



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

September 16, 2014

Dear LDCF/SCCF Council Member,

UNDP as the Implementing Agency for the project entitled: *Mali: Strengthening the Resilience of Women Producer Group's and Vulnerable Communities in Mali*, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by the LDCF/SCCF Council in February 2013 and the proposed project remains consistent with the Instrument and LDCF/GEF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments have been addressed.

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

Sincerely,



for Naoko Ishii

Chief Executive Officer and Chairperson

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



REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: FULL-SIZED PROJECT

TYPE OF TRUST FUND: LDCF

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Strengthening the Resilience of Women’s Producer Groups and Vulnerable Communities to Climate Change in Mali.			
Country:	Mali	GEF Project ID: ¹	5192
GEF Agency:	UNDP	GEF Agency Project ID:	4919
Other Executing Partner(s):	AEDD	Submission Date:	July 2014
GEF Focal Area (s):	Climate change	Project Duration (Months)	60
Name of Parent Program (if applicable):	n/a	Agency Fee (\$):	546,000

A. FOCAL AREA STRATEGY FRAMEWORK²

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$)	Co-financing (\$)
CCA-1	Outcome 1.3: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Output 1.3.1 Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	LDCF	3,200,000	10,000,000
CCA-3	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	LDCF	2,000,000	5,500,000
Subtotal				5,200,000	15,500,000
Project Management cost			LDCF	260,000	1,000,000
Total project costs				5,460,000	16,500,000

¹ Project ID number will be assigned by GEFSEC.

² Refer to the [Focal Area/LDCF/SCCF Results Framework](#) when completing Table A.

B. PROJECT FRAMEWORK

Project Objective: Enhance women producer group's adaptive capacities to secure livelihoods production from climate impacts and increase socio-economic resilience in Malian vulnerable communes (Kayes, Koulikoro and Sikasso).						
Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Co-financing (\$)
1. Ensuring access to water for the development of subsistence activities	INV	Sustainable climate resilient water management systems provided to vulnerable communities, including women farmers, which in turn ought to support the development of subsistence activities in the Kayes, Koulikoro, and Sikasso regions.	1.1. Impounding surface water to increase water storage during dry periods and restore fish habitats threatened by the climate changes 1.2. Development of small-scale irrigation system in areas with high climate risk	LDCF	2,527,500	7,500,000
2. Investments on climate resilient farming practices and income diversification for household production, crop diversity and nutrition	INV	Innovative approach and sustainable climate resilient technologies, provided to women farmers and producers to enhance and secure the production of local livelihood systems from climate impacts in Kayes, Koulikoro, and Sikasso regions.	2.1. Integrated farming systems that are resilient to climate change promoted 2.2. Semi-intensive livestock rearing system promoted to women's groups, herders, and farmers with livestock 2.3. At least 10 women groups increased their income & entrepreneurship capacity through the development of vegetable garden & cash crops activities	LDCF	2,672,500	8,000,000
	TA		2.4. Lessons learned from the project are shared			
Subtotal					5,200,000	15,500,000
Project management Cost (PMC) ³					260,000	1,000,000
Total project costs				LDCF	5,460,000	16,500,000

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

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

Please include letters confirming co-financing for the project with this form

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Co-financing Amount (\$)
National Government	AEDD	Grant	500,000
USAID	Ministry of Agriculture	In-kind	5,000,000
GEF Agency	UNDP	Grant	11,000,000
Total Co-financing			16,500,000

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

GEF Agency	Type of Trust Fund	Focal Area	Country Name	(In \$)		
				Grant Amount (a)	Agency Fee (b) ²	Total c=a+b
UNDP	LDCF	Climate change	Mali	5,460,000	546,000	6,006,000
Total Grant Resources						

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

² Indicate fees related to this project.

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Co-financing (\$)	Project Total (\$)
International Consultants	32,500	97,500	130,000
National	127,500	400,000	527,500

F. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION**A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF⁴**

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

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

A.3 The GEF Agency’s comparative advantage: N/A

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

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

1.1. Introduction to the Project Regions

Mali is a vast country (1, 241,248 km²) located in the heart of West Africa, specifically in the Sahel and Sahara regions. The country includes eight regions, one district, 49 circles, and 703 communes (of which 666 are rural), and each subdivision is named according to its largest city. The north of the country includes the regions of Gao, Kidal, and Timbuktu, and the south of the country is divided amongst the regions of Kayes, Koulikoro, Mopti, Ségou, Sikasso, and the district of Bamako.

The project “Strengthening the Resilience of Women’s Producer Groups and Vulnerable Communities to Climate Change in Mali” will take place in the Kayes, Koulikoro, and Sikasso Regions. The following sections describe the geographic, environmental, demographic, and economic conditions of each of these three regions.

FIG 1: Map of the three project regions.



Kayes Region

Koulikoro Region

Sikasso Region

Source: IGN 2013

Kayes Region

The Kayes Region is located in the western part of Mali and covers a surface area of approximately 120,760 km², which is 9.7 percent of the national territory. Administratively, Kayes is subdivided into seven circles (Bafoulabé, Diéma, Kayes, Kénièba, Kita, Nioro Sahel, and Yélimané), including 129 communes of whom 12 are urban communes. The project will intervene in: (i) **Sero Diamanou Commune**, located in the Kayes Circle, (ii) **Béma Commune**, located in the Diéma Circle, and (iii) **Yerere Commune**, located in the Nioro Sahel Circle.

The Kayes Region is one of the least densely populated regions in the country with an average of 16.54 habitants per km², according to the 2009 General Census.⁵ With an estimated population of 1,966,812 persons, which is 14 percent of the national demographic, the region saw a 3.5 percent average yearly rate of population growth from 1998 to 2009.

Kayes covers three climate zones. The climate is humid near the Guinean border, and it becomes more Sudanese as one moves towards the north, where ultimately it becomes Sahel-like. Kayes sees very high temperatures that go above 45° C from March to May, making Kayes City the hottest city of Africa.

⁵ GoM INSTAT (2011) RGPH.

The Kayes Region brims with economic potential including:

- **Surface Water Resources:** The region holds several river systems that include the Bafing, Bakoye, and Baoule Rivers which join at Bafoulabé to form the Senegal River, as well as the Falémé River, which runs along the Mali-Senegal border creating a natural boundary. Together, the rivers provide the region with strong agro- and sylvo-pastoral potential.
- **Mineral Resources:** Resources include: i) iron deposits near the localities of Djidian, Diamou and Balé; ii) calcium near Gangotery, Atro, and Dinguira; iii) marble in the Silenkegny and Madibaya localities, and; iv) gold in the Sadiola, Yatela, Loulo Tabacoto, Dioulafoundou, Farabantourou, and Médinandi localities. Mineral exploitation creates employment opportunities for local people in these places.
- **Migrant Remittances:** According to the National Mali Migration Profile of 2009, approximately 56.7 percent of the households in the region receive money transfers from migrants, constituting the highest rate in Mali. The monthly average amount of remittances received is estimated at about 337.512 CFA Francs and is by far the highest in Mali.

