the project;
- The IER will intervene in activities involving fodder seed varieties;
- Mali-Météo will provide the necessary agro-meteorological data for the project;
- The *Cercle* Council will be responsible for supporting/monitoring activities at the *cercle* level, ensuring integration with the activities of partner projects; and
- The Commune Council will be responsible for coordination and technical support at the commune level.

Traditional authorities, local NGOs and herder/farmer organizations will also be involved in the implementation of the project's activities.

4.2.4 Organizational chart

Figure 12: Institutional arrangements, fund flows and coordination



4.3 FINANCIAL PLANNING AND MANAGEMENT

4.3.1 Financial plan (by component and by co-financier)

The total cost of the project will be US$ 16,419,986 to be financed through a US$ 2,171,727 GEF/LDCF grant and US$ 14,247,259 in co-financing from: (i) AEDD (US$ 11,315,000), (ii) FAO (US$ 2,343,959), and (iii) the MDR (US$ 588,300). Table 7 below shows the costs by component and by sources of financing. The FAO will, as the GEF agency, only be responsible for the execution of the GEF resources and the FAO co-financing.

All co-financing letters and their translations can be found in Appendix 9.

Table 7: Summary of Financial Contributions (all figures in US$)

Component/output	AEDD	FAO	MDR	Total Co-financing	% Co-financing	GEF	% GEF	Total
Component 1: Development of climate change adaptation (CCA) strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas	**3 394 500**	**820 386**	**29 415**	**4 244 301**	**89%**	**500 000**	**11%**	**4 744 301**
O 1.1.1 APFS concepts and approaches are circulated and popularized amongst the staff of AEDD, MDR, local government, herders and customary organizations, to contribute to strengthening adaptation capacities [...]	1 697 250	244 000	29 415	1 970 665	92%	165 275	8%	**2 135 940**
O 1.1.2 Climate information and meterological data related to climate variability and change are made available and used in targeted vulnerable regions	1 697 250	576 386	-	2 273 636	95%	131 475	5%	**2 405 111**
O 1.1.3 The Pastoral Charter and its statutes are distributed and implemented, and agreements between local agro-pastoralists are put in place to reduce conflicts linked to climate variability and transhumance paths	-	-	-	-	0%	203 250	100%	**203 250**
Component 2:Capacity building and scaling up of CCA technologies and best practices for small agro-pastoralists	**3 394 500**	**1 171 979**	**294 150**	**4 860 629**	**82%**	**1 095 627**	**18%**	**5 956 256**
O 2.1.1 At least 200 APFS trainers are trained (of which at least 30% are women) through agreements with associations of livestock-raisers and agro-pastoralists	678 900	600 000	190 000	1 468 900	87%	223 525	13%	**1 692 425**
O 2.1.2 150 APFS are put in place that integrate CCA and sustainable land-use principles in their curriculum, with an accent on best practices, ecosystem resilience, and integration of agricultural and pastoral production systems	678 900	471 979	104 150	1 255 029	85%	229 327	15%	**1 484 356**
O 2.1.3 Adaptation technologies and practices are distributed to the 150 APFS created by the project.	678 900	50 000	-	728 900	78%	199 725	22%	**928 625**
O 2.2.1. At least 2,500 livestock-raisers and farmers (of which at least 30% are women) participate in the implementation of integrated local adaptation strategies	678 900	50 000	-	728 900	80%	178 025	20%	**906 925**
O 2.3.1 Four pilot investments in adaptation are supported to improve ecosystem resilience and contribute to strengthening the capacity of agro-pastoralists to adapt to climate change	678 900	-	-	678 900	72%	265 025	28%	**943 925**
Component 3: Mainstreaming CCA in policies and development programs related to agricultural and livestock production	**4 526 000**	**-**	**-**	**4 526 000**	**93%**	**350 000**	**7%**	**4 876 000**

O 3.1.1. National cooperation frameworks that use APFS to better integrate CCA into agricultural/livestock development are strengthened	2 263 000	-	-	2 263 000	95%	125 500	5%	**2 388 500**
O 3.1.2. Key tools including climate proofing are applied at the local level through the Strategic Framework for Investing in Sustainable Land-use Management.	2 263 000	-	-	2 263 000	95%	125 300	5%	**2 388 300**
O 3.1.3. The Five-Year Pastoral Land-Use Plan (Plan Quinquennal d'Aménagements Pastoraux – PQAP) is revised to support integration and mainstreaming of CCA in the agro-pastoral sector	-	-	-	-	0%	99 200	100%	**99 200**
Component 4: Project monitoring and dissemination of results	**-**	**351 594**	**-**	**351 594**	**77%**	**104 600**	**23%**	**456 194**
O 4.1.1. Monitoring and Evaluation System put in place, including systematic collection, analysis, compilation, and operational implementation of data.	**-**	**-**	**-**	-	0%	**16 600**	100%	**16 600**
O 4.1.2. Mid-term and final evaluations are conducted	**-**	**-**	**-**	-	0%	**80 000**	100%	**80 000**
O 4.1.3. Best practices and lessons learned from the project are disseminated	**-**	**351 594**	**-**	351 594	98%	**8 000**	2%	**359 594**
Project Management	**-**	**-**	**264 735**	**264 735**	**68%**	**122 500**	**32%**	**387 235**
Total Project	**11 315 000**	**2 343 959**	**588 300**	**14 247 259**	**87%**	**2 172 727**	**13%**	**16 419 986**

4.3.2 GEF/LDCF/SCCF inputs

The GEF 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 Field School, incorporating APFS, in Mali; (iii) support to direct monitoring activities; (vi) support through LoA/contracts with technical institutions and service providers supporting the delivery of specific Project activities on the ground; (v) international flights and local transport and minor office equipment; and (vi) training and awareness raising material. GEF resources will also finance publications for awareness raising and education on adaptation best practices.

4.3.3 Government inputs

As detailed in Table 7 above, MDR will provide US$ 588,300 in-kind co-financing consisting mainly of staff time, office space and utilities, and support for local travel.

The government will also provide parallel co-financing through partner projects implemented by AEED. As described in previous sections, these projects are:

- PICP, providing US$ 4,500,000 in cofinancing; and
- Support Project for the Implementation of the SNCC, providing US$ 6,815,000 in cofinancing.

These two projects all share synergies with the present project in their goals of promoting integrated CCA through promoting adaptation mechanisms and enhancing local capacities to adopt CCA

strategies both at the local and national levels. The projects and their objectives are described in detail in Table 2 under Section 1.2.1. The LDCF project will mainly provide additionnality to these initiatives by integrating the pastoral sector into SLM approaches and by supporting a coordination mechanism to reinforce these ongoing adaptation interventions across the agricultural and agro-pastoral sectors. The APFS approach will be promoted to integrate CCA topics from the agricultural and pastoral sectors into a common CCA planning process that will improve shared access to resources, reduce conflicts and secure pastoral resource access. Under these on-going initiatives, such integration remains difficult since agricultural and pastoral topics are often addressed in a divided manner by current policies and projects. Neither the PICP, nor the Support Project for the Implementation of the SNCC address CCA for transhumant practices and the interaction between transhumance and agriculture. The present project will create information, planning processes, and agreements that could then be promoted and duplicated.

4.3.4 FAO inputs

The FAO will provide technical assistance, support, training and supervision of the execution of activities financed by GEF resources. The GEF project will complement and be co-financed by several projects and activities implemented by the FAO Representation in Mali. These projects are described in previous sections and include:

- Youth at work, providing US$ 1,999,959 in cofinancing; and
- Support Project for the Preparation of the General Agriculture and Livestock Census, providing US$ 344,000 in cofinancing.

4.3.5 Financial management of and reporting on GEF/LDCF/SCCF 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 into United States dollars at the United Nations operational rate of exchange on the date of the transaction. FAO shall administer the project in accordance with its regulations, rules and directives.

Financial Reports

FAO-Mali as the BH shall prepare six-monthly project expenditure accounts and final accounts 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:

1. 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.

2. Final accounts 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.

3. A final statement of account 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 LTU and 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

Semi-annual budget revisions will be prepared by the BH in consultation with the FAO Representation in Mali in accordance with FAO standard guidelines and procedures.

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 subline 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 subline 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 subline may not be applied to overruns of more than 20 percent in other sublines 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.

4.4 PROCUREMENT

The BH, in close collaboration with the NPC, the LTO and the Budget and Operations Officer will procure the equipment and services provided for in the detailed budget in Appendix 3, in line with the AWO and Budget and in accordance with FAO's rules and regulations.

Prior to commencement of procurement, the BH, in close consultation with the NPC and LTU, 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 BH and LTO with the AWP/B and annual financial statement of expenditures report for the next installment of funds.

4.5 MONITORING AND REPORTING

4.5.1 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 (NCU); (ii) technical monitoring of indicators (NCU); (iii) Field School-level monitoring activities (by project M&E experts and local technical services); (iv) mid-term review and final evaluation (independent consultants and FAO Evaluation Office); and (v) continual oversight, monitoring and supervision missions (FAO).

During the Inception Phase of the project, the NCU will set up a project progress monitoring system strictly coordinated with subsystems in each of the three regions. Participatory mechanisms and methodologies for systematic data collection and recording at the level of the Field School 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 indicators and 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 AWP and Budget, (vi) prepare financial reporting procedures and obligations, and (vii) scheduling 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 M&E plan summary presented in section 4.5.4 below.

The Inception Phase will conclude with the holding of an Inception Workshop organized by the NCU. The workshop 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; and (e) review a detailed M&E work plan and budget based on the M&E plan summary presented in Table 8, below. The first PSC meeting will be held within two months of the inception workshop.

The day-to-day monitoring of the project implementation will be the responsibility of the NCU with support from the CTA and the M&E expert, driven by the preparation and implementation of AWP/B

followed up through six-monthly 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, 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 NCU and service providers and facilitated through project planning and progress review workshops. These inputs would be consolidated by the respective Service Provider Managers before forwarding them to the CTA 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 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 fulfillment 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 work plan and budget will follow an annual preparation and reporting cycle as specified in section 4.5.3 below.

4.5.2 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. A detail RF is provided in Appendix 1. The RF 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 NCU 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.

In line with GEF requirements, the Adaptation Monitoring and Assessment Tool (AMAT) indicators will be measured and reported three times – at project outset, project mid-term and project end.

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 Field School training and activities; (iii) PPRs prepared by the NCU; (iv) consultants' reports; (v) participant 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 NCU; and (ix) FAO supervision mission reports.

4.5.3 Reporting schedule

Specific reports that will be prepared under the M&E program are: (i) Project inception report; (ii) AWP/B; (iii) PPRs; (iv) PIR; (v) Technical Reports; (vi) co-financing reports; and (vii) Terminal

Report. In addition, assessment of CCA through use of the LDCF/SCCF AMAT will be undertaken during mid-term 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 M&E plan summary presented in section 4.5.4 below. The draft inception report will be circulated to FAO and the PSC 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, LTU and the FAO GEF Coordination Unit and uploaded in FPMIS by the LTU.

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 Mali's 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 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 consolidates eventual FAO comments from the LTU, the GEF Coordination Unit, and the BH Office and provide these comments to the AEDD. When comments have been duly incorporated the LTU will give final approval and submit the final PPR 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/CTA and BH will prepare an annual 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 20 July. 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 LTU 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 LTU.

The drafts of any technical reports must be submitted by the NPC/CTA 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/CTA, will be responsible for collecting the required information and reporting on in-kind and parallel co-financing provided by the Government of Mali and other partners. The NPC, with support from the CTA 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 CTA, 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 it is finalized by the BH and approved by the FAO LTU and the GEF Coordination Unit.

4.5.4 Monitoring and evaluation plan summary

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

Table 8: Summary of M&E Related Costs

Type of M&E Activity	Responsible Parties	Time-frame	Estimate of costs
Inception Workshop (IW)	NCU, supported by the LTO, BH, and GEF Coordination Unit (GCU)	Within two months of project start up	Covered by output 1.1.1
Surveys to determine AMAT baseline values	NCU and service providers	Within three months of project start up	USD 0 - data is collected by the NCU.
Project Inception Report	NCU, cleared by FAO LTO, LTU, BH, and the GCU	No later than one month post IW.	USD 0 - project inception report is developed by the NCU.
Field based impact monitoring	NCU, AEDD and other relevant agencies – including regional and provincial - to participate.	Periodically - to be determined at inception workshop.	USD 16,600
Supervision visits and rating of progress in PPRs and PIRs	LTU/LTO, other participating units and GCU	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 CTA will be paid from the project travel budget
Project Progress Reports	NCU, with inputs from AEDD, PSC members and other partners	Semi-annual	USD 0 (as completed by CTA and NCU)
Project Implementation Review report	NCU supported by the LTO and cleared and submitted by the GCU to the GEF Secretariat	Annual	Paid by GEF agency fee
AMAT	NCU supported by the LTO	Project start-up, mid-Term and project end.	USD 0 - data is collected by the NCU.
Co-financing Reports	NCU, FAO Mali	Annual	Completed by NPC and CTA
Technical reports	NCU, LTO & Participating Units	As appropriate	USD 8,000 (Report on best practices and lessons learned)
Mid-term Evaluation	External Consultant, FAO Office for Evaluation in consultation with the project team including the GCU 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	At the end of project implementation	USD 40,000 for external, independent

	evaluation unit in consultation with the project team including the GCU and other partners		consultants and associated costs. In addition the agency fee will pay for expenditures of FAO staff time and travel
Terminal Report	NCU, LTO, TCSR Report Unit	At least two months before the end date of the Execution Agreement	USD 0 (as completed by CTA and NPC)
		Total Budget	USD 104,600

4.6 PROVISION FOR EVALUATIONS

An independent mid-term review will be undertaken after two years of project implementation. The review will determine progress being made towards achievement of objectives, outcomes, and outputs, and will identify corrective actions if necessary. It will inter alia:

- review the effectiveness, efficiency and timeliness of project implementation;
- analyze the effectiveness of implementation and partnership arrangements;
- identify issues requiring decisions and remedial actions;
- identify lessons learned about project design, implementation and management;
- highlight technical achievements and lessons learned; and
- propose any mid-course corrections and/or adjustments to the implementation strategy as necessary.

An independent Final Evaluation (FE) will be carried out three months prior to the terminal review meeting of the project partners. The FE will identify the project impacts and sustainability of project results and the degree of achievement of long-term results. This evaluation would also have the purpose of indicating future actions needed to expand on the existing project in subsequent phases, mainstream and up-scale its products and practices, and disseminate information to management authorities responsible for the management of other project partners.

Some critical issues to be evaluated in the midterm review and final evaluation will be: (i) institutional adoption and support for the new approaches introduced by the project; (ii) the functioning and effectiveness of the APFS network and of the inter-institutional coordination mechanism in developing and implementing integrated planning in support of farmer-herder communities; (iii) the level of capacities and involvement of local staff in terms of improved management effectiveness and land management plan implementation capability; (iv) the level of involvement of farmers and herders in project activities and commitment to follow-up.

The ToRs for the Final Evaluation team (one international and one national consultant) will be prepared in close consultation with the NPC, the FAO BH, LTO and GEF Coordination Unit, and under the ultimate responsibility of the FAO Office of Evaluation, in accordance with FAO evaluation procedures and taking into consideration evolving guidance from the GEF Independent Evaluation Office. The TOR and the report will be discussed with and commented upon by the project partners.

4.7 COMMUNICATIONS AND VISIBILITY

Giving high visibility to the project and ensuring effective communications in support of the project's message is to be addressed through a number of activities that have been incorporated into the project design. The project will be transparent and ensure effective communication through the following component related activities:

- Component 1. Regional workshops and an APFS dissemination strategy will be developed under output 1.1.1 to raise awareness and ensure up-scaling of the approach;
- Component 2. The APFS approach will be communicated through different activities under this component such as exchange visits, publication of a magazine, and a lessons-learned workshop;
- Component 3. This component will contribute to high visibility and communication of the project through best-practices dissemination within consultation platforms, development of booklet on CCA and SLM integration through APFS, workshops to share the documents updated in the framework of the project's activities, and a validation workshop on PQAP; and
- Component 4. The visibility of the project will be enhanced by developing communication tools and participating in international events to share the lessons learned from the project. A specific communication strategy will be developed as part of this component. An in-depth communication strategy will be defined under output 4.1.3 of Component 4 of the project and will clarify the tools that would be used to communicate results, lessons learned and best practices.

SECTION 5 – SUSTAINABILITY OF RESULTS

5.1 SOCIAL SUSTAINABILITY

The project will strengthen the capacities of local institutions in terms of adaptation to climate change through the APFS approach. The participatory and didactic approach adopted at the grass-root level in the project will contribute to avoiding elite capture and to minimizing marginalization at the community level.