Koulikoro Region

The Koulikoro Region covers a surface area of 90,210 km², or 7.2 percent of the national territory. It consists of 108 communes, of which 3 are urban (Koulikoro, Kati, and Karan) as well as 105 rural communes, which are all grouped into 7 circles (Banamba, Dioila, Kati, Kangaba, Koulikoro, Kolokani, and Nara). The project will intervene in the **communes of Boron and Kiban**, located in the Banamba Circle and the **Sagabala Commune** in the Kolokani Circle.

According to the General Census,⁶ Koulikoro is home to 2,422,108 inhabitants, or 16.7 percent of the population of Mali. The region has one of the highest population densities in Mali, with 24.7 inhabitants per km². Only three other regions have higher population density: Sikasso Region with 37.1, Ségou with 36.3, and Mopti with 26.2 inhabitants per km². The national average is considerably lower, at 11.7 inhabitants per km². The demographic weight of the region is partially explained by high population growth, but mostly by the region's proximity to Bamako, which also influences the urban structure of Koulikoro.

The topography of the Koulikoro region contains a large, hilly plateau, of which Mount Minding is the largest. It covers 150 kilometers sweeping across the region from east to the west. The Koulikoro Region is part of the tropical zone which experiences marked alternation between the rainy season, from May to October, and the dry season, from November to April. The highest temperatures, which reach 40°C, are seen between March and June, with the lowest temperatures between December and February. Within the region, there are by three sub groups of climates moving from the north towards the south. The Sahel Zone lies in the north and is characterized by rainfall between 150 and 550 mm per year. The Sudanese Zone lies farther towards the south and sees rainfall between 550 and 1,150 mm per year. Finally, the Guinean Zone in the extreme south sees rainfall above 1,150 mm per year.

The economy in Koulikoro rests essentially on the primary sector, which includes agriculture, livestock, fishing, and forestry.

- **The agriculture sub-sector** employs nearly 90 percent of the active population and is the economic backbone of the region. According to the Regional Directorate for Agriculture,⁷ the sector includes export crops (cotton and peanuts), food crops (rice, millet, maize, sorghum, cowpeas, cassava, ground nuts, yams, and sweet potatoes), market vegetables (eggplant, peppers, onions, cucumber, garlic, carrots, potatoes, and tomatoes), new commercial crops (sesame, Guinea sorrel, physic nuts, henna, and soy), and arboriculture.

⁶ GoM INSTAT (2011) RGPH.

⁷ la Direction Régionale de l'Agriculture

- The livestock sub-sector has been progressively increasing. It is practiced by more than 80 percent of the population either through transhumance, in Nara, Lokokani, and Banamaba, or on farms, such as in Kioila, Koulikoro, and Kangaba. Livestock in the region includes, in order of importance, goats, cattle, sheep, mules, horses, swine, and camels.
- The fishing sub-sector is also an important economic activity in the region. In 2007, the sector involved 216 villages and 9,950 fishermen.⁸ Products made include fresh fish, smoked fish, and dried fish. Production of fresh fish increased from 27.8 tons in 2006 to 91.57 tons in 2009. Production of smoked and dried fish is also significant. Techniques follow artisan practices and are done by women, who are generally grouped in associations or in Economic Interest Associations. According to the General-Directorate of Fishing, production in 2010 consisted of 466,901 kg of smoked fish and 90,410 kg of dried fish.
- Forestry activities are possible due to the presence of eleven forests classified by the Regional Directorate of Water and Forests in Koulikoro. Three of the largest are also classified at the national level and include Faya (79,822 hectares), Sounsou (37,000 hectares), and Mount Minding (14,579 hectares). The different forested areas lend themselves to forestry and use of wild animal products. Forestry includes wood for timber, general-purpose wood, making carbon, essential leaves, land clearing, harvesting, as well as hunting wildlife. These important resources enable the development of forestry supply chains. The region has become one of the primary areas in the country producing Arabic gum. It is also, behind Sikasso, the second largest producer of Shea nuts. Shea nuts are mostly produced in the circles of Dioila, Koulikoro, Kolokani, and Kangaba.

Sikasso Region

The Sikasso Region is located in the southern part of Mali covering an area of 71,790 km². It includes seven circles (Sikasso, Bougouni, Koutiala, Kadiolo, Kolondiéba, Yanfolila, and Yorosso), 3 urban communes, and 144 rural communes. The project will carry out activities in (i) **Sikasso and Tella Communes** in Sikasso Circle, (ii) **Sincina Commune** in the Koutiala Circle, and (iii) **Yorosso Commune** in the Yorosso Circle.

The population is estimated to 1,782,157 inhabitants in 1998, a number that rose to above 2,643,179 inhabitants in 2009, representing an annual average growth rate of 3.6 percent.⁹ Sikasso is the most populated region in Mali containing 18.2 percent of the national population. It is also the highest population density in the country, with 37.1 inhabitants per km². Already high immigration has increased in recent years with migrants from the Ivory Coast – both Ivoirians as well as native Malians – immigrating to Mali following the Ivorian crisis. In addition, seasonal migrants from livestock regions in the north are arriving in search of pastureland and market outlets, also contributing to immigration. Overall, population in Sikasso increased by one-and-a-half fold between 1990 and 2009. The largest increases were in the circles of Kadiolo (increase of 83%), Koutiala and Yorosso (increase of 50 percent), and Bougouni (increase of 49 percent).

Topography in the region is hilly in the south and less so in the north. The highest point is Mount Kokoum, which is located in the Dogo Commune (Bougouni Circle) and has an altitude of 800 meters. Vegetation is abundant and diverse favouring, in turn, rich and varied wildlife. Wildlife is located primarily in wildlife reserves and game sanctuaries. The Sikasso Region includes four significant rivers: the Sankarani, which feeds Uanfolila Circle before meeting the Wassoulou Ballé and joining the Niger River, the Bagoé, which feeds the Sikasso, Kadiolo, and Kolondiéba Circles through its several tributaries, the Baoule, which feeds the Bougouni Circle and receives water from the tributaries of Bafing and Dégtou, and the Bafing, which feeds Sikasso Circle and receives water from the Lotio.

The Sikasso Region has a tropical, Sudanese climate, and it is subdivided into two areas: the humid Sudanese Zone and the Guinean Zone. It is the most humid region in Mali and receives rainfall between 700 and 1,500

⁸ Direction Régionale de la Pêche of Koulikoro (2008).

⁹ CoM INST.AT (2011) RGPH.

mm per year. The average annual temperature is 27° C, and the dry season extends from November to May, with the wet season occurring from May/June to October/November.

Economically, Sikasso is an agro- and sylvo-pastoral zone that contains important potential for fruit orchards such as mangos and bananas. Cotton is one of the main cash crops in the region. Gold mining is also developing in the area with the opening of gold mines in Koumantou, Loulou, Yanfolila, and recently Sélingué, where the population practices artisanal gold mining.

- Agriculture is possible due to the vast flood plains that extend from the north to the northwest of the region. The main activities include growing cereals (millet, sorghum, maize, rice, and *fonio*, arboriculture (mango, cashew, oranges, bananas, papaya), market vegetables (zucchini, peppers, tomatoes, okra, melons, egg plants, green beans, water melon, shallots, onions, garlic, lettuce, tobacco, sweet potato, potato, cassava, and ginger), and market crops (cotton, peanut, groundnuts, soy, cow peas, sesame, and sunflowers).
- Husbandry is well developed in Sikasso, which is the second largest livestock region in Mali following Mopti, and contains 16 percent of national livestock.
- Fishing is mostly practiced in the waters behind the dam at Sélingué, in the Bagoé, Baoule, and Bafing Rivers, and in permanent and temporary wetlands.

1.2. Climate change - induced problem

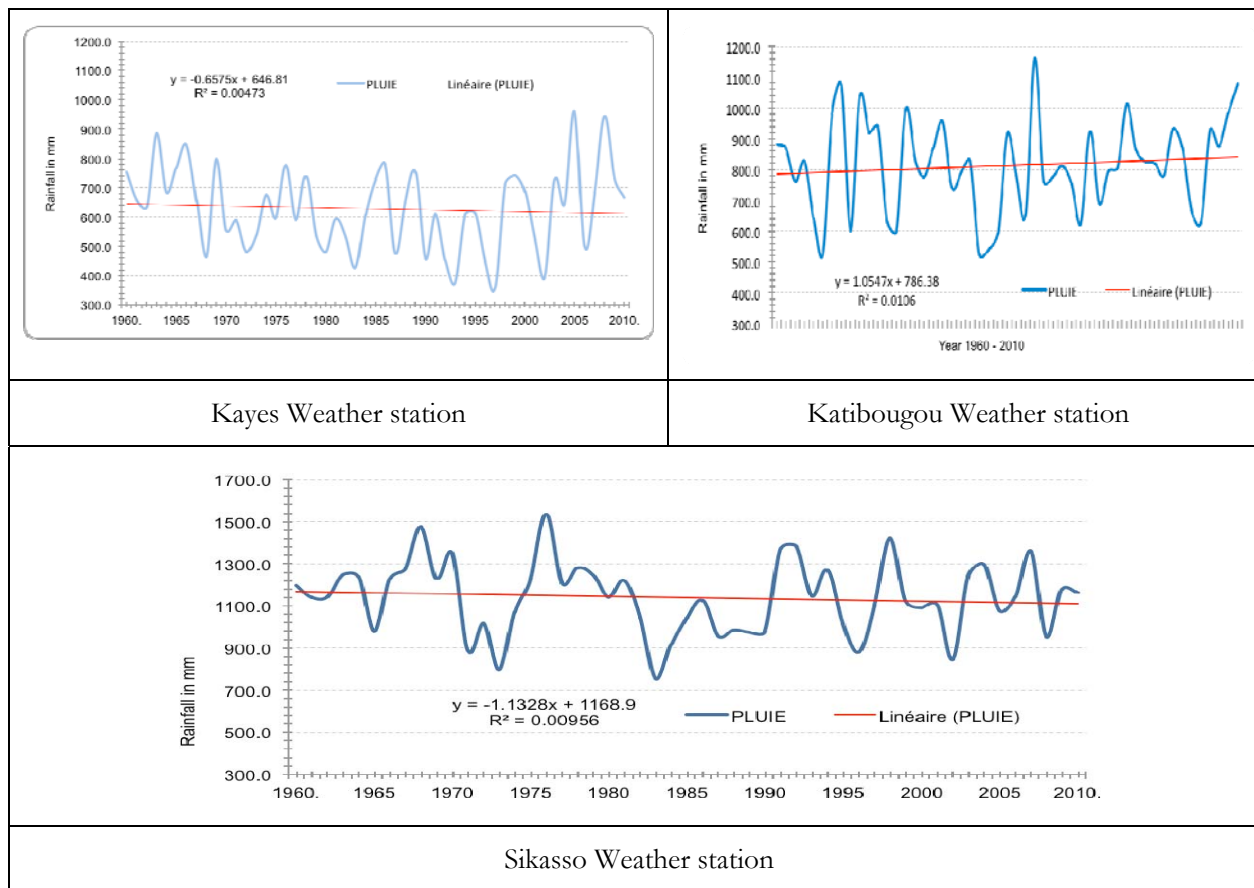
Observed Climate Change

A detail report on Climate changes in Mali presented under the PPG Report 3.

Over the last 70 years overall rainfall has decreased across the country compared to the baseline period from 1941 to 1970. Even if in certain places, such as Bamako, Bougouni, Kayes, Mopti, Nioro, and Ségou, rainfall has slightly increased over the last 30 years (1981-2010 compared to 1971-2000) rainfall remains lower since 1970. The overall deficit varies between 10 and 28 percent with the exception of Tessalite that saw recent floods in 2012 and 2013. In addition, isohyets from the north to the south of the region have been descending between the reference period of 1951-1970 and the period from 1971-2000, as illustrated in the map image below. Of note is that the 1,200 mm isohyet no longer exists in Mali.

The study of climate risks carried out during research for the present project analysed rainfall and temperature data available since 1951 at weather stations in the country. Results showed an inter-annual variability between the periods 1951 – 1970 and 1971 – 2000 that clearly shows: (i) a reduction in average annual rainfall across this period and persistent alternation between dry years and wet years at all of the stations making it difficult to manage climate risks; and (ii) an increase in average temperatures during this period. Nonetheless, for the three project regions across the last ten years there is a tendency of increased rainfall in Kayes and Koulikoro to the north and a tendency of decrease in Sikasso to the south (Figure 2).

FIG 2: Change in Rainfall in the Project Regions (rainfall in blue, trend line in red).



Source: Mali Meteo

Future climate trends

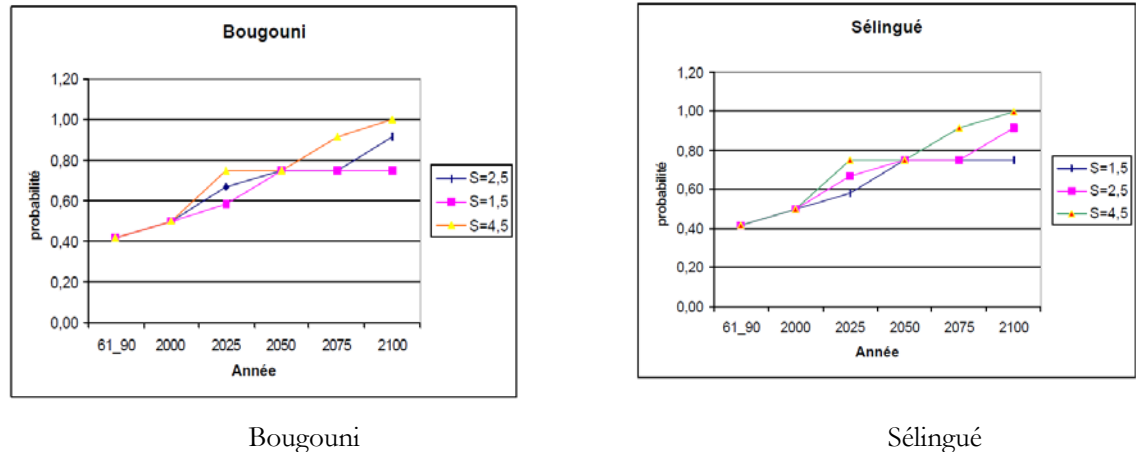
The most recent climate scenarios for Mali were conducted in 2003 as part of the Dutch Assistance Programme to Study Climate Change¹⁰ using the models of MAGGICC (Model for Assessment of Greenhouse-gas Induced Climate Change) and SCHENGEN (scenario generator). These studies produced the following findings:

- Average temperature will increase from 30.5°C during the 1961 – 1990 period, to 32.5 °C in 2050, and 34.5°C in 2100;
- A 10 to 15 percent decrease in precipitation including shifting of current isohyets towards the south;
- A 35 percent decrease in water resources by 2025 for surface water and by 13 percent for renewable aquifers, compared to the 1961 – 1990 average;
- An increase in the frequency of floods and extreme meteorological events with real impacts on living conditions of populations, particularly in terms of access to safe drinking water, health, and food security needs;
- Droughts that take place in the first half of winter, from May to July, beginning in 2025 or even as early as 2020.