The first component of the project directly aims at making local institutions and communities familiar with resilience to climate change. Local institutions and customary organizations will benefit from the regional workshops presenting the APFS approach. They will also benefit from training on how to use the SHARP tool to take into account the interests of local populations. This will ensure ownership of the APFS approach, which should be taken up even after the end of the project.

The project will circulate the already existing C*harte Pastorale* and will support its application to clarify the right and duties of all key actors in the agro-pastoral sector. This will pave the road for a long term sustainable approach since the *Charte Pastorale* will be better known by local stakeholders, it will stay part of Mali's legal framework, and people will be able to refer to it even after the end of the project. Since the project respects and strengthens existing decision-making processes at all levels, it should ensure that, although new approaches and technologies will be introduced, they do not lead to

social dysfunction or negative social impacts. On the contrary, the project is designed to strengthen social capital, providing a good basis for social sustainability.

The project will also support Participatory and Negotiated Territorial Developments (PNDT) pilots. This participatory approach will ensure that the local population will be involved in the demarcation of transhumance routes. This will guarantee a high level of ownership from local stakeholders which will contribute to the social sustainability of the project. The development of local agreements to minimize conflicts between farmers and herders will convey a common understanding that will survive to the end of the project.

By training local master trainers on CCA resilient practices for the APFS, the project strengthens local capacities and ensures that knowledge will remain locally available even after the end of the project. The project will also contribute to gender equality by ensuring that women represent at least 30% of the population involved in the APFS. In addition, the tool Socio-Economic and Gender Analysis (SEAGA) will be used to allow a gender sensitive stakeholder priorities' analysis. The analysis is used within the PNTD for plan negotiations and implementation. The SEAGA analysis is based on an approach that places great emphasis on the importance of linkages between economic, environmental, social and institutional patterns that influence the context in which development activities are undertaken.

Through a close collaboration with FAO Youth at Work project, this LDCF project will also contribute to youth empowerment and to building awareness regarding decent child labor, contributing to building social sustainability within local communities.

Local institutions and communities, being directly involved in many participatory activities of the project, are likely to take ownership over CCA practices through the APFS approach. The project will help set up a long-term framework which will ensure the sustainability of the project.

5.2 ENVIRONMENTAL SUSTAINABILITY

As the vast majority of the population in the project intervention areas depend directly on natural resources for their livelihoods, and the main problem addressed by the project is the ongoing degradation of natural resources, notably of grazing land, water resources and land used primarily for crop cultivation. The project aims to safeguard natural resources and strengthen sustainable land management in Mali in order to reinforce the resilience to climate change of local communities.

The APFS model being promoted under this project integrates an ecosystem-based approach to the agricultural and livestock sectors and SLM. This approach aims at developing and scaling up CCA practices and technologies for local communities through many activities. The APFS curricula are contributing to environmental sustainability. They will include, for instance, animal health, enhancement of genetic resources, CC awareness-raising, link between livestock and agriculture sector, pasture land management, wild resilient seeds varieties for pastures rehabilitation, water management, soil management, composting, agro-forestry, *mise en défens*, etc.

The project will durably strengthen the ability of local communities to cope with climate change and hazardous climate events that are likely to be more frequent in the future. The project will promote improved seed varieties that are better adapted to Mali's current climate conditions. It will also

contribute to the enhancement of livestock genetic resources for the local population to be better equipped to face climate change. The availability of meteorological information will also support the decision-making process of local communities when facing hazardous climate events.

The ownership of APFS promoted practices by local population thanks to a participatory approach will also contribute to the environmental sustainability of the project. Local population should take ownership of these practices which are likely to be adopted at a larger scale after the end of the project, strengthening the resilient capacities of the agro-pastoral sector in Mali.

5.3 FINANCIAL AND ECONOMIC SUSTAINABILITY

Economic sustainability. One of the focuses of the project is economic sustainability for local agro-pastoralist communities living from crops and livestock resources. The project will introduce methods, measures, practices and technologies that contribute to the economic development of the targeted communities. With the support of the project, agro-pastoralists participating in APFSs should benefit from a 5% increase in income and a 5% increase in terms of agricultural and pastoral productivity in the pilot investment zones for CCA. In addition, the changes introduced by the project will be developed in a participatory manner and will respect local needs, local resources and local capacity. Hence, the local communities will be able to sustain the economic improvements after the project. This is mostly the focus of outcome 2.2 and 2.3. Moreover, by strengthening the existing extension system and the capacity of technical agencies (both governmental and non-governmental), the project creates an institutional capacity that can continue to support local communities after the project has been completed (mostly through the activities of output 1.1.1).

Financial. The economic improvements introduced by the project explained in the paragraph above will contribute to the financial sustainability of many of the project's intervention areas. However some aspects of the project require specific attention in terms of financial sustainability.

First, the provision of support by government agencies to remote communities across Mali is costly, and in many cases the government has not been able to effectively do this in the past, due to financial constraints. This relates notably to (i) the provision of extension services to farmer-herder communities and (ii) the provision of accurate, up-to-date, relevant meteorological information. The project supports both of these during its lifetime; however, it is also necessary to ensure that these can continue after the project is completed.

With regards to the provision of extension support, the APFS approach to extension introduced by the project is low-cost and relatively easy to maintain, with early gains. Previous Field School experience, including in Mali, demonstrates that with limited governmental input the structure can continue to function and sustainability should be achievable.

With regards to the provision of meteorological information, this is known to be rather costly and challenging in Mali. Ideally the project would demonstrate the usefulness of such information to agro-pastoralists, and would help develop a demand-driven approach whereby agro-pastoralists demand and pay for information from the meteorological agencies. This would not only ensure the financial sustainability of the information services, it would also ensure that the information generated by the meteorological agencies responds to the real needs of the farmer-herders. In the meantime, Mali-

Météo benefits from significant parallel support from other initiatives, which should help provide them affordable meteorological data.

Moreover, the third component of the project will support a revision of the *Plan Quinquennal d'Aménagements Pastoraux 2008-2012* (PQAP) for the period 2015-2019. The aim of the revision is to ensure that climate resilience is taken into account in future investments for the agro-pastoral sector. This updated PQAP will ensure financial sustainability of the project.

Finally, as it has been previously mentioned, a collaboration with the National Climate Fund will be established during project implementation and strengthened in the withdrawal phase. The aim is to secure the support of the Climate Fund in order to ensure funding for activities started with the project so they can continue after the project has withdrawn. While contributing to the financial and economic sustainability of the project, this collaboration will also strengthen the continuity and overall sustainability of the project.

5.4 SUSTAINABILITY OF CAPACITIES DEVELOPED

The Project will develop capacity at many levels that will contribute to the overall body of capacity related to APFS and extension systems in Mali. This capacity will all be aligned to, and integrated into, existing organizations, both governmental and non-government, and so will have a sustained use after the Project. The project will not support new structures, or support organizations on issues for which they do not currently have a mandate.

The project builds up the Field School approach which has been successful in many West African countries and has been adopted by the government in Mali through a regional FFS programme. The present project will support capacity to implement the field school approach through APFS which has proven useful and effective in the past.

The project will build the capacity of planners and technical decision makers on climate resilient approaches to agro-pastoralism. It will develop materials that can be used for training, awareness raising and dissemination, and which (based on past experience) will continue to be used after the project. The project also builds capacity of regional and provincial governmental and non-governmental agencies on supporting extension systems. Moreover, the project will directly train at least 10 master trainers, 200 facilitators and 3,000 farmers and herders through the APFSs. In each case the training will be designed in a participatory manner to respond to the needs and resources of the beneficiaries, it will be focused, demand-driven, needs-driven training. The APFS approach is based on a learning-by-doing process and the recipients of the training are well placed to immediately apply the contents of the training to their work. By making the training useful, there is strong reason to believe it will be used after the project is finalized. FFS/APFS are "grass-root labs" that through using participatory monitoring will increase local leadership, strengthening long-term farmers' and herders' capacities in the adaptive management of their land.

5.5 APPROPRIATENESS OF TECHNOLOGIES INTRODUCED

The project will test, validate and promote local knowledge-based technologies (agricultural and pastoral measures and practices) to increase sustainability and diversify production. Technologies will

be introduced based on participatory requests by APFS or communities and will only include SLM schemes.

5.6 REPLICABILITY AND SCALING-UP

Strategies for up-scaling FFS and APFS are built into the project design. An APFS dissemination strategy together a multi annual work plan will be established under output 1.1.1, contributing to the up-scaling of the approach. In addition, the project will partner with and complement other projects and programmes, which is a good opportunity for exchange and scaling up of the successful SLM approaches in Mali. Integrating climate resilience into local development plans will enable the APFS approach to expand beyond the areas targeted for this project. Moreover, the fact that the project focuses on three different areas will facilitate replicability.

Finally, as mentioned in the previous section, the collaboration with the Climate Fund should secure funding for activities even after project termination. As the climate fund should receive in the coming years contributions from various development partners from developed and developing countries, international organizations, NGOs, and the private sector, funding will be available to support CCA activities. Indeed, the climate fund supports in particular activities strengthening climate resilience in various sectors such as: agriculture, water, livestock, energy, forestry, economy and insurance. APFSs activities fit well within the range of intervention of the fund. The collaboration with the climate fund will therefore play a key role to ensure replicability of the project and scaling up the activities that were initiated within the project.

APPENDICES

APPENDIX 1: RESULTS MATRIX

	Project Component	Indicator	Assumption
Global Environment Objective	Enhance the capacity of Mali's agro-pastoral sectors to cope with CC, by mainstreaming CCA strategies, practices, and technology adoption into on-going agro-pastoral and agricultural development initiatives in the framework of the national Sustainable Land Management (SLM) approach and program (CSI-GDT)		Close involvement of national institutions after the end of the project CC impacts remain in the scale of what was projected Buy-in by local communities of adoption technologies
Component 1: Development of climate change adaptation (CCA) strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas	**Outcome 1.1:** The institutional capacities of the AEDD, Ministry of Rural Development's structures (MDR), local governments, herders, farmers and customary organizations are strengthened to minimize the exposure of agro-pastoral and agricultural production systems in vulnerable areas to climate variability and risks.	**Outcome Indicator 1.1:** (AMAT Indicator 2.2.1) Number and type of targeted institutions with increased adaptive capacity to minimize exposure to climate variability (describe number and type) **Outcome Indicator 1.1(b):** Level of use of weather forecasts by targeted agro-pastoralists	Interest in APFS remain constant *Charte Pastorale* remains the main document for pastoral management
Component 2: Capacity building and scaling up of CCA technologies and best practices for small agro-pastoralists.	**Outcome 2.1:** Agro-pastoralists (of which at least 30% are women) have strengthened capacities to adopt CCA practices and technologies in agro-pastoral systems.	**Outcome Indicator 2.1(a):** Number of agro-pastoralists (gender disaggregated) who have strengthened capacities to adopt CCA practices and technologies due to project activities **Outcome Indicator 2.1(b):** (AMAT Indicator 3.1.1) Percent of targeted groups adopting adaptation technologies by technology type (disaggregated by gender)	Activities respond to the real needs of pastoralists (including women). Buy-in by local communities of adoption technologies. IGAs promoted are demand driven.
	Outcome 2.2: Livelihoods of targeted agro-pastoralists improved	**Outcome Indicator 2.2:** (AMAT Indicator 1.3.2) Percent increase in per capita income for agro-pastoral and agricultural households due to adaptation measures applied	
	Outcome 2.3: Agricultural/agro-pastoral productivity in pilot CCA investment areas has	**Outcome Indicator 2.3:** (AMAT Indicator 1.2.5): Increase in	

	Project Component	Indicator	Assumption
	increased	agricultural productivity in targeted areas (tons/ha)	
Component 3: Mainstreaming CCA in policies and development programs related to agricultural and livestock production	**Outcome 3.1: APFS-based CCA mainstreamed into integrated rural development and investment policies**	**Outcome Indicator 3.1:** (AMAT Indicator 1.1.1.1) Development frameworks that include specific budgets for adaptation actions (list type of development framework and briefly describe the level of the action)	Relevant institutions are willing to cooperate Relevant stakeholders and institutions participate and are receptive to trainings and awareness-raising activities PDESC remain the main document for development planning at local level The PQAP is renewed and remains the main investment plan for the pastoral sector
Component 4: Project monitoring and dissemination of results	**Outcome 4.1:** Project implementation based on result-based management and application of project lessons learned in future operations facilitated	**Outcome Indicator 4.1:** Fulfillment of planned M&E activities including establishing baseline values for all project indicators, yearly updating of indicators, a mid-term and a final project evaluation and dissemination of lessons learned.	The M&E team provides quality reports in a timely manner Good internet connection to build and maintain the website

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
Component 1: Development of climate change adaptation (CCA) strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas								
Outcome 1.1: The institutional capacities of the AEDD, Ministry of Rural Development's structures (MDR), local governments, herders, farmers and customary organizations are strengthened to minimize the exposure of agro-pastoral and agricultural production systems in vulnerable areas to climate variability and risks.								
Outcome Indicator 1.1(a): (AMAT Indicator 2.2.1) Number and type of targeted institutions with increased adaptive capacity to minimize exposure to climate variability (describe number and type)	Institutions currently have low capacity to reduce vulnerability to climate variability, specifically for agro-pastoralists, and especially within the DNPIA and its decentralized structures	Training on APFS to: 10 AEDD staff 10 MDR staff 10 staff from local government 15 herders and staff from customary organizations (50% of trained individuals are women) A multi-year work plan and strategy to spread the APFS approach is developed using a participatory process 2 Participatory and Negotiated Territorial Developments (PNTDs) are developed and implemented by local organisations	10 AEDD 10 MDR 10 local gvt 15 herders/ customary orgs trained on APFS Multi-year work plan developed	1 PNTD developed and implemented	2 PNTDs developed and implemented	-	Training attendance sheets Multi-year work plan Reports from the PNTDs	Project team
Outcome Indicator 1.1(b): Level of use of weather forecasts by targeted agro-pastoralists	10 day weather forecasts are developed by Mali-Meteo, but the level of access and use by agro-pastoralists is very low. Forecasts are not widely disseminated to agro-pastoralists in a timely fashion.	70% of the targeted 3,000 agro-pastoralists through the APFS network have access and use of ten-day weather forecast.		500 agro-pastoralists	1,500 agro-pastoralists	3,000 agro-pastoralists	APFS reports Mali-Meteo Reports	Project Team Mali Meteo

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
Output 1.1.1: APFS concepts and approaches are circulated and popularized amongst the staff of AEDD, MDR's structures, local government, herders, farmers and customary organizations, to contribute to strengthening adaptation capacities of agro-pastoral and agricultural production systems in vulnerable communes of the Koulikoro, Ségou and Kayes regions	Currently the APFS concepts and approaches are not being promoted in the project target areas. Baseline is zero.	10 AEDD staff 10 MDR staff 10 staff from local government 15 herders and staff from customary organizations Staff know and apply APFS concepts and approaches. 10 AEDD staff 10 MDR staff 10 staff from local government 15 herders and staff from customary organizations trained in the use of SHARP (Schéma Holistique pour l'Auto-évaluation paysanne de la Résilience climatique) Multi-year work plan created	3 APFS workshops held, including training in the use of SHARP Multi-year work plan created				Workshops reports	Project team
Output 1.1.2: Climate information and meteorological data related to climate variability and change are made available and used in targeted vulnerable regions, and institutional actors' capacities are strengthened to better analyse and diffuse this data.	Information is not available	Climate data is generated through participatory processes and disseminated. Institutional actors know how to analyse and diffuse them.	10 staff from local government and 15 herders and staff from customary organizations are trained in the use of 10day forecasts	Climate information distributed through APFS set-up	Climate information distributed through APFS set-up		APFS reports Mali-Meteo Reports	Project Team Mali Meteo

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
Output 1.1.3: The Charte Pastoral and its statutes are distributed and implemented. Agreements between local agro-pastoralists are put in place to reduce conflicts linked to climate variability and transhumance paths	Currently the provisions of the pastoral charter are not being implemented.	Pastoral charter disseminated through APFS created 2 pilot PNTDs implemented	Pastoral Charter disseminated through the radio	Charter disseminated through APFS 1 PNTD implemented	Charter disseminated through APFS 2 PNTDs implemented		Radio recordings APFS curricula	Project team
Component 2: Capacity building and scaling up of CCA technologies and best practices for small agro-pastoralists.								
Outcome 2.1: Agro-pastoralists (of which at least 30% are women) have strengthened capacities to adopt CCA practices and technologies in agro-pastoral systems.								
Outcome Indicator 2.1 (a): Number of agro-pastoralists (gender disaggregated) who have strengthened capacities to adopt CCA practices and technologies due to project activities	Baseline is 0	3,000 agro-pastoralists have strengthened capacities to adopt CCA practices and technologies due to project activities. 30% are women.	-	500	1,500	3,000	Survey Project monitoring reports	Project team
Outcome Indicator 2.1(b): (AMAT Indicator 3.1.1) Percent of targeted groups adopting adaptation technologies by technology type	No agro-pastoral adaptation technologies have been adopted yet	70% of beneficiaries adopt promoted CCA practices through the 150 APFS set-up (30 % are women)	-	25%	50%	70 %	Survey Project monitoring reports	Project team

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
(disaggregated by gender)								
Output 2.1.1: At least 200 APFS facilitators are trained (of which at least 30% are women) through agreements with associations of livestock-raisers and agro-pastoralists.	Baseline is 0.	200 APFS facilitators trained, 30% are women APFS curricula are developed	25 APFS facilitators trained including at least 7 women APFS curricula developed	75 APFS facilitators trained including at least 22 women	150 APFS facilitators trained including at least 45 women	200 APFS facilitators trained including at least 60 women	Project monitoring reports	Project team
Output 2.1.2: 150 APFS are put in place and integrate CCA and sustainable land-use principles in their curriculum, with an accent on best practices, ecosystem resilience, and integration of agricultural and pastoral production systems	Baseline is 0.	150 APFS integrating CCA and sustainable land-use principles in their curricula are put in place	25 APFS in place	75 APFS in place	125 APFS in place	150 APFS in place	Project monitoring reports	Project team
Output 2.1.3: Adaptation technologies and practices are distributed to the 150 APFS created by the project	Baseline is 0.	The 150 APFSs created by the project have adaptation technologies and practices	25 APFSs	75 APFSs	125 APFSs	150 APFSs	Project monitoring reports	Project team
Outcome 2.2: Livelihoods of targeted agro-pastoralists improved								

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
Outcome Indicator 2.2: (AMAT Indicator 1.3.2) Percent increase in per capita income for agro-pastoral and agricultural households due to adaptation measures applied	The baseline per capita income of households participating in the 12 local adaptation strategies will be determined once target beneficiary households have been identified.	5% increase in per capita income due to adaptation measures applied	-	-	2% increase	5% increase	Survey	Project team
Output 2.2.1 At least 2,500 livestock-raisers and farmers (of which at least 30% are women) participate in the implementation of integrated local adaptation strategies	Baseline is 0.	2,500 livestock-raisers and farmers use local adaptation strategies (30% are women)	-	750	1,500	2,500	Survey	Project team
Outcome 2.3: Agricultural/agro-pastoral productivity in pilot CCA investment areas has increased								
Outcome Indicator 2.3: (AMAT Indicator 1.2.5): Increase in agricultural productivity in targeted areas (tons/ha)	The baseline of livestock productivity for agro pastoralists benefiting from the 4 pilots will be determined once the APFS are established and target beneficiaries identified.	5% increase in production due to adoption of CCA measures	-	-	2.5% increase	5% increase	Survey	Project team
Output 2.3.1: Four pilot investments in	Baseline is 0.	Four pilot areas are supported. Pilots will include:	-	1 pilots	3 pilots	4 pilots	Project monitoring	Project team

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
adaptation are supported to improve ecosystem resilience and contribute to strengthening the capacity of agro-pastoralists to adapt to climate change		Participatory analysis of water access in target zones, creation of 3 pasture wells per cercle, deepening of 5 ponds located in two different directions along the most significant transhumance routes in each cercle (9 pasture wells and 15 ponds in total) and training in infrastructure management and maintenance. Multiplication and distribution of seed for local forage species that are resistant to drought and climate variability in addition to adoption and testing of other resistant forage species (service contract with the IER). Pasture planning management. Installation of community nurseries (one per commune with APFS) and land for plant regeneration and agro-forestry along transhumance corridors.					reports	
Component 3: Mainstreaming CCA in policies and development programs related to agricultural and livestock production								
Outcome 3.1: APFS -based CCA mainstreamed into integrated rural development and investment policies								
Outcome Indicator 3.1: (AMAT Indicator 1.1.1.1) Development frameworks that include specific	The National Plan for Priority Investment in the Agricultural Sector and the Five-Year Pastoral Development Plan do not currently	CC aspects are mainstreamed within the: National Plan for Priority Investment in the Agricultural Sector and the Five-Year Pastoral Development Plan			CC aspects included in both targeted policies	3 PDESC revised	Project monitoring reports PDESC	Project team

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
budgets for adaptation actions (list type of development framework and briefly describe the level of the action)	account for CC impacts, and the PDESC of the targeted communes in the three *cercles* do not currently include CC considerations	3 PDESC are revised to account for CC impacts			1 PDESC revised		Targeted policies	
Output 3.1.1: National cooperation frameworks that use APFS to better integrate CCA into agricultural/livestock development are strengthened	Baseline is 0.	One inter-sectoral team created and meeting on a regular basis conducted		1 intersectoral team created 2 meetings conducted	3 meetings conducted	3 meetings conducted	Project monitoring reports Meeting Reports	Project team
Output 3.1.2: The Climate Proofing tool is applied at the local level through the Strategic Framework for Investing in Sustainable Land-use Management (CSI-GDT)	Baseline is 0 in the project areas. However the climate proofing has been widely applied in the country by the LDCF FAO project *Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas* as well as by other partners	National Plan for Priority Investment in the Agricultural Sector and the Five-Year Pastoral Development Plan 3 PDESC		2 PDESCs climate proofed	3 PDESCs		Project monitoring reports PDESC National Plan for Priority Investment in the Agricultural Sector and the Five-Year Pastoral Development	Project team
Output 3.1.3. The	n/a	The PQAP supports integration			PQAP		Project	Project team

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
Five-Year Pastoral Development Plan (Plan Quinquennal d'Aménagements Pastoraux – PQAP) is revised to support integration and mainstreaming of CCA in the agro-pastoral sector.		and mainstreaming of CCA in the agro-pastoral sector.			updated		monitoring reports Five-Year Pastoral Development Plan	
Component 4: Project monitoring and dissemination of results								
Outcome 4.1 – Project implementation based on result-based management and application of project lessons learned in future operations facilitated.								
Outcome Indicator 4.1: Fulfillment of planned M&E activities including establishing baseline values for all project indicators, yearly updating of indicators, a mid-term and a final project evaluation and dissemination of lessons learned.	n/a		10 percent progress in achieving project outcomes.	30-40 percent progress in achieving project outcomes.	50 percent progress in achieving project outcomes	Project outcomes achieved and showing sustainability.	PIRs Midterm and final evaluations	Project team
Output 4.1.1. Monitoring and Evaluation System put in place, including systematic collection, analysis, compilation, and operational implementation of	n/a	Two six-monthly progress reports prepared. (one PPR and one PIR)	Two six-monthly progress reports prepared. (one PPR and one PIR)	Two six-monthly progress reports prepared. (one PPR and one PIR)	Two six-monthly progress reports prepared. (one PPR and one PIR)	Two six-monthly progress reports prepared. (one PPR and one PIR)	M&E system PIRs PPRs	Project team

Outputs, Indicators and Targets	Baseline	End of Project Target	Yearly Milestones				Data Collection	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsibility
data.								
Output 4.1.2. Mid-term review and final evaluations are conducted.	n/a	Mid-term and final evaluations conducted.		Mid-term review conducted		Final evaluation conducted	Mid-term and final evaluations reports	Project team and independent evaluator
Output 4.1.3. Best practices and lessons learned from the project are disseminated.	n/a	Project website Disseminated lessons learned papers	Website established		5 publications produced and available on the website		Papers	Project team

APPENDIX 2: WORK PLAN (RESULTS BASED)

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 1: Development of climate change adaptation (CCA) strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas																		
Output 1.1.1 APFS concepts and approaches are circulated and popularized amongst the staff of AEDD, MDR's structures, local government, herders, farmers and customary organizations, to contribute to strengthening adaptation capacities of agro-pastoral and agricultural production systems in vulnerable communes of the Koulikoro, Ségou and Kayes regions	Organization of 3 regional workshops to launch and introduce the concept of APFS	MDR																
	Training in the use of SHARP *(Schéma Holistique pour l'Auto-évaluation paysanne de la Résilience climatique)* and support implementing it.	MDR																
	Establishment of a multi-year work plan and a strategy to spread the APFS approach	MDR																
Output 1.1.2 Climate information and meteorological data related to climate variability and change are made available and used in targeted vulnerable regions, and institutional actors' capacities are strengthened to better analyse and diffuse this data.	Participatory identification of climate information needs by agro-pastoralists.	Mali Meteo																
	Training on data collection, analysis, and use of 10 day weather forecasts and meteorological data for crop and livestock cycles and transhumance practices.	Mali Meteo																
	Use of decadal meteorological data to inform crop and livestock cycles as well as transhumance practices via the APFS network.	Mali Meteo																
Output 1.1.3 The Pastoral Charter and its statute are distributed and implemented. Agreements between local agro-pastoralists are put in place to reduce conflicts linked to climate variability and transhumance paths.	Dissemination and popularization of the Pastoral Charter and application of its statute at the local level through the FFSs and the APFSs as well as at a wider scale	MDR and local radio																
	Analysis of current policy and	MDR																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	gaps related to identifying transhumance corridors and establishing use rights through participatory negotiations																	
	Implementation of two pilot Participatory and Negotiated Territorial Developments (PNTDs), identification of transhumance corridors and implementation of agreements between local agro-pastoralists.	MDR																
Component 2: Capacity building and scaling up of CCA technologies and best practices for small agro-pastoralists																		
Output 2.1.1. At least 200 APFS facilitators are trained (of which at least 30% are women) through agreements with associations of livestock-raisers and agro-pastoralists.	Organization of an exchange visit on the APFS approach in East Africa for DNPIA, DNA n AEDD, Mali Météo and DNEF executives.	MDR																
	Participatory identification of a training curriculum for agro-sylvo-pastoral activities with the APFS.	MDR																
	Training and provision of equipment for 10 master trainers in the national-level livestock sector who are affiliated with DNPIA and retraining of master trainers at DNA on integrating crop/livestock systems into FFSs.	MDR/DNPIA/DNA																
	Development of training tools for trained facilitators.	MDR/DNPIA/DNA																
	Training of 200 APFS facilitators (including staff from the Local Livestock Production and Industry Service (SLPIA), livestock associations, local	MDR/DNPIA/DNA and local organisations (NGOs and																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	NGOs, civil society, and private veterinarians) through Memorandum of Understandings and retraining of DNA trainers on the integration of crop/livestock systems into FFS.	associations)																
	Organization of a wrap-up workshop at the end of the 18 months training cycle to share and disseminate lessons learned	MDR																
Output 2.1.2 150 APFS are put in place and integrate CCA and sustainable land-use principles in their curriculum, with an accent on best practices, ecosystem resilience, and integration of agricultural and pastoral production systems	Participatory identification of beneficiaries and target zones for implementing the APFSs by using diverse tools (SHARP) and defining specific selection criteria.	MDR/DNPIA/DNA																
	Progressive implementation of 150 APFSs in selected zones and training of 3,000 agro-pastoralists (30 individuals maximum per training group) in the APFS approach according to the training curriculum established by the project: training over the course of 18 months, training targeted to small transhumance and large transhumance, monitoring of groups by 2 or 3 trainers with complementary skills (animal health, nutrition, genetic improvement, pasture management, links between agriculture and livestock, agroecology principles, perennial crops etc.).	MDR/DNPIA/DNA																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Organization of bi-monthly sessions to retrain facilitators, including the FFS facilitators	MDR/DNPIA/DNA																
	Facilitation of communication between the FFSs and the APFSs through open-house days, exchange visits and national meetings	MDR/DNPIA/DNA																
Output 2.1.3 Adaptation technologies and practices are distributed to the 150 APFS created by the project	Participatory community analysis of climate risks by each APFS and identification of local CCA measures and technologies.	MDR/DNPIA/DNA																
	Distribution and testing of best practices through the APFSs, including bush-fire prevention techniques.	MDR/DNPIA/DNA																
	Identification and testing of seed for wild forage species, local varieties and adapted varieties that are resistant to drought and climate variability, and adoption/testing of other resistant forage species (services contracted through the Institute of Rural Economy - IER).	MDR/DNPIA/ DNA and DFF/Bioversity/ IER																
	Implementation of no-entry zones to conserve available pastures in 3 pilot zones (maximum of 600ha): participatory delineation of zones, establishment and implementation of compensation for a community guardianship system, and definition of use rights based on Activity 1.1.3.	MDR/DNPIA/ DNA and local organisations (NGOs and associations)																
	Strengthening and improvement	Station du Sahel																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	of animal genetics: development of animal genetics (Sation du Sahel in Niono), training of inseminators and provision of genetic animal seed.																	
	Development of improved animal feeding practices: creation of salt blocks/lick blocks, conservation of forage, etc.	MDR/DNPIA/ DNA																
	Assessment of crop genetic diversity through the Diversity Field Fora (DFF) approach in APFSs.	DFF/Bioversity/ IER																
Output 2.2.1 At least 2,500 livestock-raisers and farmers (of which at least 30% are women) participate in the implementation of integrated local adaptation strategies	Participatory definition at the APFS level of integrated local adaptation strategies that include developing the beef sector, improved management of transhumance corridors, strengthening the integration of farming and livestock, identification of revenue-generating sectors for agro-pastoralists to commercialize non-timber forest products (NTFP), etc.	MDR/DNPIA/ DNA and local organisations (NGOs and associations)																
	Implementation of 12 pilots on integrated local adaptation strategies with 4 pilots per targeted region.	MDR/DNPIA/ DNA and local organisations (NGOs and associations)																
Output 2.3.1 Four pilot investments in adaptation are supported to improve ecosystem resilience and contribute to strengthening the capacity of agro-pastoralists to adapt to climate change	Strengthening the network of wells and boreholes along transhumance paths to reinforce water access for herds: participatory analysis of water	MDR/DNPIA/ DNA and private companies																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	access in target zones, creation of 3 pasture wells per cercle, deepening of 5 ponds located in two different directions along the most significant transhumance routes in each cercle (9 pasture wells and 15 ponds in total) and training in infrastructure management and maintenance.																	
	Multiplication and distribution of seed for local forage species that are resistant to drought and climate variability in addition to adoption and testing of other resistant forage species (service contract with the IER).	IER																
	Pasture planning and management	MDR/DNPIA/ DNA																
	Installation of community nurseries (one per commune with APFSs) and land for plant regeneration and agroforestry along transhumance corridors.	MEEA																
Component 3: Mainstreaming CCA in policies and development programs related to agricultural and livestock production.																		
Output 3.1.1 National cooperation frameworks that use APFS to better integrate CCA into agricultural/livestock development are strengthened.	Implementation and formalization of an inter-sectoral team (drawn from the thematic group on adaptation in the National Committee on Climate Change) by official decision of the Ministry of Environment, Water and Sanitation (MEEA).	MEEA/AEDD																
	Support on the functioning of and cooperation within the inter-sectoral team.	MEEA/AEDD																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Organization of an awareness-raising session for the inter-sectoral team on advantages and challenges associated with integrating climate change into development planning	MEEA/AEDD																
	Organization of 10 analysis and planning sessions on integrating CCA into farming and livestock policies and strategies	MEEA/AEDD																
	Establishment by official decision of the MEEA of the project steering bodies (including at the national, regional, local and communal levels) following the structure of the National Climate Change Committee.	MEEA/AEDD																
	Organization of 17 meetings (1 at the national level, 6 per region, 6 per *cercle*, and 3 per commune) on cooperation and planning for coordination bodies	MEEA/AEDD																
	Distribution of best-practices through the above cooperation structures.	MEEA/AEDD																
Output 3.1.2. The climate proofing tool is applied at the local level through the Strategic Framework for Investing in Sustainable Land-use Management (CSI-GDT)	Application of the climate proofing tool at the local level on the PDESC of the selected communes. The PDESCs will be revised by introducing the practical data identified in the APFS. 180 communes council members and NGO staff should be involved in the revision process.	MEEA/AEDD and MDR																
	Training of 12 trainers (4 per region) on tools to integrate	MEEA/AEDD and MDR																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	climate change into local development planning through climate proofing and the APFS approach.																	
	Organization of 10 sessions (1 national, 3 regional, 3 local, and 3 at commune level) to familiarize members of the steering committee in tools and methods that support the process of integrating climate change into planning.	MEEA/AEDD and MDR																
	Creation of a booklet on integrating in French and Bambara on integrating climate change and sustainable land-use management into local development planning through the APFS approach	MEEA/AEDD and MDR																
	Organization of 3 workshops to share revised documents.	MEEA/AEDD																
Output 3.1.3 The Five-Year Pastoral Land-Use Plan (Plan Quinquennal d'Aménagements Pastoraux – PQAP) is revised to support integration and mainstreaming of CCA in the agro-pastoral sector	Carry out a revision of the PQAP evaluating the cost of investment and integrating resilience to climate change by the inter-sectoral team.	MEEA/AEDD and MDR																
	Organization of 4 budgeting and planning sessions	MEEA/AEDD and MDR																
	Organization of validation workshop for the investment plan at the national and regional levels.	MEEA/AEDD and MDR																
Component 4: Project monitoring and dissemination of results																		
Output 4.1.1 Monitoring and Evaluation System put in place, including systematic collection, analysis, compilation, and operational implementation of data.	Implementation of a performance framework defining roles, responsibilities, and frequency for collecting and	MEEA/AEDD																