¹⁰ Programme Néerlandais d'Assistance aux études sur les changements climatiques

In project sites, studies from the National Center for Science and Technology Research showed an increase in the probability of maximum temperatures in Bougouni and Sélingué based on the average from 1961 – 1990, with maximum temperatures reaching a plateau at some time between 2050 and 2100 if a sensitivity of 1.5 is used and between 2050 and 2075 if a sensitivity of 2.5 is used. Importantly, at both of the two locations, the three climate scenarios give the same probability by the 2050 horizon (see Figure 3).

FIG 3: Probability of extreme temperatures linked to climate variability



Source: CNRST 2003

In terms of rainfall, climate scenarios conducted in 2003 show potential changes in precipitation in Mali by 2050. For all regions, scenarios show a decrease in rainfall between 5 and 10 percent in 2050 compared to the 190 – 1990 average. Drought will take place in the first half of winter (May, June, and July) beginning in 2025 at all locations if one uses moderate climate sensitivity. According to these scenarios, by 2025 there will be a progressive decrease in rainfall from the east to the west with curves oriented from the northeast and southeast up to the 20°N Latitude. The decrease may also vary significantly within a climate zone.

Climate Change Impacts on communities' livelihoods

The effects of climate variability and change, such as erratic rainfall, increased temperature, long periods of drought, and flooding following droughts, have made farming more and more difficult. The socioeconomic consequences of climate change impacts on the livestock sector are the following: 1) high increase in prices of livestock and meat following the reduction in supply due to increased animal mortality caused by drought; 2) shifts in subsistence activities for a large number of nomads towards sedentary activities; 3) reduced revenues from pasturing animals; and 4) changes in herd composition with progressive replacement of cattle with small ruminants and camels.

Climate change will be a limiting factor for the development of target regions (Kayes, Koulikoro and Sikasso) that are highly sensitive to changes in rainfall, where most households in these regions derive over 70 percent of their income from agriculture, livestock and forestry sectors, and are therefore the most vulnerable to climate change. The trends in rainfall decrease and variability, and the increase in temperature will lead to a high evaporation-transpiration, which could worsen water shortages in the region and their use in production systems. Diminishing access to water would likely result in increasing competition for water with risks of conflicts. Most lakes that were previously perennial in wet periods have become intermittent or temporary due to drought. This shift is a substantial disruption for rural people. For example, in Gourma during the 1980s only the Benzena swamp was perennial; all other bodies dried up for only two months after winter. A significant reduction in average water flow in rivers is also observed specifically the Niger River in Koulikoro.

The socio-economic effects arising from the loss of these ponds are disastrous and their reduction has resulted in a vastly reduced quality of life for many people. Woman and children, for example, frequently have to walk for

an entire day to collect water. The distances to be walked to collect water in the future are likely to increase as climate change effects continue to manifest. The time required to collect water by these vulnerable groups, also has a negative economic effect in that these water bearers are unable to contribute to agricultural productivity.

The evaluation report of agricultural campaign (2011-2012) showed that the agro-sylvo-pastoral campaign was characterized by climate disturbances more or less pronounced according to the agricultural areas. The late and early rains did not allow a good evolution of cultures including those suitable for rainfed agriculture. The recent rains expected to allow crops to complete their cycle properly in few areas in the Sikasso region. In the region of Kayes, the prospects for flood recession crops of short-cycle maize and sorghum are poor due to the limited extension of flood areas. The possibility of crop season is compromised this year and might not be possible for 75% of the villages surveyed in Kayes.

According to the NAPA, climate change caused significant losses in crop production with an estimated reduction in cotton yields by 150 tons in 2005 and probably up to 3.500 tons by 2025. Similarly, production of millet and sorghum decreased by 150 tons in 2005 and is likely to further diminish by 2.524 tons in 2025. According to the outcomes of various climate models, the climate trends for future scenarios – without improved planning and management, particularly improved water and natural resource management plans – will negatively impact communities' livelihoods systems, namely agriculture, fisheries, livestock and forestry which directly impact households food security and poverty. This would reduce the availability of food usually from the campaign and make more precarious food situation of the poorest households, which use crops season to supplement their income. Yet, the nutrition situation of household is alarming in project target regions. The highest percentage of undernourished mothers is also found in the region of Sikasso (16%) and is additionally a contributing factor to the high rates of child malnutrition. The highest prevalence of wasting (16%) is found in the agriculture-migration zone of northern Kayes and Koulikoro¹¹. The improvement of storage facilities as well as training for family heads on financial planning and postharvest management could contribute to the increase of the months of adequate household food provision and therefore reduces rates of under nutrition.

Baseline Projects/initiatives

Baseline for Component 1

Co-financing projects

The land areas in target communes involves a number of lakes and canals converging and draining low-lying fertile plain fed by annual flooding of the Niger River. For Example:

- In Sero Diamanou Commune, there are several rivers, large ponds, such as Lake Magui, and Lake Kolimbine. The presence of Lake Magui and other water bodies offers possibilities to install hydro-agricultural works to develop agriculture, fishing, fish farming, livestock, and gardening.
- In Yerere Commune, there are a large number of lowlands and ponds. The principle lowlands are Yerere, Nomo, and Djinthié, and the major pond is the Korokodjo, which is 27 km long and 1 km wide.
- In Bema Commune, there are also has a large number of small backwaters and a large pond at Kounga.
- In Tella Commune, more than 5,000 flat lands have been identified that could be converted near the Mani backwater.
- In Sagabala Commune has the best access to water in the Kolokani Circle. A river flowing to Baoule crosses it, where a small dam to benefit ten villages could be built.
- In Kiban Commune is crossed by four rivers, the Déhala, Lambakoré, Lambaguilé and Souralambiné.

¹¹ USAID MALI (2010): Global Hunger and food security initiative. Feed the Future

Improvement of access to water resources is a major priority identified in the Initiative 166 communes and the various environmental and agriculture policies, such as the Strategy for Rural Development,¹² the Agricultural Orientation Law, the Action Program for Integrated Water and Resource Management,¹³ and the Program for Sustainable Land and Water Management.¹⁴ The development baseline will take opportunities on existing investment on the water sector in target regions.