Output	Activities	Responsible institution/ entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	compiling data that informs project performance monitoring indicators.																	
Output 4.1.2 Mid-term and final evaluations are conducted	Carrying out of a mid-term evaluation: recruitment of an evaluator, provision of data, validation of recommendations and definition of a monitoring plan for recommendations.	MEEA/AEDD and independent evaluators																
	Carrying out of a final evaluation: recruitment of an evaluator, provision of data, validation of recommendations and definition of a monitoring plan for recommendations.	MEEA/AEDD and independent evaluators																
Output 4.1.3 Best practices and lessons learned from the project are disseminated.	Creation of a website for the project	MEEA/AEDD																
	Development of 5 publications on the project's best practices and lessons learned	MEEA/AEDD																

APPENDIX 3: RESULTS BUDGET

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APPENDIX 4: RISK MATRIX

Risk	Risk Level	Mitigation Measure
High-probability of increased occurrence of extreme weather events which may affect crop and livestock cycles and increase food/nutritional insecurity.	H	Mitigated by supporting the implementation of CCA policies and measures to strengthen pro-active and coordinated responses. Developing adaptation plans for rangeland management and by linking with on-going emergency/post-emergency initiatives and regular animal health support programs that are implemented by the government. Community-level field observation capacities will be fostered to anticipate CC related disruptions. Finally, the project will support the access and use of climate data which allow better planning.
Insecurity and potential lack of adequate social stability in project area	H	The project areas (Kayes, Ségou and Koulikoro regions) are not affected by actual conflicts, are judged to be safe and would allow project development to continue smoothly. In those areas local level conflict resolution between stakeholders can continue to be encouraged through traditional channels. Community based participation and land-use planning involving communities and raising awareness of the long-term benefits of development activities would be used to promote sustainable land management activities.
Spread of the Ebola virus to the project areas	L	At PPG stage, the Ebola virus has yet not spread to Mali and project areas.
Farmers / herders conflicts	M	Clear agreements and management arrangements are developed, ensuring that the rights of each stakeholder are preserved, and defining their duties as well; the application of such protocols is duly monitored.
Reluctance to endorse and participate in the project activities by conflicting stakeholders (agriculturalist/herders) and reluctance/ slowness of local institutions to agree on project activities	L	The risk of reluctance of stakeholders is low. Nevertheless it will be addressed through local participation in project implementation. In particular, existing areas where income has been generated or losses reduced from adaptation activities will be demonstrated to other farmers and replicated where possible. In addition, achievements on the ground that bring benefits to local producers will be demonstrated during the project to overcome skepticism. Regarding local institutions, common objectives will be established by giving emphasis on local ownership of the process as well as capacity.
Risk of management change in local institution	M	A medium risk of ongoing modification within the framework of the local institutional settings is present. The risk will be addressed by strongly involving local institution at all level, and building appropriate programmes for the involvement of relevant officers and institutional sectors.
Seed shortages due to climate variability shock, prolonged	M	Pest and disease outbreak due to climate variability may cause risk of crop/grassland failure during the project.

droughts, and/or pests and diseases outbreaks with risk of crop/ grassland failure		The project will address this risk by systematically linking the adoption of CCA measures and fostering of community-level field observation capacities to reduce seed multiplication failures, particularly with specialized seed multiplying farmers.
Lack of adequate human and material resources for the implementation of this project could disturb the implementation of the various activities of the project.	L	Government capacity is not likely to represent a high risk for the project because the capacity for climate resilient development exists in the country (but is not systematically geared towards explicit and specific CCA goals). However the risk of lack of capacities will be mitigated by mobilizing and articulating the capacity of different actors, projects, programs and bilateral agencies to work intensively with government and gradually transfer skills to government counterparts.
Local populations do not see the benefit of resilient practices.	L	The project will ensure a high level of ownership from the population through the participative APFS approach. This model encourages farmers and herders to actively get involved in order to try out and adopt CCA practices and technologies, and gain experience through a learning-by-doing process. Trainings are given by local facilitators in order to ensure the continuity and appropriation of the learning process by the local population.

H = High (greater than 60 percent probability that the outcome/result will not be achieved).
M = Medium (30 to 60 percent probability that the outcome/result will not be achieved).
L = Low (probability of less than 30 percent that the outcome/result will not be achieved).

APPENDIX 5: TERMS OF REFERENCE (ToRs) OF KEY STAFF

This Appendix provides Terms of reference for the following:

Nationally recruited staff and consultants:

- National Project Coordinator (NPC)
- M&E expert
- Climate change trainer
- Organization capacity building national expert
- Expert in territorial diagnosis, local agreements and land management plans
- Local activities advisors (3)
- Support to resilience assessment at a field level
- Expert in fodder, natural grass production and improved animal feeding practices
- Participatory policy expert and PNTD
- Expert in investment plans and local adaptation strategies development
- Communication and publication expert
- Driver

Internationally recruited staff and consultants:

- Chief technical advisor (CTA)
- Operations and field administration officer
- Organization capacity building expert
- Best practice expert
- International expert tenure security and PNTD
- International expert in assessment of resilience against desertification in agric and past areas (SHARP)
- International policy advisor
- Evaluators

NATIONAL PROJECT COORDINATOR (NPC)

1. Scope

This position is full time for the entire duration of the project. Total input: 48 months.
Under the supervision of: FAOR, LTO
Reporting to: FAOR, LTO

2. Objective

To ensure the smooth running of the project and the timely provision of high quality inputs as needed.

3. Tasks

The NPC will be responsible for the operational planning, management and monitoring of all project's activities, as indicated in the project document. The NPC will provide technical, logistics and managerial support and ensure a good implementation of the activities in line with the project result framework, work plan and approved budget. This will include:

Manage National Coordination Unit

- Prepare annual and quarterly work plans and prepare ToR for all inputs;
- Lead process to mobilize NCU staff, project consultants and sub-contracts;
- Lead process to finalize 'letters of agreement' with implementation partners;
- Ensure all NCU staff and all consultants fully understand their role and their tasks, and support them in their work;
- Oversee day-to-day implementation of the project in line with the work plans;
- Organize regular planning and communication events, starting with inception mission and inception workshop;
- Oversee preparation and implementation of M&E framework;
- Oversee preparation and implementation of project communication and knowledge management frameworks; and
- Prepare progress reports and all monitoring reports. This includes the six monthly progress reports and the annual Project Implementation Review.

Lead interactions with stakeholders

- Liaise with government agencies;
- Regularly advocate on behalf of the project to partners;
- Coordinate project interventions with other ongoing activities, especially those of co-financers and other GEF projects; and
- Regularly promote the project and its outputs and findings on a national, and where appropriate, regional stage.

Technical support

- Oversee development of the approach to APFS in Mali;
- Support development of project strategic approach;
- Ensure quality of project activities and project outputs;
- Support development of project capacity building strategies, and preparation of training materials; and

- Take the lead in designing and technically supporting all activities under Outcomes 1.1, 3.1 and 3.2 of the project.

4. Qualifications

- Higher degree related to rangelands management;
- At least ten years' experience in the Mali rangelands managements sector;
- At least five years' experience working with local communities in the rangelands management sector in Mali;
- Solid experience in project management;
- Demonstrated previous experience working with the field school approach to extension or with similar approaches;
- Previous experience working with international partners on related issues;
- Demonstrated commitment to participatory natural resource management techniques; and
- English language skills preferential.

MONITORING AND EVALUATION EXPERT

1. Scope

This position is full time for the entire duration of the Project (recruited after 4 month of project start).
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Objective

To ensure the design and sound implementation of the Monitoring and Evaluation System

3. Tasks

- Contribute to preparing the Project work plan and strategic documents;
- Prepare a framework for monitoring the development of APFS in Mali;
- Identify indicators to follow APFS progress and design a system for collecting data;
- Constantly collect data on the development of APFS, and of the project's contribution to APFS in Mali; and
- Prepare regular information notes and briefing notes to contribute to information and advocacy campaigns.

4. Qualifications

- Higher degree related to rangelands management;
- At least five years' experience in the Mali rangelands managements sector;
- At least three years' experience working with local communities in the rangelands management sector in Mali;
- Demonstrated previous experience working with the field school approach to extension or with similar approaches;
- Demonstrated previous experience working with the monitoring field schools or similar extension approaches;
- Previous experience working with international partners on related issues; and
- English language skills preferential.

NATIONAL CLIMATE CHANGE TRAINER

1. Scope

This position is for 12 months during the entire duration of the project.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Tasks

- Assist the project management in programming the technical assistance that will be provided through Component 1 and 2;
- Assess all project training and capacity building activities, identify entry points for integrating climate change, and develop material in order to integrated climate change;
- Review and revise training programmes for managers;
- Ensure that updated best practices are transferred in a simple and concise manner into training material and training activities; and
- Undertake field visit and provide examples on how FFS could drive CCA practices and climate resilience in partners' programmes.

3. Qualifications and Selection criteria

- Higher degree related to resource management or climate change science;
- At least five years working on climate change related issues in Mali;
- Experience working with local communities in the rangelands management sector in Mali;
- Previous experience working with international partners on related issues;
- Demonstrated commitment to participatory natural resource management techniques; and
- English language skills preferential.

NATIONAL EXPERT ON ORGANIZATIONAL CAPACITY BUILDING

1. Scope

This position is for 18 months during the entire duration of the project.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Tasks

The expert will support the following activities:

- Preparation of training action plans to improve managerial capacity to address CC in projects and programmes;
- Organize and follow up trainings;
- Preparation of capacity building operation plans;
- Define training periods of operation
- Modify and adapt, capacity building plans
- Organize capacity building events

3. Qualifications and Selection criteria

- Higher degree related to institutional development, policy or organizational development;
- At least ten years working on organizational development in Mali;
- Experience working with government agencies responsible for management of natural resources (at least five years);
- Experience working with local communities in climate change or rangelands management sector in Mali;
- Previous experience working with international partners on related issues;
- Demonstrated commitment to participatory natural resource management techniques; and
- English language skills preferential.

NATIONAL EXPERT ON TERRITORIAL DIAGNOSIS, LOCAL AGREEMENTS AND LAND MANAGEMENT PLANS

1. Scope

This position is for 18 months spread over the entire project (when actually employed). Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Tasks

The expert will be responsible, but not limited, to perform the following tasks and duties:

- Support the implementation of PNDT pilot and local agreements between farmers and herders and provide guidance for successful implementation;
- Ensure participation and negotiations of farmers/pastoralists and customary associations in Component 2 and increased multi-community scale decision-making where appropriate;
- Support training planning and implementation related to Component 2, including training of local leaders and training of organization; and
- Provide guidance and support to project team regarding the development of participatory local adaptation strategies.

3. Qualifications and Selection criteria:

- Advanced post-graduate degree in rural sociology, agronomy, or a related discipline;
- At least five years of professional experience in land tenure possibly in agro-pastoral areas;
- Experience in conducting multi-stakeholder consultations;
- Experience working in rural areas and in collaboration with local communities.

LOCAL ACTIVITIES ADVISERS

1. Scope

Full time for 3 year of implementation of the Project (hired at the third month of the project, each for 11 months per year based on FAO rules).
Three positions, one per intervention area.
Under the supervision of: CTA, NPC. Reporting to: CTA, NPC

2. Objective

To ensure the activities in the regions are technically of high quality, are firmly anchored into the local sustainable development processes, and are firmly contributing to the overall project objective.

3. Tasks

- Provide advice on all activities to take place at the local level;
- Ensure full coordination with local government agencies and all similar activities taking place in the region;
- Channel information to/from project management and local partners;
- Organize the planning phase and promote the development / implementation of plans and arrangements related to environmental and gender issues;
- Support and organize capacity building to strengthen existing organizations;
- Where necessary, support the activities required for the emergence of new organizations;
- Where possible, create linkages between project activities and other activities being implemented, financed by government or development partners;
- Coordinate the activities between the APFS and the Research structures;
- Provide technical support to government agencies in the *cercles* and communes;
- Help draft TOR for local partners;
- Organize and conduct community dialogue on the concepts and principles of APFS towards the selection of the community facilitator;
- Support service providers for the establishment of APFS;
- Support and technically supervise activities for the ecosystem based pilot rehabilitation (e.g. water point rehabilitation and management, distribution and testing of resilient seed, pasture land management, establishment of nurseries for plant regeneration etc.) as well as the integrated local adaptation strategies (e.g. developing the beef sector, improved management of transhumance corridors, strengthening the integration of farming and livestock, identification of revenue-generating sectors etc.).

4. Qualifications

- Higher degree related to rangelands management;
- At least five years' experience working with local communities in the rangelands management sector in Mali;
- Demonstrated and full knowledge of agricultural and rangelands issues in the region;
- Knowledge of concerned local languages.
- Previous experience working with international partners and national government agencies/programmes; and
- English language skills are preferential.

NATIONAL EXPERT ON SUPPORT TO RESILIENCE ASSESSMENT AT FIELD LEVEL

1. Scope

This position is for 12 months spread over the entire project (when actually employed).
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Objective

Develop and help roll out the SHARP methodology.

3. Tasks

- Based on training received by international experts, support field level assessment of resilience actions to be undertaken in the establishment of APFS (assessment of APFS baseline situation, and development a community action plan) through the duration of the project;
- As necessary, review and modify the assessment methodology in order to (i) adapt to local circumstances (ii) provide information needed for GEF LDCF AMAT indicators;
- Report data from SHARP to the international expert, working in close collaboration with the APFS training expert, the local consultants, and the service providers;
- Support farmers in the undertaking of their self-assessment and the use of best practices based on their resilience self-assessment;
- Support APFS master trainers and facilitators in the use self-assessment information;
- Support community decision-making to change their activities and practices in response to self-assessment; and
- Support the design of APFS curricula including SHARP as appropriate based on project experience.

4. Qualifications and Selection criteria

- Higher degree related to natural resources management, preferably rangelands management;
- At least five years working on climate related issues in rangelands in Mali;
- A demonstrated understanding of the barriers to increasing climate resilience;
- Experience working with government agencies responsible for management of natural resources;
- Experience working with local communities in climate change or rangelands management sector in Mali;
- Previous experience working on with international partners on related issues;
- Demonstrated commitment to participatory natural resource management techniques; and
- English language skills preferential

NATIONAL FODDER, NATURAL GRASS PRODUCTION AND IMPROVED ANIMAL FEEDING PRACTICES EXPERT

1. Scope

12 months during the entire duration of the project.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Tasks

- Support all activities related to use and rehabilitation of grassland species under Outcome 2.1 and 2.3;
- Support the grassland analysis and the selection of species for the research and improvement;
- Support the activities of grassland establishment and the experimentation system used in research centers for grasses adaptability and palatability in place in two selected APFS groups and compared with research results;
- Undertake APFS training regarding grassland establishment and improvement as appropriate;
- Support the participatory monitoring of grassland established and community guardianship system;
- Help design and establish regeneration zones, including system to monitor impact;
- Support the activities of natural grassland establishment and the experimentation system for grasses adaptability and palatability in place in two selected APFS groups and compared with research results;
- Support selected APFS through participation in the selection of local seeds, and in the establishment of local seed systems;
- Support the development of improved animal feeding practices;

3. Qualifications and Selection criteria

- Advanced university degree in agriculture, agricultural economics, geography, rural development or natural resources.
- At least 5 year project management
- Experience in monitoring and evaluation
- Experience in grasslands management, including use of local and wild species

NATIONAL EXPERT ON PARTICIPATORY POLICY AND PNTD

1. Scope

12 months during the entire duration of the project.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Tasks

The expert will be responsible, but not limited, to perform the following tasks and duties:

- Support participatory policy formulation including organization of consultation workshops;
- Conduct a study to analyze current policies and their gaps related to CC and the agro-pastoral sector;
- Establish and facilitate a regular dialogue mechanism between the public, civil society, and private sector around the policy agenda. The mechanism for dialogue should be structured to build institutional knowledge;
- Preparing drafts of policies including new APFS policies and related platform;
- Support communities and *cercles* in the implementation of PNDT pilots;
- Support national and regional authorities in the revision of the PQAP;
- In consultation with project and Government staff, preparing one document proposing integration of CCA into national policies and PDSEC.

3. Qualifications

- An advanced degree in a field relevant to the above assignment (natural resource management, economics, environmental policy, agriculture and land management);
- Good working knowledge of national policy processes and policy language;
- Familiar with community-based natural resource management and social land management issues;
- Good understanding of national policies and agreements related to sustainable land management;
- Experience with participatory policy preparation; and
- Ability to organize and facilitate workshops and meetings.

NATIONAL INVESTMENT PLANS AND LOCAL ADAPTATION STRATEGIES DEVELOPMENT EXPERT

1. Scope

12 months of inputs spread over the entire Project (when actually employed).
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Tasks

- Support to the definition of integrated local adaptation strategies at APFS level, including revenue generating adapted activities;
- Support to implementation of 12 pilots of local adaptation strategies;
- Support to design of four pilot investments.

3. Qualifications

- An advanced degree in natural resources management;
- Good knowledge of adaptation policies at local level;
- Experience with participatory policy preparation; and
- Ability to organize and facilitate workshops and meetings.

NATIONAL COMMUNICATION PUBLICATIONS EXPERT

1. Scope

5 months spread over the entire Project (when actually employed).
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Tasks

The expert will be responsible, but not limited, to perform the following tasks and duties:

- Prepare communications strategy, and
- Prepare publications for dissemination.

3. Qualifications

At least one year experience in communication and publication.

DRIVER

1. Scope

Two drivers for the entire project, part time.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC

2. Context

Standard FAO driver TOR

3. Tasks

The driver will be responsible, but not limited, to perform the following tasks and duties:

- Maintain the project vehicles in clean and good conditions;
- Responsible for the day by day maintenance for the vehicles;
- Daily update of vehicle log books;
- Transport staff and/or equipment within the duty station and to/from other locations; and
- Meets official personnel at the airport and facilitates immigration and customs formalities as required.

4. Qualifications

At least three year experience as driver

CHIEF TECHNICAL ADVISOR (CTA)

1. Scope

This position is half-time during 3 years and an half.
Reports to: FAO and LTO
Internationally recruited.

2. Objective

To technically oversee the introduction and testing of the APFS approach in Mali and to directly support its uptake and broad adoption in a high quality manner.

3. Tasks

- Together with the NPC, lead the elaboration of the project strategy and the strategy to develop and roll out APFS in Mali;
- Support the NPC in the preparation of all work plans and TOR;
- Prepare a plan to monitor and guide the development and rolling out of APFS in Mali;
- Lead the preparation of the APFS training material for high level stakeholders, for master trainers and facilitators;
- Lead the regular training events for high level stakeholders and for master trainers;
- Support the training for facilitators;
- Take the lead in designing and technically supporting all activities under Component 2 of the project;
- Contribute directly to all technical activities, notably:
    - Negotiations with partners;
    - Analysis of legislative material, training material, etc ;
    - Finalization of progress reports
- Lead the project output based monitoring and evaluation system; and
- Oversee the finalization of all project technical outputs, including lessons learnt tools and related documentation.

4. Qualifications

- Higher degree related to rangelands management or livestock raising;
- At least ten years' experience working with local communities in the rangelands management sector in Mali or similar environment;
- At least five years of experience working with the field school approach in agro-pastoral areas;
- Demonstrated academic results (e.g. papers published) on field schools and agro-pastoral areas;
- Demonstrated commitment to participatory natural resource management techniques;
- Previous experience in Mali an asset; and
- French language skills are preferential.

OPERATIONS AND FIELD ADMINISTRATION OFFICER

1. Scope

This position is part-time, approximately equivalent to 14 months over the entire duration of the Project.
Under the supervision of: FAO BH, CTA, NPC
Reporting to: FAO BH, CTA, NPC
Internationally recruited.

2. Tasks

Under the direct supervision of the NPC and in consultation and close coordination with the FAO Budget Holder, the FAO Operations and Administrative Officer will have the following responsibilities and functions:

- Ensure smooth and timely implementation of project activities in support of the results-based work plan, through operational and administrative procedures according to FAO rules and standards;
- Coordinate the project operational arrangements through contractual agreements with key project partners;
- Arrange the operations needed for signing and executing Letters of Agreement (LoA) and Government Cooperation Programme (GCP) agreement with relevant project partners;
- Maintain inter-departmental linkages with FAO units for donor liaison, Finance, Human Resources, and other units as required;
- Day-to-day manage the project budget, including the monitoring of cash availability, budget preparation and budget revisions to be reviewed by the NPC;
- Ensure the accurate recording of all data relevant for operational, financial and results-based monitoring;
- Ensure that relevant reports on expenditures, forecasts, progress against work plans, project closure, are prepared and submitted in accordance with FAO and GEF defined procedures and reporting formats, schedules and communications channels, as required;
- Execute accurate and timely actions on all operational requirements for personnel-related matters, equipment and material procurement, and field disbursements;
- Participate and represent the project in collaborative meetings with project partners and the Project Steering Committee, as required;
- Undertake missions to monitor the outputs-based budget, and to resolve outstanding operational problems, as appropriate;
- Be responsible for results achieved within her/his area of work and ensure issues affecting project delivery and success are brought to the attention of higher level authorities through the BH in a timely manner,
- In consultation with the FAO Evaluation Office, the LTU, and the FAO-GEF Coordination Unit, support the organization of the mid-term and final evaluations, and provide inputs regarding project budgetary matters;
- Provide inputs and maintain the FPMIS systems up-to-date;
- Undertake any other duties as required.

3. Qualifications

- University Degree in Economics, Business Administration, or related fields;
- Five years of experience in project operation and management related to natural resources management, including field experience in developing countries;
- Proven capacity to work and establish working relationships with government and non-government representatives;
- Fluency in English is an asset; and
- Knowledge of FAO's project management systems.

ORGANIZATIONAL CAPACITY BUILDING EXPERT

1. Scope

Approximately 50 days of inputs.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC
Internationally recruited.

2. Tasks

The expert will support and train local staff in the following activities:

- Support the rapid start-up of the project training activities;
- Prepare training plan for senior managers on CCA (Output 2.1.1);
- Prepare detailed capacity building plans, including details of timing, targets, responsibilities and costs;
- Develop capacity of national project staff and consultants on how to interpret, adapt and develop capacity building plans;
- Develop adaptive management capacity of national project staff and consultants – i.e. capacity to undertake periodic adjustments of the capacity building plans.

3. Qualifications

- Master's Degree or higher in Organizational Development, from an internationally recognized university;
- At least ten years of experience in undertaking organizational analyses in different countries, including in the francophone West Africa region;
- Track record of making a difference through organizational development;
- Demonstrated capacity to provide training on organizational development;
- Fluency in French and English.
- Knowledge of FAO's project management systems is preferable.

BEST PRACTICES EXPERT

1. Scope

Approximately 3 months of input spread across the four year implementation period.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC
Internationally recruited.

2. Tasks

- Oversee and supervise the process to identify best practices based on existing globally accepted methods and through discussions with project management;
- Develop a document providing a concise technical description of best practices based on existing globally accepted methods;
- Provide examples of results obtained by climate resilient practices in completed and ongoing projects and activities, including, where relevant, the sampling designs employed;
- Provide an analysis of the advantages and limitations of each method, with respect to scientific validity, reliability and replicability, information obtained (especially indicators), practicability and operational considerations, cost (per unit area), and cost-effectiveness; Provide an assessment of potential value of each observed best practice to this project;
- Provide main references (publications, projects, activities) of the analytical method used; and
- Support the preparation of the publication and collect comments from partners.

3. Qualifications

- Postgraduate Degree or equivalent in agriculture, veterinary, land management or related disciplines with least 10 years relevant work experience;
- Ability to interact with local stakeholders and flexibility to collect data in different form;
- Demonstrated ability to speak and write professionally in English and local language; and
- Ability to work independently with strong sense of initiative, discipline and self-motivation.

INTERNATIONAL EXPERT ON TENURE SECURITY AND PNTD

1. Scope

Approximately 3 months of input spread across the four year implementation period.
Under the supervision of: LTO, CTA, NPC
Reporting to: CTA, NPC
Internationally recruited.

2. Tasks

- Support planning of all training under Component 2;
- Support all activities related to tenure security and PNTD, notably under Output 1.1.3;
- Ensure thorough mainstreaming of gender issues into all planning and tenure related activities;
- Provide training to APFS facilitators, local leaders;
- Provide training on the organization of the PNTD;
- Support and train national experts in order to undertake a socio-economic diagnosis of the project areas and results disseminated;
- Undertake appropriate action to ensure integration between land tenure actions and APFS, including: organization of meetings, ensuring the participation of APFS in community meetings, etc.; and
- Ensure M&E data collection in collaboration with local managers.

3. Qualifications

- Advanced post-graduate degree in rural sociology, agronomy, or a related discipline;
- Several years of work experience in one or more of the above fields preferably in land tenure, use planning and management, land resources management, natural resources management, soil and water conservation and agriculture, and PNTD;
- Complete understanding of the concept of tenure governance and sustainable land management;
- Experience using PNTD in the context of the Field School approach is an advantage;
- Sound research experience and publication in land tenure using FAO methods; and
- Experience in conducting multi-stakeholder consultations.

INTERNATIONAL EXPERT ON ASSESSING RESILIENCE TO CLIMATE CHANGE AND CLIMATE VULNERABILITY IN AGRO-PASTORAL AREAS (SHARP)

1. Scope

4 months.
Under the supervision of: LTO, CTA, NPC
Reporting to: CTA, NPC and LTO
Internationally recruited.

2. Tasks

The Expert will be responsible, but not limited, to perform the following tasks and duties:

- Designing and developing the self-assessment methodology;
- Training national experts in the use of the self-assessment methodology;
- As possible, support farmers and pastoralists to self-assess resilience actions to be undertaken in the establishment of APFS including: assessment of APFS baseline situation, and development a community action plan (taking into consideration and collaborating with the APFS training expert, the local consultants, the service providers, and other technical experts);
- Support farmers in the understanding of their self-assessment to undertake ecosystem based pilot rehabilitation, as appropriate;
- Ensure that self-assessment information feeds into community decision making in order to support changes to activities and practices, regarding (i) water point rehabilitation and management; (ii) strengthening the local environmental friendly production system (including livestock and non-timber forestry products) and to (iii) improving rangelands and livestock feeding lands (iv) animal health and (v) livestock production value chains;
- Support an analysis of local technologies and practices, to be carried in collaboration with members of FFS, and that can subsequently help inform the FFS curriculum on issues related to climate resilience; and
- Provide a database from which future governmental projects and programmes will be able to draw to meet local needs.

3. Qualifications and Selection criteria

- Advanced university degree in engineering, agriculture, or natural resources;
- Level and relevance of experience regarding climate related environmental risk and farmers/pastoralists resilience, including the SHARP tool;
- Level and relevance of experience in assessment of FFS, with emphasis on APFS, in Africa;
- Recognized expert in participatory activities in Africa;
- Level of experience in training smallholders in self-assessment;
- Capacity to manage tasks in a systematic and efficient manner with judgment, analysis, independence and initiative;
- Capacity to communicate clearly both verbally and in writing;
- Demonstrated ability to establish good working relationship and team spirit both inside the Organization and with external partners such as government officers, UN partners, donors or NGOs; and
- Ability to use computer software such as MS Office and other project management software and database.

INTERNATIONAL POLICY ADVISOR

1. Scope

Approximately 3 months of input during the project.
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC
Internationally recruited.

2. Tasks

The Expert will be responsible, but not limited, to perform the following tasks and duties:

- Prepare a framework and a process for assessing policy related to climate change and agro-pastoral activities and identify the gaps;
- Support a team in the assessment of agricultural and pastoral policy, in a participatory manner;
- Review findings from the 3 regions of intervention and other grassroots activities, and ensure policy assessment is consistent;
- As appropriate, assess the following and their influence and impact on current and future pastoral practices and develop recommendations:
    - Livestock extension existing land tenure policies and arrangements;
    - Past and present trends of agro-pastoral investments; and
    - Customary land conservation practices.
- Support a participatory process to review the current responsibilities and capacities of the relevant Government departments, non-Government and private institutions, and make appropriate recommendations in their role for the implementation of the pertinent agro-pastoral policy;
- Ensure climate change adaptation and climate resilience are considered in policy interventions;
- Plan, design and propose draft policy recommendation in collaboration with AEDD and MDR, and draft and/or review appropriate regulations to support the implementation of CCA investments;
- With the support of the AEDD and MDR, participate in and conduct at least two national stakeholder participatory consultations as part of the policy development process.

3. Qualifications and Selection criteria

- An advanced degree in a field relevant to the above assignment (natural resource management, economics, environmental policy, agriculture and land management);
- Good working knowledge of national policy processes and policy language;
- Familiar with community-based natural resource management and social land management issues;
- Good understanding of international policies and agreements related to sustainable land management; and
- Ability to organize and facilitate workshops and meetings.

EXTERNAL EVALUATION TEAM

1. Scope

6 weeks. 2 consultants (one national and one international).
Under the supervision of: CTA, NPC
Reporting to: CTA, NPC
Internationally recruited.

2. Tasks

Under the ultimate responsibility of FAO Office of Evaluation, in accordance with FAO evaluation procedures and taking into consideration evolving guidance from the GEF Evaluation Office and in close consultation with the Project Coordinator, the FAO budget holder (AGPM), the FAO Lead Technical Unit the external evaluation team will three months prior to the terminal review meeting of the project partners conduct an independent final evaluation. The final evaluation will review project impact, analyze sustainability of results and whether the project has achieved its adaptation objectives and benchmarks. The evaluation will furthermore provide recommendations for follow-up actions.

The evaluation will, inter alia:

- Review the effectiveness, efficiency and timeliness of project implementation;
- Analyze effectiveness of implementation and partnership arrangements;
- Identify issues requiring decisions and remedial actions to insure sustainability of project outcomes and outputs;
- Identify lessons learned about project design, implementation and management;
- Highlight technical achievements and lessons learned; and
- Prepare a final evaluation report.

Some critical issues to be evaluated in the midterm and final evaluations will be:

- Progress in improving grassland status and palatability;
- Functioning and effectiveness of the APFS network and of the inter-institutional coordination mechanism in developing and implementing integrated planning in support SLM for grassland areas and addressing key biodiversity threats;
- Level of capacities and involvement of local staff in terms of improved management effectiveness and land management plan implementation capability;
- Level of involvement of farmers and herders in land management models.

3. Qualification and Selection Critieria

- The team should include professionals specialized in grassland land degradation and pastoralism
- demonstrated experience in project evaluation;
- 10 years of professional experience in the field.
- Previous working experience in the region
- Experience in project coordination with international bodies, will be especially valuable; and
- Fluency in French and English.