- In **Sikasso**, one of the obstacles to agricultural productivity is water runoff and a resulting loss of soil nutrients that are vital for crop growth. A well-documented technological solution to this problem is ridge tillage, or the practice of creating earthen ridges along the contour lines of a sloping field to prevent water runoff. The Ministry of Agriculture “Feed the Future” initiative (funded by USAID) is significantly expanding the farmland currently under ridge tillage in Mali from approximately 17,000 hectares to about 100,000 hectares in the Sikasso and Mopti regions. **The expected co-financing associated with Feed the Future activities is USD 3,000,000** (see attached co-financing letter from the Minister of Agriculture). It is expected that this operation will help to diversify and raise the incomes of about 10,000 farmers by 20 per cent.
- In **Kayes and Koulikoro**, the new UNCDF Programme “Food and Nutritional Security” will support vulnerable producers in Nara and Nioro to improve their agricultural capacity through the development of lowlands irrigation schemes (300 ha), rehabilitation of 16 ha and construction of a storage dam. The investments considered as co-financing to this LDCF financed project (**estimated to be \$4,5 millions**) will significantly improve water access and develop a participatory management of water resources to reduce environmental risks and social conflicts in the intervention communities. The present project will make use of experience and available information in the communes concerned by water management, sanitation, etc.

Despite all of these possibilities, the communes are facing early drying up of ponds and existing water bodies a few months after winter due to high evapo-transpiration linked to increased temperatures. The trends in rainfall decrease and variability, and the increase in temperature will lead to a high evaporation-transpiration, which could worsen water shortages in the selected region and their use in production systems. The decrease in water flow in combination with erosion and siltation are blocking the channelling of water, thus jeopardizing fishing, agricultural and pastoral activities. This makes exploitation of water resources difficult. Most of small producers, particularly women farmers, still have limited access to irrigation systems that require high investment cost for purchasing the equipment, and high technological expertise for installation, operation and maintenance. While the UNCDF programme is supporting irrigation scheme, the scope of intervention is limited to two cercles out of 15. Furthermore, without the protection and rehabilitation of water sources irrigation cannot be sustained in long run, especially in the face of climate change. LDCF funding will therefore be invested to rehabilitate and sustainably manage water systems.

Baseline for component 2

Co-financing projects

According to the outcomes of various climate models, the climate trends of future scenarios will negatively impact the major sectors in target regions, namely agriculture, fisheries, livestock and forestry that directly impact food security and poverty. The consequences will be severe for the poor and vulnerable majority of populations, mainly because of their strong dependence on natural resources and their limited capacity to address climate change especially extreme climate events such as droughts.

The Government of Mali is currently tackling development constraints through the implementation of baseline activities which include various agricultural and rural development initiatives focusing primarily on stimulating rural economies, improving agricultural productivity and promoting sustainable land management. The proposed project builds on a number of baseline projects implemented by the Government in response to increasing

¹² *Stratégie de Développement Rural (SDR)*

¹³ *le Programme d'action pour l'eau intégré gestion des ressources (PAGIRE)*

¹⁴ *Programme pour la terre et la gestion durable de l'eau (GDTE)*

concerns vis-à-vis food security in vulnerable communes and to integrate climate variability into development strategies.

- In Sikasso, the “Feed the Future Initiative”, is improving the development of key agriculture sectors. The baseline project is relevant for the GEF funded project since it adapting agricultural technologies to local conditions. Thus, the University of Bamako’s Rural Polytechnic Institute,¹⁵ and technical schools specializing in agriculture are improving their knowledge base on use of improved seed varieties. Partnership is developed with the Agriculture Market Observatory¹⁶ to improve information systems on the market for cereals and livestock, including an expansion of text messaging services updated by cell phones. The [Feed the Future Innovation Lab for Collaborative Research on Assets and Market Access](#) (AMA), based at the University of California, is developing insurance products that mitigate risk for smallholder farmers. Working with PlaNet Guarantee, Allianz Insurance Company and CMDT (the national Malian cotton company), researchers developed an insurance product for cotton farmers and then used a randomized control trial to measure the impacts of cotton insurance on farmer production decisions. Farmers with access to the insurance expanded the area planted with cotton by just under 20 percent and increased use of more yield enhancing inputs by just over 20 percent. To combat inequality and increase yields for women from farming and transforming millet and sorghum, “Feed the Future” promoted measures such as food processing technologies to reduce the time intensity for farming and other activities that occupy women. ***The investments, considered as co-financing to this LDCF financed project, is estimated to be 2 millions.***
- Another relevant project baseline is the new UNCDF initiative to be implemented in Kayes and Koulikoro. This investment will provide relevant capacities to farmer organizations, including literacy, and promote access to income-generating activities, developing commercial strategies and operations in tandem with cereal banks. In the livestock sector, investment will facilitate the implementation of appropriate credit mechanisms and transformation groups (milk), and facilitates access to markets. ***The investments, considered as co-financing to this LDCF financed project, is estimated to be \$4 millions.***
- Under the UNDP “Support Programme on Management of Environment and Sustainable Development (PAGEDD)” is improving national communication/advocacy on climate changes and mainstreaming gender issues. The UNDP baseline is relevant to the project funded by the LDCF since it provides relevant communication tools on climate changes to enhance women producers understanding on climate changes. ***The resources allocated are estimated at 2,000,000 USD, which is considered a co-financing of the project.***

Additional co-financing provided in cash and in-kind

- AEDD, the executing partner for this initiative, will provide ***in-kind contribution estimated at USD 500,000*** to the project implementation. This in-kind contribution will cover office maintenance and running costs (electricity, water, etc.) in Bamako.
- UNDP Country Office will co-finance in cash this initiative for an amount estimated at ***USD 500,000***. The UNDP Trac contributions includes: (i) Purchase of two vehicles; (ii) Recruitment of UNVs, one for each intervention region; (iii) Contribution to VNU operation costs; (iv) transportation equipment; and (v) Computers and additional ITs equipment.

¹⁵ Institut Polytechnique Rural

¹⁶ l’Observatoire du Marché Agricole (OMA)

Long-term solution and key barriers

It is expected that the adverse climatic conditions will negatively affect poor people, particularly women. As a consequence, women's workload will be increased with the drying of surface water and the additional activities automatically undertaken due to men's migration. The higher workload and decreased access to assets increased women's vulnerability. Therefore, preferred adaptation solution will include (i) counteracting the effects of reduced water availability and (ii) promoting diversification of livelihood to respond to immediate food and subsistence needs and cover the cost of future adaptation strategies. There is need to support and implement climate-resilient activities and new technologies, ensuring that most of women households and producers adopt and diffuse them.

However, to date there is insufficient technical, institutional and financial capacities at commune's level to uptake adaptations measures and practices. Some of the barriers to overcome have been identified, among which:

Barrier#1: Limited access of women to financial support. Poverty headcount rates are above 50 percent in four regions (Sikasso, Segou, Mopti, Koulikoro), which account for 4.6 million of the total poor population (around 6 million people)¹⁷. Women and small-scaled farmers have a limited amount of capital assets that may be needed to reduce the impacts of climate variability on their livelihoods and thus may be least prepared to deal with climate related shocks. Evidence reveals that it is more difficult for rural women to access credit and undertake new entrepreneurship, given the neutrality of most financial products and services with respect to the gender question. In Mali, the property rights in rural areas and the consequent control of assets are usually heavily tilted against women. This poses a serious obstacle for women to enter the credit markets due to lack of security. As financial services are mostly directed to households, the male members are usually the receivers of credit and insurance in rural developing societies. Lower literacy rates among women further prevent them from processing and comprehending information wherever they are accessible.