APPENDIX 6: STAKEHOLDER ANALYSIS

Part 1: Governmental Stakeholders

Agence/organisation		Mandat pertinent au Project	Rôle dans le Projet
Ministère du Développement Rural			
Direction Nationale de l'Agriculture	**Direction Régionale de l'Agriculture**	Coordination de la mise en œuvre des activités relatives à la production, transformation, conservation et commercialisation des produits.	Appui Conseil et supervision des activités : ✓ pratiques agricoles, ✓ transfert des techniques de gestion durable des terres, ✓ diffusion des semences adaptées, résistantes à la sécheresse, Appui aux organisations et groupements de professionnels : ✓ formations, ✓ accès au financement ✓ accès aux intrants agricoles (semences, engrais) ✓ accès aux équipements
Direction Nationale du Génie Rural	**Direction Régionale du Génie Rural**	Coordination et suivi des travaux d'aménagement des périmètres agricoles et des parcours pastoraux	Suivi-évaluation des travaux.
Institut d'Economie Rurale	**Centre Régional de la Recherche Agronomique**	Mise à disposition des semences adaptées	Participation à la formation et à la supervision des activités du projet
Direction Nationale des Productions et Industries Animales	**Direction Régionale des Productions et Industries Animales**	Coordination de la mise en œuvre des activités relatives à la production et à la santé animale	Appui Conseil et supervision des activités d'amélioration des systèmes pastoraux (banques fourragères…) Amélioration génétique des races bovines par les techniques de l'insémination artificielle,
Direction Nationale des Services Vétérinaires	Direction Régionale des Services Vétérinaires		

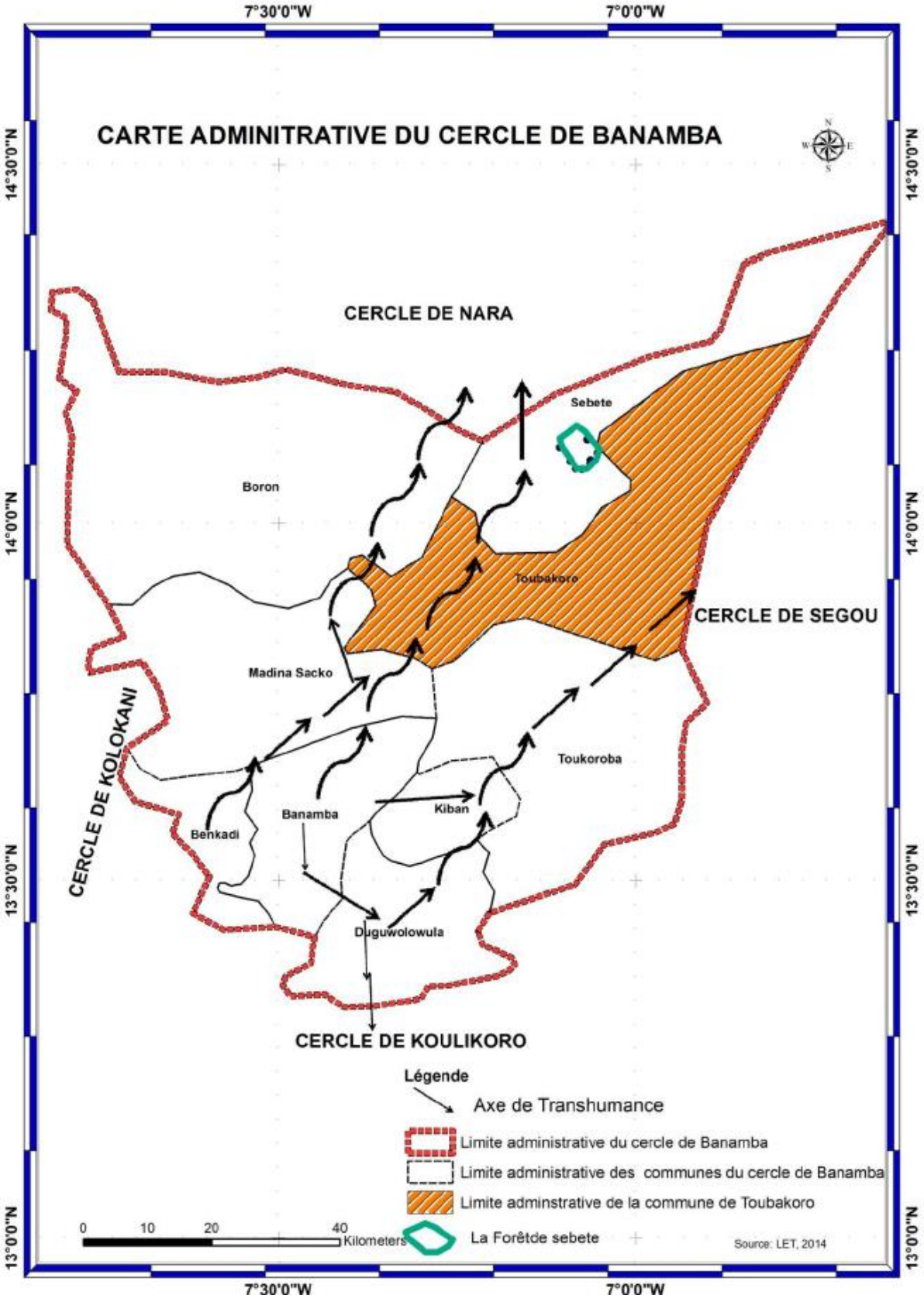
			Appui à la prophylaxie animale.
Ministère de l'Environnement et de l'Assainissement			
Direction Nationale de l'Assainissement et du Contrôle des Pollutions et Nuisances	Direction Régionale de l'Assainissement et du Contrôle des Pollutions et Nuisances	Validation des études environnementales dans le cadre du projet	Orientation de la qualité de l'étude d'impact environnemental, Prise en compte des effets d'atténuation dans les études d'impact environnemental.
Direction Nationale des Eaux et Forêts	Direction Régionale des Eaux et Forêts	Coordination des activités de reboisement	Participation au suivi des activités du projet.
Agence pour l'Environnement et le Développement Durable			
Ministère de l'Energie et de l'Eau			
Direction Nationale de l'Hydraulique	Direction Régionale de l'Hydraulique	Coordination des activités hydrauliques	Appui Conseil dans la mobilisation des ressources en eau dans le cadre du projet
Ministère Administration Territoriale et des Collectivités Locales			
Direction Nationale de l'Aménagement du Territoire		Mise à disposition des schémas d'aménagement des zones du projet	Appui à la prise en compte des schémas d'aménagement dans la mise en œuvre des activités du projet,

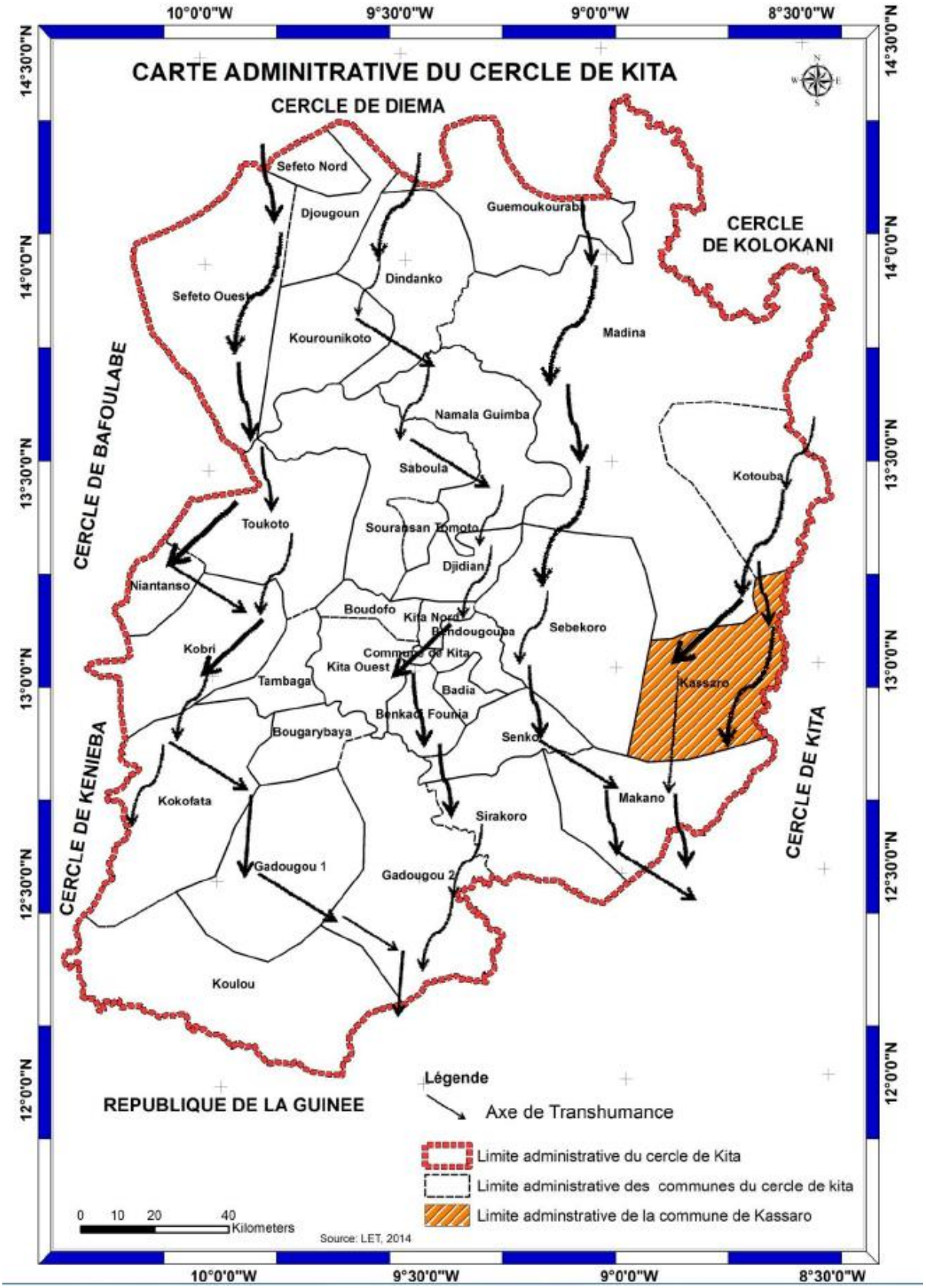
Part 2: Civil Society Stakeholders

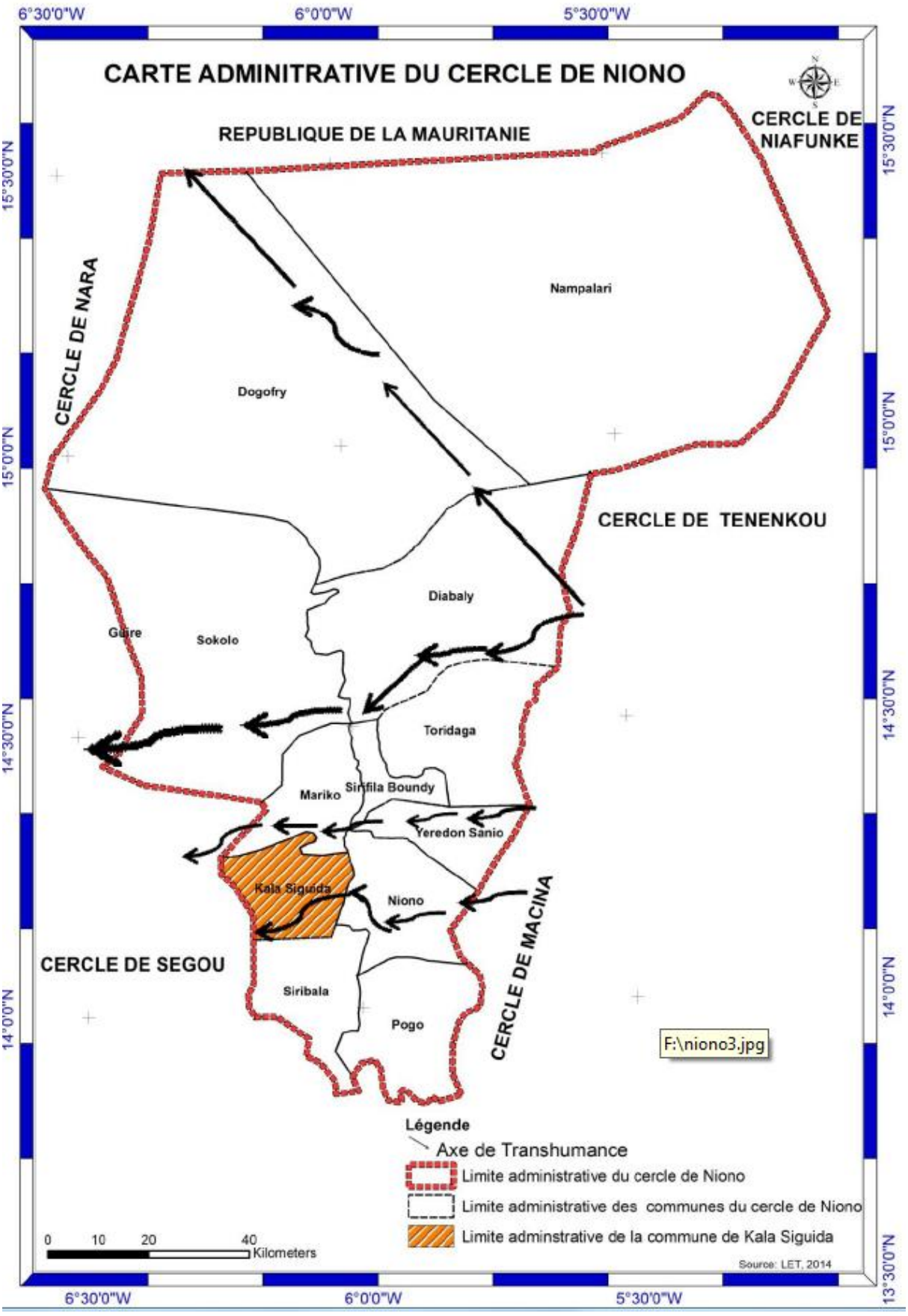
Agence/organisation		**Mandat pertinent au Project**	**Rôle dans le Projet**
Organisations Professionnelles			
Assemblée Permanente des Chambres d'Agriculture du Mali	Assemblée Régionale des Chambres d'Agriculture	Responsables de la mise en œuvre des activités du projet	Participation aux formations en tant que bénéficiaires directs et indirects

Organisations Professionnelles	• CNOP • AOPP • Interprofession élevage • Femmes rurales		Agents de mise en œuvre des activités du projet
ALPHALOG AMAPROS STOP SAHEL			Complémentarité Cofinancement

APPENDIX 7: MAPS REPRESENTING THE TRANSHUMANCE PATHS IN THE BANAMBA, KITA AND NIONO CERCLES




CARTE ADMINITRATIVE DU CERCLE DE KITA
CERCLE DE DIEMA
CERCLE DE KOLOKANI
CERCLE DE BAFOULABE
CERCLE DE KENIEBA
CERCLE DE KITA
REPUBLIQUE DE LA GUINEE
Sefeto Nord
Djougoun
Guemoukouraba
Dindanko
Sefeto Ouest
Kourounikoto
Madina
Namala Guimba
Saboula
Kotouba
Toukoto
Djidian
Niantanso
Boudofo
Kita Nord
Sebekoro
Kobri
Kita Ouest
Tambaga
Kassaro
Badia
Bougarybaya
Senko
Kokofata
Makano
Sirakoro
Gadougou 1
Gadougou 2
Koulou
Légende
Axe de Transhumance
Limite administrative du cercle de Kita
Limite administrative des communes du cercle de kita
Limite adminstrative de la commune de Kassaro
0 10 20 40
Kilometers
Source: LET, 2014
10°0'0"W
9°30'0"W
9°0'0"W
8°30'0"W
14°30'0"N
14°0'0"N
13°30'0"N
13°0'0"N
12°30'0"N
12°0'0"N


CARTE ADMINITRATIVE DU CERCLE DE NIONO
REPUBLIQUE DE LA MAURITANIE
CERCLE DE NIAFUNKE
CERCLE DE NARA
CERCLE DE TENENKOU
CERCLE DE SEGOU
CERCLE DE MACINA
Nampalari
Dogofry
Diabaly
Goure
Sokolo
Toridaga
Mariko
Sirifila Boundy
Yeredon Sanio
Kala Siguida
Niono
Siribala
Pogo
F:\niono3.jpg
6°30'0"W
6°0'0"W
5°30'0"W
15°30'0"N
15°0'0"N
14°30'0"N
14°0'0"N
13°30'0"N
Légende
Axe de Transhumance
Limite administrative du cercle de Niono
Limite administrative des communes du cercle de Niono
Limite adminstrative de la commune de Kala Siguida
0 10 20 40
Kilometers
Source: LET, 2014

APPENDIX 8: INTRODUCTORY DESCRIPTION OF THE THREE INTERVENTION AREAS

This appendix compiles information from Moussa KAREMBE's report, developed during the PPG, on Component 2 of the project, and data taken from the FAO and PDESCs.

1) Cercle de Banamba

Situation géographique de la collectivité

Le cercle de Banamba est situé entre le 13°20' et 14°35' de latitude Nord, et entre le 6°38' et 7°41' de longitude Ouest. Il fait partie de la 2eme région administrative dite de Koulikoro.
De par son chef-lieu, le cercle se trouve à 90 km au Nord de Koulikoro et à 150 km de Bamako.
Il est limité : au Nord par le cercle de Nara, au Sud par le cercle de Koulikoro, à l'Est par le les cercles de Niono et Ségou, à l'Ouest par le cercle de Kolokani.

Aspect physique et climatiques

Relief

Le cercle de Banamba a son relief dans son ensemble plat (rarement 410m) qui se trouve déterminé par trois zones principales à savoir :

- Les glacis du Niger au sud ;
- Les vastes plateaux du centre légèrement ondulés au Sud-est ; et
- La zone sablonneuse au Nord et au Nord-est du côté de Boron, Sébété et Toubacoro.

Pédologie

Le Cercle de Banamba est compris entre les zones agro-écologiques suivantes :

- Le Tyemandali (H6) avec 55% des terres arables au sud et dépourvu de cours d'eau (mais de mares temporaires) ;
- Le Bélédougou (PM6) au centre et à l'ouest où les terres sont à 54% arables, profondes et limoneuses fines. Les sols squelettiques sont estimés là à 2%. Les eaux souterraines connaissent une extension sporadique au gré des fracturations. Elles sont annuellement alimentées au rythme de 25 à 50 000 m3/ km².

Faune

Le cercle jadis giboyeux compte surtout comme produits les crocodiles en pleine expansion dans les communes de Boron, Madina Sacko, Sébété et Toubacoro et d'autres animaux plus petits : le chacal, la gazelle, le porc-épic, le lièvre, l'ourébi, le céphalophe de Grimm, l'écureuil, le varan, le lièvre et les oiseaux. Il existe quelques associations de chasseurs dans les villages mais aucune action pour la promotion des activités potentielles d'écotourisme ou de conservation.

Flore

Dans le cercle de Banamba du point de vue végétation on distingue deux types :

- Une savane arbustive au Nord constituée de diverses espèces : sur les plateaux on a Combretum sp, Sterculia setigera et des herbacés comme Loudetia togoensis et sur les glacis on rencontre les Acacias comme A. seyal , A. nilotica, Balanites aegyptiaca , Sclerocaryea birrea, Faidherbia albida,(Communes de Boron , Sébété et Toubacoro).
- Une savane arborée au Sud comprenant des espèces variées comme le karité, le Néré, le baobab, le kapokier le tamarinier sur les glacis et sur les plateaux on dénombre Combretum

sp, Sterculia setigera et des herbacés à dominante Loudetia togoensis (Communes de Duguwolowula, Madina Sacko, Toukoroba, Ben kadi et Kiban.

Le secteur connaît une organisation certes timide autour de 16 marchés ruraux de bois.

Climat et hydrographie

Le Cercle de Banamba est à cheval sur deux domaines bioclimatiques :

- Le sahélien sud : 11% du territoire (400 à 600 mm/an)
- Le soudanien nord : 89% dans (600 à 900 mm/an).

Le régime et l'abondance des précipitations constituent un facteur limitant à la fois pour l'homme et la végétation. Ce régime des précipitations est de type unique bi saisonnier avec une saison sèche et une saison humide. Le maximum de précipitation se situe en juillet-août. Pour la partie sud du Cercle une saison des pluies de 3,5 mois (dont 1,5 humide) de mi-juin à fin septembre et pour la partie nord du Cercle une saison des pluies de 2,5 mois (dont 1 humide) de juillet à mi-septembre. Les moyennes thermiques oscillent entre 12 et 14°C pendant la période froide et 35 à 43°C pendant la période chaude.

Sur le plan Hydrographique, le Bassin du Folo (Zone à cheval sur une partie des cercles de Nara, Banamba et Ségou), ancien affluent de la vallée du serpent couvre une bonne partie du cercle.

Population et moyens de communication

Par la loi N°96-059/AN/RM du 4 novembre 1996, neuf (9) communes rurales ont été créées à la place des 6 arrondissements: Banamba, Ben kadi, Boron, Kiban, Toubacoro, Madina Sacko, Duguwolowula, Sébété et Touloroba. Le cercle de Banamba fût érigé en collectivité Territoriale suivant la loi N° 99-035 du 10 août 1999 et compte neuf communes et deux cent deux (202) villages administratifs. Les principales langues de communication demeurent le Bambara, le Sarakholé et le Peulh.

Groupes humains (population, principales caractéristiques, composition et évolution….)

Le Cercle de Banamba compte une population d'environ 190 235 habitants (RGPH 2009 Provisoires) pour une superficie de 7 500 km² soit 8,31% de la région et a une densité de 25,36 habitants au km²).

Cette population est repartie entre 28 306 ménages. La population majoritairement jeune, est composée de 94 909 hommes et de 95 326 femmes soit un taux de masculinité estimé à 49,9%.

Cette population est en forte augmentation dans l'ensemble avec plus de 33% malgré une variation nette entre les communes soit +52% à Madina Sacko, +47% à Kiban, contre +25% à Ben Kadi et +23% à Boron. Les principaux groupes ethniques du Cercle sont : les Bambara, les Sarakolés, les Peuls, les Kagoros et les Maures. Les Bambaras, Sarakolés et Kagoros sont des sédentaires tandis que les Peuls et les Maures sont surtout nomades.

Tableau 1 : Répartition par communes de la population du cercle de Banamba[38]

Communes	Nbre de Villages	Population (RGPH 1998)			Population (RGPH 2009 Provisoires)				Accroissement (1998-2009)	
		H	F	T	Ménages	H	F	T	%	Taux annuel moyen
Banamba	28	11 755	12 178	23 933	4694	15275	14905	30180	26,10	**2,1**
Ben Kadi	13	3 315	3 382	6 697	1213	4268	4144	8412	25,61	2,1
Boron	48	15 223	15 090	30 313	5683	18474	18822	37296	23,04	1,9

[38] Extrait de Rép. Du Mali. 2009. *PDSEC du Conseil de Cercle de Banamba 2010-2014.*

Duguwolowula	30	16 204	16 210	32 414	5954	21872	21417	43289	33,55	2,7
Kiban	6	4 520	4 559	9 079	2120	6733	6673	13406	47,66	3,6
Madina Sacko	30	8 507	8 808	17 315	4044	12951	13419	26370	52,30	3,9
Sébété	10	1 503	1 588	3 091	607	2100	2150	4250	37,50	2,9
Toubacoro	21	5 146	5 141	10 287	2105	7052	7187	14239	38,42	3,0
Toukoroba	16	4 489	4 542	9 031	1886	6184	6609	12793	41,66	3,2
Total	**202**	**70 662**	**71 498**	**142 160**	**28306**	**94909**	**95326**	**190235**	33,82	**--**

Associations et organisations socioprofessionnelles

Dans le cadre de l'amélioration de leurs conditions de vie les populations s'organisent, mettent en œuvre plusieurs activités et s'entraident. Ces activités contribuent au renforcement de la résilience de ces producteurs aux effets néfastes des changements climatiques. Sont nombreuses les associations et coopératives socioprofessionnelles qui existent à Banamba. Toutefois, malgré leurs dévouements et diversités, ces organisations doivent chercher à renforcer leur capacité en formation, en gouvernance, en moyens de production, en infrastructures, etc. Parmi ces organisations, on peut, entre autres, citer :

- Association Kaoural pour l'élevage
- Association Badeya des femmes pour les activités génératrices de revenu (AGR)
- Coopérative Faso Djigui pour la production du sésame
- Coopérative Faso Kanu de Babougou pour le maraichage
- Coopérative Tièssiri des éleveurs
- Association Djiguiya Sô multifonctionnelle à Monzona
- Association ADELE pour la lutte contre la désertification
- Association Gninta pour l'embouche et les activités paysannes,
- etc.

Activités socio-économiques essentielles

Les principales sources de revenus des populations sont : l'agriculture, l'élevage, le petit commerce et l'exploitation du bois. Les femmes sont surtout dynamiques dans la vente de petits ruminants et de volaille qui représente 40% du revenu monétaire total, la vente de produits divers (24%) et la vente de beurre de karité (18%) (PSDDBBA MAC Rég KRO 2002-2012).

Situation administrative[39]

Le cercle de Banamba bénéficie d'un personnel de 11 agents au niveau du SLPIA et de 7 agents dans les UAPIA. Les problèmes rencontrés sont les suivants :

- L'insuffisance de personnel
- L'insuffisance de moyens logistiques
- Manque de formation des agents
- Insuffisance de communication entre le service local et ses unités d'appui
- absence totale d'électricité dans les différentes localités.

Le secteur de l'Agriculture du cercle de Banamba a un personnel estimé à 23 agents de catégorie A, B et C. Ce secteur est confronté à d'énormes difficultés qui sont :

- L'insuffisance numérique et le vieillissement du personnel d'encadrement ;
- L'insuffisance du personnel de soutien ;
- La vétusté du parc auto qui ne permet pas au secteur d'agriculture d'assurer correctement les missions de suivi et de supervision des activités de la campagne agricole ;

[39] Tiré du rapport sectoriel sur la composante 1 de Mr Bakary Kante ; rapport réalisé lors de la PPG

- L'insuffisance d'outil informatique pour le personnel ;
- L'insuffisance d'organisation des producteurs.

Agriculture

Avec un potentiel cultivable estimé à 266 060 ha, le cercle de Banamba exploite à peine 40% soit environ 107574 ha toutes spéculations confondues et occupe 80% de la population. Les cultures dominantes sont : le mil (49125 ha), le sorgho (32174 ha), le niébé (10036 ha) et l'arachide (7100 ha) auxquels on peut ajouter le riz, le voandzou, le henné, le sésame, la pastèque. Le conseil agricole est encore insuffisant dans plusieurs communes du fait de l'indisponibilité des gens. De plus en plus l'horticulture s'implante dans le cercle et occupe présentement une vingtaine de coopératives féminines. Le tableau ci-dessous présente les rendements par cultures dans le cercle de Banamba entre 1990 et 2005.

Tableau 2 : Rendement des cultures du cercle de Banamba par année[40]

Value		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Banamba	Blé/Orge	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]
	Fonio	0.00	1,469.27	1,130.63	481.27	372.88	550.09	964.37	1,009.00	1,042.02	983.13	380.32	1,043.79	1,311.81	713.35	1,035.14	1,450.33
	Maïs	358.78	504.73	457.73	464.90	343.22	410.96	583.02	571.06	635.56	471.55	435.35	285.11	350.83	555.52	635.96	454.55
	Mil	554.14	1,400.40	519.85	628.65	654.54	817.17	888.72	973.28	1,040.44	785.38	742.02	671.45	740.43	695.92	530.19	934.02
	Riz	464.84	1,011.29	743.45	819.33	759.55	800.16	889.37	1,097.74	1,018.67	728.37	724.51	924.79	845.93	734.96	946.56	[..]
	Sorgho	495.66	1,125.99	496.73	724.61	705.36	793.31	810.07	801.47	872.02	713.36	704.05	628.08	611.18	738.73	423.86	852.46

Sur le plan de l'aménagement on dénombre seulement 5 micro-barrages (Dialado, Toukoroba, Kokoni, Korokodougou et Touba) et une diguette soit environ 60 ha mis en valeur. L'équipement agricole est encore insuffisant et mal entretenu (19 tracteurs, 7263 charrues, 2037 multiculteurs, 6469 charrettes et 15000 bœufs de labour).

Une dynamique organisation appui les producteurs de henné et de sésame dans le cercle et de plus en plus les céréales sèches. (Source service local de l'agriculture)

Elevage

L'élevage est la seconde activité économique après l'agriculture. Le cercle recèle d'énormes potentialités pour l'élevage à savoir le pâturage, le fourrage aérien, les terres salées surtout dans les communes de Sébété et Boron. En 2013, le cercle comptait 115 850 bovins, 196 320 Ovins, 241 880 caprins, 4710 équins, 20 400 asins, 267 650 volailles. Malgré ce fort potentiel le cercle ne dispose que quatre marchés à bétail, huit parc de vaccination, un abattoir, et de deux boucheries modernes, parfois défectueux et pas un seul puits pastoral ne fonctionnel. Il existe deux types d'élevage dans la zone : sédentaire pratiqué par la population résidente et transhumant.

Le tableau ci-dessous présente les effectifs du cheptel selon l'espèce en 2004 dans le cercle de Banamba.

[40] FAO CountryStat : http://countrystat.org/home.aspx?c=MLI&ta=133SEA090&tr=58

Tableau 3 : Répartition des effectifs du cheptel selon l'espèce en 2004 dans le cercle de Banamba[41]

Value		2004
Banamba	Asin	26,128.00
	Bovin	107,625.00
	Camelin	325.00
	Caprin	145,928.00
	Equin	4,083.00
	Ovin	133,684.00
	Porcin	0.00

2) Cercle de Niono

Situation Géographique

Le cercle de Niono est situé dans la zone sahélienne, c'est à dire dans une zone semi-aride dans la quatrième région administrative du Mali (Ségou). Le cercle a deux saisons par an dont une sèche d'octobre à juin et une saison des pluies de Juillet à Septembre. Le maximum des précipitations se situe en Juillet – Août sur 32 jours en moyenne, avec une répartition spatiale aléatoire sur l'ensemble du cercle pour les 427 mm de moyenne annuelle.

Le cercle est situé entre le 13°30' et le 15°45' de Latitude Nord et entre le 50°5' et le 6°35' de longitude Ouest. Il est limité :

- au Nord par la République Islamique de Mauritanie,
- au Sud par les Cercles de Macina et Ségou,
- à l'Est par les Cercles de Téninkou et Niafunké (Région de Mopti et Tombouctou), et à l'Ouest par les Cercles de Banamba et Nara (Région de Koulikoro).

Le cercle compte 11 communes rurales (Siribala, Pogo, Kala-Siguida, Yèrèdon-Saniona, Marico, Sirifila-Boundy, Toridaga-Ko, Diabaly, Sokolo, Dogofry et Nampalari) ,1 commune urbaine (Niono) et 242 villages. Niono est le plus grand cercle de la Région de Ségou avec une superficie de 23 063 km² soit 36 % du territoire régional.

Le cercle de Niono se repartie entre 3 entités géographiques qui sont :

- le Kala qui comprend le Kala supérieur et le Kala inférieur,
- le Kouroumari, et
- le Nampalari.

[41] Fao CountryStat : http://countrystat.org/home.aspx?c=MLI&ta=133MRA126&tr=55

Situation Administrative[42]

Le secteur de l'Agriculture du cercle de Niono à un personnel estimé à 17 agents de catégorie A, B et C. Les problèmes rencontrés en général sont :

– Manque du renforcement des capacités et de la modernisation de l'administration.
– Vieillissement des agents de l'administration
– Manque d'infrastructures et d'équipements
– Insuffisance de formation des organisations des producteurs

Le personnel est de 13 agents au niveau du SLPIA et de 3 agents dans les UAPIA. Les problèmes rencontrés sont les suivants :

- L'insuffisance de personnel
- L'insuffisance de moyens logistiques
- Manque de formation des agents
- Insuffisance de communication entre le service local et ses unités d'appui

Population

Les 242 villages du Cercle de Niono compte en 2010 une population d'environ 383 349 habitants suivant projection de la DRPSIAP/ RGPH2009. Cette population dont 51% sont des femmes, est essentiellement jeune et rurale est fortement concentrée dans les communes de Niono, Siribala, Sirifila-Boundy, Diabaly et Dogofry. Sa répartition par groupe d'âges montre que plus de 48% de la population ont moins de 16 ans et que 75% vivent en milieu rural. La population active, quant à elle représente 80% environ de la population totale. En fait, toute cette population active intervient dans l'agriculture du riz et dans l'élevage. Zone rizicole par excellence, Niono constitue un réceptacle des habitants de tous venants. Le cercle étant une zone d'accueil par excellence en raison des aménagements hydro-agricoles de l'Office du Niger, des usines Sukala et également pour ses pâturages septentrionaux. Par conséquent, la composition ethnique du cercle est très variée : Bambara, Peulh, Minianka, Mossi, Maure, Bella, Bwa, Samogho sont les ethnies dominantes. L'islam, le Christianisme et l'Animisme sont les religions les plus pratiquées.

Agriculture

L'agriculture est la principale activité économique du cercle de Niono, elle occupe 90% de la population et constitue également la première source de revenu de la population. Elle est pratiquée dans deux zones agricoles distinctes à savoir :

- La zone exondée, elle a deux systèmes de production: pastorale et agropastorale à dominante agricole avec des cultures pluviales basées sur le mil/sorgho et le maïs.
- La zone irriguée a un système de production agricole basée sur le riz avec l'encadrement de cinq Zones de l'Office du Niger (Niono, Molodo, N'Débougou, Kouroumari et M'Béwani).

Le tableau ci-dessous présente la production vivrière du cercle de Niono.

[42] Tiré du rapport sectoriel sur la composante 1 de Mr Bakary Kante ; rapport réalisé lors de la PPG

Tableau 4 : production vivrière du cercle (campagne 2009/2010)[43]

Spéculations	Superficie en hectare	Rendement Hectare (kg)	Production annuelle (t)	%superficie	%product°
Riz	58 616	5 000	293 080	55	88
Mil	34 402	850	29 242	32	9
Sorgho	1 429	900	1 286	1	0
Maïs	481	2 100	1 010	0	0
Fonio	130	500	65	0	0
Arachide	590	850	501	0	0
Niébé	10 458	409	4 277	9	1
Wouandzou	284	800	227	0	0
Sésame	100	400	40	0	0
Pastèque	79	50 000	3 950	0	1
Dah rouge	68	400	27	0	0
TOTAL	106 637		333 705	100	100

Source: Rapport 2009/2010. DRA Ségou

Elevage

L'élevage transhumant est une pratique ancienne et un mode de vie des peulhs et des maures venants de plusieurs horizons de l'intérieur du mali comme de l'extérieur du pays (la Mauritanie). Le cercle de Niono est une zone tampon où il y a des potentialités énormes en ressources eaux et pâturage et les animaux passent obligatoirement à l'Office du Niger. Il existe deux types de transhumances:

- La petite transhumance : Les animaux quittent les champs de riz pour aller vers des zones exondées qui sont des zones de replis.
- La grande transhumance : Les animaux quittent la région de Mopti, traverse le cercle pour aller en Mauritanie.

Aujourd'hui, le constat est que nous assistons de plus en plus à la fermeture des passages d'animaux, les paysans installent les terres de culture de façon anarchique et occupent toutes les espaces sans laisser de zones de passage des animaux. De plus en plus avec le nombre croissant des animaux, il se pose le problème d'occupation des terres entre les agriculteurs et les éleveurs.