Barrier#2: Limited market access hinder women's efforts to optimize their income. Most of women group expressed their needs to timely, reliable and accessible market information to market their produce. Moreover, they need advice, formal and informal training and short courses on how to access markets combined with better infrastructure. In addition, women producers are lacking of storage facilities weaken the bargaining power of the women & small-scale farmers when it comes to negotiating the prices of farm produce. This is because most of them cannot store their produce and therefore accept whatever price they are offered. If women producers are not able to get good prices for their produce, they will not be able to repay their loans and this will have serious implications for their ability to contract future loans to implement adaptation strategies. Finally, they have difficulties to access to markets due to inadequate transport infrastructure as well as social restrictions over their mobility.

Barriers#3: Limited support to women for the development and implementation of identified climate-resilient activities/practices. women are often unable to acquire certain skills that would help increase their resilience to these impacts. Women groups highlighted that they are not aware of all the possible adaptation strategies, of all the ways to overcome climatic constraints. Critical types of information and resources are mostly shared with men farmers groups but women are often served last because they are often excluded from and have limited access to the core strategic groups that meet in such knowledge hubs. The technical support provided to them by extension services and research organizations is weak.

¹⁷ World Bank (2013)-Emergency Safety Net Project

Barriers#4: Lack of relevant climate information to support production. The system of meteorological data collection and diffusion is currently not appropriate (incomplete data collection, weak analysis and diffusion). As a consequence, meteorological advice to local communities is non-existent and an agro-hydro-meteorological advice system needs to be designed in order to analyse predictions and meteorological information processed by the DMN, assess their consequences on agricultural and livestock sectors and relay the information to farmers. This lack of adequate and timely information compromises women's capacity to diversity into alternative livelihoods or increase their resilience.

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

Additional Cost Reasoning of the Proposed Project

The Government of Mali emphasized in the NAPA and PNCC the importance of investing on adaptation to strengthen the climate resilience of most vulnerable groups (especially women and children) at the community level.

The proposed LDCF project will focus enhancing women and producer group's adaptive capacities to secure livelihoods production from climate impacts and increase socio-economic resilience in Malian vulnerable communes (Kayes, Koulikoro and Sikasso). The targeting of women is especially important because they are significantly involved in farming and are the main providers for the household. Gender inequality is extremely high with a global ranking of 143 in 2011. Although females constitute 50.6% of the total population, they represent only 38.4% of the economically active population¹⁰. Women constitute the majority of the agricultural share of the economically active population with 74.9% yet represent only 3.1% of the total agricultural landholders in Mali. This emphasizes the fact that women will bear a disproportionate share of the burden of climate change impacts on agriculture, and lack access to resources e.g. land rights and the capacity to cope. Women are not prominent in farmer associations and a majority lack the requisite technical skills to make the necessary adjustments – on farm, and thereby through a significant portion of the local economy – to address a changing climate. The project will be developed around the two main components.

Project Outputs/Activities

Component 1: Ensuring access to water for the development of subsistence activities

The NAPA identified a certain number of different options to promote water infiltration, water storage and water flow to improve water availability, farming production, and sustainability. Nonetheless, these options have not been exploited due to insufficient capacities, knowledge and information of actors. Without LDCF intervention, women and small-scale farmers will lack access to financing for equipment to prepare contours as erosion and drainage control and materials for the construction of small reservoirs for sustainable household and agricultural water availability. Most small farmers, especially women, have limited access to irrigation systems, as irrigation entails high investment costs to purchase equipment and technological expertise to install, operate, and maintain the works. In addition, traditionally women have the right to less fertile land, often with low access to water.

The LDCF project will support sustainable and resilient water management systems to improve access to water for vulnerable communities, in turn supporting development activities. Water infiltration, storage and flow will be improved through the rehabilitation of the water canals and channels, and unblocking silted and obstructed ponds. Supplementary irrigation using small diversion structures off the main channels will be constructed to improve crop production and rangeland productivity. Similarly, sustainable climate resilient water management

systems will be promoted to improve water access to vulnerable communities, which in turn ought to support the development of subsistence activities.

Outputs and Activities

Two main outputs will contribute to achieving this outcome. They include:

Output 1.1: Impounding surface water to increase water storage during dry periods and restore fish habitats threatened by the CC

Water availability is the first condition for undertaking farming & fishing activities and create wealth. These works will allow for an improved capture and storage of run-off water along valleys and small streams in the communes so that rice growing or other farming activities, such as vegetable gardening, can be developed. It will also contribute to replenishing the ground water supply, as well as improving the capacity of wells and bore holes located along or just upstream from the water reservoirs. Following activities will be undertaken:

Activity 1.1.1: Creation/rehabilitation of water reservoirs in Sero Diamanou, Tella, Nampossela, Sagabala, Kiban, and Yerere.

This activity participates in increased availability of water for agricultural (market gardening and arboriculture) and fish production. Thus, these structures contribute to mitigating the water deficit created by repeated droughts, to reducing the vulnerability of breeding and better pastureland use/management. It will allow at least 1,550 direct beneficiaries in target zones to pursue farming, such as vegetable growing or arboriculture, throughout the year. In addition, works will reduce: (i) the water shortages that happen with cyclical drought; and the livestock vulnerability through improved management and use of pastureland. The Construction of infrastructure will take place under supervision of the Rural Engineering and Hydrology Technical Services and will include:

- A technical feasibility study;
- A social and environmental impact study;
- Construction of infrastructure;
- Restore indigenous plant cover to riverbanks;
- Establishment of Water User Associations to ensure their maintenance with supervision from the Regional Technical Services. The training of these groups will be organized on climate risks, the management and maintenance of ponds as well as in the methods of water conservation for sustainability and better management of the infrastructures.
- And Monitoring and surveying works.

The selection of technology is based on considering the utilization of the locally available man-power through the ‘cash-for-work’ approach in order to improve cash flow to communities

Activity 1.1.2: Deepening of natural ponds to increase water storage during dry periods in Sero Diamanou, Tella, Sagabala, Kiban, Nampossela, and Yerere Communes.

This activity will increase the adaptive capacity of wetlands ecosystems, populations, and animals to rainfall variability. It will be carried out in following ponds: Magui Lake, Kounga Pond, Korokodjo Pond, Déhala, Lambakoré, Lambaguilé and Souralambiné Rivers, Sagabala Pond, and the Mani backwater. It will be undertaken:

- Technical, socio-economic, and environmental studies by the Regional Technical Services with a strong involvement of targeted communities.
- Deepening or enlarging existing ponds to increase water supply for fisheries and livestock;
- Introduction of fish in the ponds to increase the availability of protein sources for local communities.
- Establishment of Water User Associations to ensure their maintenance with supervision from the Regional Technical Services. The training of these groups will be organized on climate risks, the management and maintenance of waterways as well as in the methods of water conservation for sustainability and better management of the infrastructures.