Le tableau ci-dessous présente les effectifs de cheptel par espèces au 31 décembre 2009 dans le cercle de Niono.

Tableau 5 : Répartition des effectifs du cheptel selon l'espèce au 31 décembre 2009 dans le cercle de Niono[44]

Secteur	Bovin	Ovin	Caprin	Equin	Asins	Camelin	Porcin	Volailles
Niono	145 842	13 023	30 552	18	9 101	10	159	125 097
Sokolo	42 000	14 713	34 593	76	4 618	55	151	43 679
Pogo	12 000	69 000	26 000	55	200	1	0	17 040
Nampala	15 000	11 650	12 000	190	196	1375	0	3 400
Totaux	**214 842**	**108 386**	**103 145**	**339**	**15 115**	**1 447**	**310**	**189 216**

Source: SLPIA Niono

[43] Extrait de Rép. Du Mali. 2013. *PDESC du Cercle de Niono 2011-2015*.
[44] Extrait de Rép. Du Mali. 2013. *PDESC du Cercle de Niono 2011-2015.*

Le cercle de Niono dispose de plusieurs marchés à bétail qui sont présentés dans le tableau ci-dessous.

Tableau 6 : Marché à bétail dans la commune de Niono[45]

Secteur élevage	Nbre de marché	Localisation	Commune
Nampala	1	Nampala	Nampalari
Sokolo	1	Dogofry	Dogofry
	1	Sokolo	Sokolo
	1	Kourouma	Diabali
Niono	1	B6	Toridagakô
	1	Niono	Niono
	1	Siengho	Sirifila-Boundy
	1	Siribala	siribala
Total	8		

3) Cercle de Kita

Situation géographique du Cercle

Le Cercle de Kita couvre une superficie globale de 35.250 km2. Il s'étend du Nord au Sud sur 400 km et d'Est en Ouest sur 400 km. Il est situé dans la partie Sud-Ouest de la région de Kayes. Il est compris entre le 14ème et le 18ème degré de l'altitude Nord et le 10ème degré de longitude Ouest. Le Cercle de Kita est limité : au Nord par les cercle de Diéma et Nioro ; au Sud par la République de Guinée ; à l'Est par les Cercles de Kati et de Kolokani (région de Koulikoro) et à l'Ouest par les cercles de Bafoulabé et Kéniéba.

Selon le Service Local de la Planification, de la Statistique, de l'Informatique, de l'Aménagement du Territoire et de la Population (SLPSIAP) (décembre 2009), le cercle de Kita compte 404.158 habitants. Cette population est répartie entre trente-trois (33) communes dont trente une (31) communes rurales et deux (2) communes urbaines.

Le tableau suivant donne la situation de la répartition des habitants entre les communes du Cercle.

Tableau 7 : Répartition de la population par communes du cercle de Kita

N°	Noms des collectivités	Population	Nbre de village /quartiers	Distance CT – chef-lieu cercle
1	Badia	7 846	9	16 km
2	Bendougouba	15 693	16	12 km
3	Benkadi-Founia	8 958	14	18 km
4	Boudofo	3 903	8	6 km
5	Bougaribaya	7 874	7	55 km
6	Kita (C. urbaine)	42 407	13	0 km
7	Dindanko	8 918	7	150 km

[45] Extrait de Rép. Du Mali. 2013. *PDESC du Cercle de Niono 2011-2015*

N°	Noms des collectivités	Population	Nbre de village /quartiers	Distance CT – chef-lieu cercle
8	Djidian	16 518	14	18 km
9	Djougoun	9 207	5	165 km
10	Gadougou I	21 810	17	90 km
11	Gadougou II	6 213	6	55 km
12	Guemoucouraba	8 361	5	200 km
13	Kassaro	15 863	17	75 km
14	Kita Nord	7 945	8	6 km
15	Kita Ouest	15 625	19	12 km
16	Kobiri	16 632	17	72 km
17	Kokofata	19 084	17	60 km
18	Kotouba	3 089	8	130 km
19	Koulou	7 242	9	165 km
20	Kourounikoto (C. urbaine)	4 322	1	105 km
21	Madina	17 898	10	110 km
22	Makono	10 836	15	85 km
23	Namala-Guimbala	11 433	10	46 km
24	Niantanso	5 331	6	110 km
25	Saboula	9 401	8	45 km
26	Sébékoro	24 548	16	60 km
27	Séféto Nord	10 697	7	205 km
28	Séféto Ouest	19 553	9	185 km
29	Senko	10 399	8	33 km
30	Sirakoro	11 778	10	55 km
31	Souransan-Tomoto	6 660	5	45 km
32	Tambaga	9 483	10	45 km
33	Toukoto	8 628	6	75 km
Total :		**404.158**		

Situation administrative du Cercle

Le Cercle de Kita est composé de trente-trois (33) communes qui sont : Badia, Bendougouba, Benkadi-Founia, Boudofo, Bougaribaya, Kita (C-urbaine), Dindanko, Djidian, Djougoun, Gadougou I, Gadougou II, Guemoucouraba, Kassaro, Kita Nord, Kita Ouest, Kobiri, Kokofata, Kotouba, Koulou,

Kourounikoto (C. urbaine), Madina, Makono, Namala-Guimbala, Niantanso, Saboula, Sébékoro, Séféto Nord, Séféto Ouest, Senko, Sirakoro, Souransan-Tomoto, Tambaga, Toukoto.

Le Cercle est doté d'un Conseil de soixante-huit (68) membres (tous Délégués par les conseils communaux) dont le Président et ses deux (2) Vices Présidents.

Quant aux communes, elles sont administrées par les conseils communaux à leur tête le Maire et ses trois (3) adjoints sans oublier les deux (2) Délégués au Conseil de Cercle.

Services déconcentrés[46]

La DNPIA est représentée au niveau du cercle par le Service Local des Productions et Industries Animales (SLPIA), et au niveau de la commune par l'Unité d'Appui aux Productions et Industries Animales (UAPIA). Dans le cercle de Kita, le personnel est estimé à 11 agents au niveau du SLPIA et de 27 agents dans les UAPIA. Les problèmes rencontrés sont entre autres :

- L'insuffisance de personnel
- L'insuffisance de moyens logistiques
- Manque de formation des agents
- Insuffisance de communication entre le service local et ses unités d'appui

Le secteur de l'Agriculture du cercle de Kita à un personnel estimé à 20 agents de catégorie A, B et C. Parmi les problèmes qui entravent le développement du secteur, nous pouvons noter :

- Insuffisance de personnels qualifiés
- Vieillissement des cadres chevronnés
- Insuffisance de logistique

Relief, Pédologie

Le cercle est composé d'un ensemble de plateaux d'une altitude de 200 à 500 m parsemé de reliefs résiduels comme le « Kita Kourou » qui culmine à 500 m à partir de la plaine centrale. Les sols sont riches et favorables à une agriculture intensive.

Faune et Flore

Dans les arbres vivent plusieurs espèces d'animaux sauvages tels les antilopes, les biches, les buffles, surtout plusieurs espèces de singes, de reptiles et de multitudes d'espèces d'oiseaux.

La végétation suit le rythme de la variation pluviométrique. Au Sud, c'est la savane arborée avec çà et là une végétation luxuriante alors qu'au Nord, on rencontre les formations sceptiques. La végétation est composée de grands arbres (le néré, le figuier, le baobab, le karité, le jujubier, etc.), de lianes, de tubercules sauvages, de hautes herbes. On y rencontre également plusieurs essences forestières qui jouent un rôle capital dans l'économie de la zone grâce à leur vertu pharmaceutique.

Climat

Le climat est de type tropical avec deux nuances :

- Une nuance sahélienne au Nord avec une courte saison des pluies allant de 3 à 4 mois suivie d'une sécheresse souvent prolongée. Les précipitations y sont de l'ordre de 500 à 700mm.
- Une nuance soudanaise au Sud avec une longue saison des pluies allant de 5 à 6 mois. Les précipitations sont abondantes et peuvent atteindre de 1000 à 1200mm.

[46] Tiré du rapport sectoriel sur la composante 1 de Mr Bakary Kante ; rapport réalisé lors de la PPG

Les vents dominants sont la mousson, l'alizé et le harmattan. La température moyenne est de 27°C. Les minima se situent en Décembre (23°C) et les maxima en Avril (38°C). Le rayonnement du soleil est fort pendant toute l'année.

Hydrographie

Le Cercle de Kita appartient au bassin versant du fleuve Sénégal. Il est arrosé par ses affluents : le Bafing formant la limite Ouest, le Baoulé et le Bakoye la limite Est. Il existe également dans le Cercle de nombreuses mares et marigots non permanents.

Organisations socioprofessionnelles du Cercle

Elles sont de deux types : les structures locales et celles d'appui au développement (les services déconcentrés de l'Etat et les structures projets).

Les structures locales

Ce sont, en plus du Conseil de cercle, des organisations socioprofessionnelles représentées au niveau local. Parmi ces organisations, on peut noter les Sociétés de Coopératives des Producteurs de Coton (SCPC), les Associations de Jeunes, les Associations de Femmes. Elles composent également la société civile.

La société civile

Composée d'associations, de coopératives et/ou de syndicats, les leaders religieux, elle est en cours d'organisation de façon formelle à l'intérieur du Cercle avec notamment l'appui du Bureau d'Appui aux Collectivités Rurales (BACR) sur le Programme de Prévention et de Gestion des Conflits liés à l'accès et au contrôle des espaces agro-sylvo-pastoraux dans les Cercles de Nioro du sahel, Diéma et de Kita (PREGESCO), financé par Helvetas. En fait chaque organisation a son secteur d'intervention. Toutefois, il faut retenir que l'association des jeunes et celle des femmes contribuent chacune à la défense des intérêts de leur membre mais aussi à la mise en œuvre des activités aux intérêts publics. Les femmes travaillent ensemble, cultivent des champs communs et économisent pour couvrir certains besoins leur concernant.

Alors que le BACR est une ONG locale qui joue un rôle prépondérant dans la mise en œuvre des activités du développement et dans l'organisation des associations socioprofessionnelles du cercle de Kita. Elle a beaucoup travaillé dans le secteur du développement rural surtout en collaboration avec plusieurs structures étatiques, privées et ONGs.

Tableau 8 : Les structures d'appui au développement intervenant dans le cercle[47]

N°	Nom de la structure	Domaines	Activités
1	Services déconcentrés de l'Etat et la tutelle	Développement	- Financement - Appui / Conseil
2	CMDT	Agriculture	Accompagnement
3	Helvetas	GRN – Développement local	- Financement des actions de GRN et de développement - Renforcement de capacités - Accompagnement
4	Bureau d'Appui aux	Gestion des Ressources	Prévention et Gestion les Conflits liés à

[47] Tiré du rapport sectoriel sur la composante 1 de Mr Bakary Kante ; rapport réalisé lors de la PPG.

	Collectivités Rurales (BACR)	Naturelles (GRN)	l'accès et au contrôle des espaces agro-sylvo-pastoraux dans les Cercles de Nioro du sahel, Diéma et de Kita (PREGESCO)
5	Centre de Services et d'Appui conseil en Gouvernance locale et en Etudes pour le développement (CSAGE – SARL)	Développement local	Accompagnement / Appui technique
6	ANICT	Investissements physiques	Financement des investissements
7	PISE II	Eduction	Financement des infrastructures scolaires
8	PADEPA	Elevage	Financement des actions
9	PACT/EA	Eau/Assainissement	Financement et réalisation des actions
10	PDRIK (Programme de Développement Intégré du Cercle de Kita)	Agriculture	Réalisation de micro barrages
11	Plan/Mali Fonds GRANT	Education – Santé – Assainissement/Hygiène – Hydraulique – Sécurité alimentaire	- Financement d'infrastructure - Renforcement de capacités - Accompagnement
12	UNICEF	Education – Santé	Financement
13	Stop Sahel	Education	Financement
14	Mouvement pour la Paix (MPDL)	-	Financement
15	Action Contre la Faim (ACF)	Sécurité alimentaire et nutritionnelle - Eau/Assainissement	Financement
16	Union Européenne (UE)	Adduction d'eau	Financement
17	Fonds Néerlandais	Santé	Financement
18	Autorité routière	Routes	Financement
19	Ile de France	Artisanat	Financement
20	Associations des Ressortissants du Cercle	-	Financement

Impact du changement climatique sur les activités socio-économiques de Kita

Les conséquences des changements climatiques sont évidentes à Kita. Le cercle se trouve entre la zone soudanienne au sud (700-1200mm) et sahélienne au nord (500-700 mm). Avec une pluviosité irrégulière et en baisse constante, les risques de désertification deviennent évidents ; les fondements de la vie et la biodiversité diminuent pendant que l'exploitation des ressources naturelles augmente. On constate la surexploitation des ressources forestières par des marchands de bois pour l'exportation et des producteurs de charbon de bois pour les besoins des villes de Kita, Kati et Bamako.

Elevage

L'élevage transhumant est régi par des textes de lois (charte pastorale). Depuis des décennies, les communautés d'agriculteurs et d'éleveurs ont appris à cohabiter ensemble dans une parfaite entente. Cependant, d'année en année, ces relations sont en train de devenir antagoniques voire même conflictuelles eu égard aux dégâts causés chaque année par les troupeaux transhumants dans les champs et sur les récoltes. La durée des mouvements (descentes et remontées des troupeaux) qui s'inscrivait dans un agenda et des itinéraires précis n'est plus respectée avec des séjours plus prolongé (descentes précoces et remontées très tardives). La présence des transhumants, les actes posés et les conflits engendrés constituent des sources d'enrichissements de certaines catégories d'acteurs (forestiers, juges, etc.). Le phénomène de transhumance exerce une forte pression sur les ressources naturelles du cercle de Kita notamment le sol, les ligneuses, les herbacées et l'eau.

Le tableau ci-dessous présente la répartition du cheptel dans le cercle de Kita en 2004.

Tableau 9 : Répartition des effectifs du cheptel selon l'espèce en 2004 dans le cercle de Kita[48]

Value		2004
Kita	Asin	10,225.00
	Bovin	164,111.00
	Camelin	0.00
	Caprin	107,482.00
	Equin	2,014.00
	Ovin	134,632.00
	Porcin	0.00

En 2013, le cercle de Kita comptait 170 604 bovins, 74 839 ovins, 109 639 caprins, 672 équins, 4503 asins et 399 382 volailles.

La venue des transhumants dans la zone crée le surnombre des animaux sur des espaces souvent réduit. Des milliers d'animaux sont souvent entassés autours des points d'eau, des pâturages pour l'alimentation et l'abreuvement. Ce surnombre des animaux sur des espaces réduits entraine un piétinement constant du sol surtout pour le gros bétail (bovins). Dans ce cas, le sol devient boueux, fragile et moins résistant aux phénomènes de l'érosion hydrique et éolienne. Ce qui le rend vulnérable aux aléas climatiques (vent et eaux de ruissellement) et entraine des dégradations constantes. Ce piétinement constant du sol de façon prolongée entraine aussi la dégradation du couvert végétal surtout la strate herbacée. Ce qui diminue progressivement le fourrage.

Agriculture

[48] FAO CountryStat : http://countrystat.org/home.aspx?c=MLI&ta=133MRA126&tr=55

L'agriculture est l'activité prédominante du cercle de Kita. Le tableau ci-dessous présente le rendement des différentes cultures du cercle de Kita entre 1990 et 2005.

Tableau 10 : Rendement des cultures du cercle de Kita par année[49]

Value		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kita	Blé/Orge	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]	[..]
	Fonio	3.33	319.78	726.75	506.39	243.84	280.42	431.20	266.49	457.33	479.32	811.87	340.54	371.45	417.58	1,500.00	382.72
	Maïs	595.54	1,018.91	863.00	936.31	869.72	1,034.70	1,179.44	1,100.78	1,250.11	1,133.53	1,002.64	1,028.25	752.41	978.30	839.50	1,312.97
	Mil	440.59	788.16	1,339.75	792.76	642.51	1,008.99	1,152.88	1,060.91	1,050.30	1,199.79	979.99	593.99	891.40	934.54	744.78	984.69
	Riz	96.14	814.41	677.06	696.61	271.59	368.30	976.95	667.86	528.54	401.39	243.96	788.44	421.57	687.58	0.00	674.12
	Sorgho	289.11	1,098.15	883.43	899.64	830.72	897.60	1,003.28	1,007.81	971.05	1,063.50	913.25	749.96	710.82	1,150.39	893.50	941.88

[49] FAO CountryStat : http://countrystat.org/home.aspx?c=MLI&ta=133SEA090&tr=58

APPENDIX 9: CO-FINANCING LETTERS

See separate pdf file