Output 1.2: Development of small-scale irrigation system in areas with high climate risk

Following the decrease in rainfall and erratic nature of its distributions predicted for these regions of Mali, irrigation-based production is crucial to supplement the predominant rain-fed system that has increasingly become instable. Supplementary irrigation will be enabled by the development of small diversion structures off the main channels to improve crop production and rangeland productivity. These will be simple, farmer-friendly structures, using locally available materials. Fifty-five (55) hectares of irrigated surface area will be created in areas with high climate risk through micro-irrigation systems. In addition, techniques for using micro-irrigation and sustainable water resource management will be distributed. Such structures do not require sophisticated design and construction, and do not easily become silted, and can be operated and maintained through the empowered local government and strengthened water users groups.

Activity 1.2.1: Extension of irrigated village areas through equipped boreholes in ten communes

As a consequence of increased evapotranspiration as result of increasing temperature and reduced rainfall linked to climate change, the NAPA process highlighted that the area under irrigation at a village level requires expansion. This project will test this form of adaptation response by constructing 10 boreholds and distributing water to crop fields through appropriate technologies (e.g drip irrigation at some sites). Additional measures for ensuring the success of the irrigated lands include construction of fences. Irrigation projects tend to fail if the land is not well fenced, because children and livestock often damage the crops. Specific activities will include:

- Feasibility studies and other due-diligence assessments with respect to environmental and other standards;
- Construct of 10 boreholes equipped with distribution system, solar panels to pump water;
- Fence newly irrigated lands with wire fences and tree/shrub hedges.
- Establishment of management committees of the irrigated land run by women. Training will be organised for the members on the use and maintenance of equipment. The Regional Technical Services will be involved in training and monitoring quality of the service.

Activity 1.2.2: Access to micro-irrigation systems such as drip irrigation, Californian irrigation, and sprinklers.

The advantages to drip irrigation technology are the regular management of water and fertilizing nutrients and their uniform distribution in small doses at a local scale. Distribution is made by micro drip system through small

diameter tubes, and water flows in drops to water soils in small doses, but in a continuous fashion. Sub-activities include:

- Feasibility studies to identify of needs & relevant technologies
- Undertake environmental, economic & social impacts studies
- Installation of individual drip irrigation kits (100m²) for 2 ha of land in each commune;
- Training of beneficiaries on the use and maintenance of equipment;
- Monitoring and evaluation of installed structures; and
- Dissemination of the technology's results and advantages through workshops.

Component 2: Investments on climate resilient farming practices and income diversification for household production, crop diversity and nutrition

The component 2 addresses resilience of livelihood and subsistence activities for vulnerable communities. The target communities will have access to quality, drought and disease resistant local seed varieties, will have knowledge of integrated farming and livestock management options, and an increased availability of water. These in combination will help improve agricultural productivity in the face of climate change. An innovative approach of the project lies in an integrated farming and livestock management practice that will be introduced. Further, taking into consideration the women specific vulnerabilities and their adaptation needs the project will explicitly support a gender sensitive approach.

Without this intervention, resilient practices developed through support of other initiatives will remain at a pilot scale and won't be distributed and scaled up. The present project will support the distribution and adaptation to local needs of resilient measures and the distribution of traditional practices for the ten communes. These measures will increase adaptive capacity and lead to sustainable socio-economic development for the communes. Rural farmers, particularly women, will be involved in the economic activities that are the most resilient. This project takes into consideration best practices and lessons learned from initiatives implemented through NAPA projects.

Without this project, capacities in farming and husbandry in the targeted communes will remain weak due to the fragility of natural resources, low use and low availability of farming inputs, high dependence on rainfall, and under development of fodder production. Conflicts between farmers and livestock raisers will be exacerbated due to competition for diminishing resources. The project will contribute to strengthening the capacity of farmers in the ten communes. To contribute to increasing farmers' yields, the project will support production and distribution of improved seeds for millet, sorghum, maize, and rice that are resistant to variable rainfall and drought.

In the absence of such a project, local community capacity to adopt resilient practices and techniques, to develop local enterprise, to access sources of financing, and to transform, store, and sell products in a context of climate change will be weak. Technical support will be provided to rural farmers, including women, in the ten prioritized vulnerable communes to develop small businesses, facilitate access to financing, and to transform, store, and sell products. Access to micro finance systems will be facilitated to finance, among other things, implementation of income-generating activities and resilient farming practices. The expertise of UNCDF in integrated finance will contribute to extending access of financial services that exist in the regions to project beneficiaries.

Responding to the high vulnerability of rural households and communities in the regions to ecological, economic, and climate factors, will require a coordinated and concentrated approach that supports implementation and adoption of revenue sources, investment and resilient income-generating activities.

Support will be carried out for the development, supply, and management of farm input stores to improve the availability and use of farming and livestock inputs (fertilizer, pesticides, materials, etc.). Finally, soil and water conservation/soil protection and restoration measures will be promoted to improve the availability and quality of arable land for farming. Systems to collect, analyse, and disseminate climate information to rural communities, technical services, and political decision-makers will be put in place. The chain for meteorological information from collection and analysis of data to diffusion of advice and meteorological bulletins will be strengthened. The system involves Mali-METEO, the Regional Directorate of Agriculture, and rural radios. Equipment and means to implement the system will be provided. Equipment and means will be provided to ensure a regular diffusion of climate and agro-meteorological information. Moreover, Local Meteorological Assistance Groups for Rural Areas¹⁸ will be strengthened through diffusion of information on flood risks. National research partners, regional technical services, and Ministers in charge of Agriculture, Livestock, the Environment and Water, as well as local and national NGOs and farmer organizations will be involved in the implementation of resilient income-generating activities and adaptation measures and techniques.

Globally, this approach involves larger investments in technology and practices that are resilient to climate threats that become increasingly more frequent and more intense. Investments will show not only management approaches for climate risks but will also bring direct solutions to the most vulnerable communities of the three regions.

Outputs and activities

Four outputs will contribute to achieving this outcome. They are described below.

Output 2.1: Integrated farming systems that are resilient to climate change promoted

Activity 2.1.1: Soils in pastoral landscapes stabilised using Soil Protection and Restoration / Soil and Water Conservation (SPR/SWC) measures

Pastoral landscapes are also prone to severe soil erosion in Mali because of highly dispersive soils and intense rain events. Climate change is likely to lead to a greater intensity of rain events and this will aggravate the current soil erosion problem. The adoption of SPR/SWC measures have multiple benefits: i) improve water management; ii) increase the productivity of farmland and pastures; and iii) create management that is environmentally, socially, and economically sustainable. Under LDCF Finance, it will be established **half moons on 200 ha of farmland; pasture land, or degraded forests in Kayes and Koulikoro**. The project will also promote **installing farming and sylvo-pastoral banquettes on 200 ha** (6 to 8 banquettes per ha). The technique includes building a rectangular mound from compact earth, stones or a mix of the two. This activity will also include installing works that prevent erosion and infiltration from rainwater. Specific activities include:

- Information/awareness building for the population on SPR/SWC measures;
- Identification of degraded sites with stakeholders;
- Construction of at least 25 banquettes (barriers) and half-moon (demi-lunes), indigenous water-capturing technique;
- Planting woody species with three per half moon and 16 per banquettes and protection of sites by village committees. The half moons in farming plots will be seeded with cereals.
- Establishment of village committees to manage treated community areas and survey pilot farmers to treat individual farming plots;

¹⁸ *les Groupes Locaux d'Assistance Météorologique au Monde Rural (GLAM)*

- Training of committee's members and individual farmers on maintaining banquettes, half moon & plantation;

Officers from the Environment Technical Services and local NGOs will provide technical assistance (awareness raising, identification of sites, training, and carrying out works) and consulting for targeted communities.

Activity 2.1.2: Production and storage of drought-tolerant seed varieties

Due to reduced soil water retention and increased temperatures leading to high evapotranspiration, certain lands that were previously farmed by farmers will no longer be appropriate to grow cereals. However, there are varieties of millet, sorghum, maize, beans, etc. that are adapted to a drier climate and could be used to help increase resilience to climate change and variability. At the same time, obstacles exist to the widespread use of these crop varieties because of i) low technical and financial capacity of rural farmers, and ii) unavailability of improved seeds at the local level for rural farmers, especially women.

The project will contribute to implement a system for the production, distribution, and storage of drought-tolerant seed varieties in target communes. Following actions will be undertaken:

- *Organization and training of rural seed producers*– At least 500 farmers, among them 50% women, in each site will be trained in seed production techniques. For each farmer, it will be provided seeds of drought-resilient crops to enable him to plant at least half a hectare of such crops. The national agriculture research centre will support this activity and monitor the productivity of the drought-resilient crops relative to other crops grown at the site.
- *Implementation of seed banks* – The goal is to store locally produced seeds or buy them elsewhere to ensure availability during the planting period.
- *Establish and train management committees* of at least 10 members (including five women) at each site to facilitate the adoption of drought-resilient crops by the wider community. The committees will establish clear mechanisms for sustainability of the production of drought-resilient crops in coordination with research centers, seeds multipliers and agriculture banks.

Activity 2.1.3. Building Local Strategic Grain Reserves (LSGR) at commune level to address climate-triggered food shortages.

In anticipation that food will not always be available in the quantity needed, Local Strategic Grain Reserves as a way of buffering/offsetting shortfalls in food supply or in order to stabilise prices with the goal of maintaining food security. This is a method to manage food security in communities. The objective is to facilitate the collection of excess cereal yields, store them in a warehouse, and resell them to the population during shortages keeping consumption prices accessible. A small and well-managed stock could provide "degrees of freedom" in responding to crises, allowing quick sales or emergency distribution as needed until commercial imports and food aid can arrive. A committee will manage the LSGR and will be trained on finance, management & warrantage techniques.

Activity 2.1.4: Provision of agro-meteorological information

In all of the communes visited, populations identified the following as major climate limitations that disturb economic activity: i) reduction and increased irregularity of rain, ii) unpredictability of the rainy season, planting dates, and the duration of the rains, iii) increase in the frequency of floods, and iv) drying up of ponds and other

water bodies due to temperature and evapo-transpiration. The project will provide agro-meteorological information and advice distributed through innovative communication channels, (text messages, community radio, television, etc.) to help farmers, and especially women, to make decisions that minimize the risks that climate events pose to their socio-economic activities. This will include:

- Provision of 50 rain gauges and other tools to rural observer farmers in each commune to facilitate the collection of agro-climatic data;
- Establishment of local agro-meteorological assistance groups (GLAM) in each commune, among them 50% women;
- Develop agreement with Mali Meteo for the production and local distribution of agro-meteorological products that integrate local knowledge and are adapted to each commune.
- Communication and dissemination of agro-meteorological information between to the local agro-meteorological assistance groups and other framers through community radios;
- Training of about 20,000 women, farmers and extension agents within the targeted municipalities in data collecting methods and in the practical use of agro-meteorological information with the aim of demonstrating the advantages of using this information before taking decisions related to agricultural production; and

This activity will be carried out in partnership with Mali-Meteo that will bring necessary expertise as well as service provision.

Output 2.2: Semi-intensive livestock rearing system promoted to women's groups, herders, and farmers with livestock

Mali is an agro-pastoral country. In the past, extensive livestock existed in harmony with agriculture in the different agro-climatic zones. For example, pastoral nomads – whose lifestyle is based on herders moving their herd across large spaces in search of pasture resources such as grazing plants and water – were initially common in the Sahel/Sahara band and in the Sahara. Transhumant practices, where herders migrate with their livestock and families in search of pasture periodically depending on the season, is traditionally practiced in the Sahel and the Sudanese-Sahelian zone. Sedentary livestock raising is traditionally limited and is practiced around villages in the Sudanese/Sahelian and Sudanese zone.

Since the periods of strong drought in 1972–1973 and 1983–1984, a dryer climate settled over the country, including a tendency towards overall reduced rainfall and movement of isohyets by 200 km towards the south. This meant a drying up of multiple water sources and degradation of pasture lands (grasses for cattle becoming more sparse) making livestock communities and livestock fragile.

There is more and more migration of livestock from traditional livestock areas towards zones farther to the south where pastoral resources (feed and water) are easier to come by than in the traditional livestock areas. This has meant there is more pressure on natural resources leading to rapid degradation. Farmers and herders must nonetheless coexist on the same reduced space (areas that are also pastureland) and exploit the same resources, such as water sources. The presence of transhumant herders amongst sedentary populations, who have their own small numbers of livestock, creates competition and violent conflict between herders and farmers. History unfortunately shows that these conflicts can degenerate into civil war with resulting suffering and massive emigration.

Faced with this situation, which is expected to grow worse as the impacts of climate change increase, it is urgent to take measures to reduce the vulnerability of rural populations to additional risks posed by climate change in agro-pastoral production systems. The activities described below will be carried out to show women, herders, and farmers with livestock, semi-intensive livestock techniques as an adaptive measure to climate change. It includes:

Activity 2.2.1: Increase awareness of adaptive livestock practices for women's groups, herders, and farmers with livestock. This activity consists of:

Organization of 5 training sessions in all communes for women, herders, and farmers with livestock on following topics:

- ✓ Techniques for growing forage crops;
- ✓ Techniques for reaping and conserving natural forage plants;
- ✓ Techniques for building haystacks;
- ✓ Techniques for rationing animals;
- ✓ Techniques to enrich straw; and
- ✓ Techniques to construct stable manure disposals;
- ✓ Carry out an emission each month on local radio to raise awareness and knowledge on climate change adaptation for herders and farmers with livestock.

Activity 2.2.2: Small-scale livestock rearing and husbandry by women's groups

This activity will be carried out in sites of Béma, Yérééré, and Sero Diamano in Kayes, and in Sagabala and Niama in Koulikoro where support is requested to promote fattening of small ruminants as income-generating activity. In these areas, which are natural optimal livestock zones, a stock of bovines and sheep will be provided to women's groups. Implementing this activity will include the following phases:

- Acquisition and distribution of livestock for raising;
- Organisation and training of women's groups in techniques for raising sheep; and
- Monitoring and evaluation of implementation.

These activities will be implemented through a partnership of different stakeholders that includes local NGOs, different Management Committees established for the activity who will supervise animals and beneficiaries, and Extensions Services for livestock that will conduct monitoring and evaluation of activities.

Activity 2.2.3: Establishment of pastoral perimeters

The pastoral perimeters will be created or restored to intensify production and preserve the livestock from climate impacts. The Pastoral perimeters seeks to improve plant resilience by giving plants time to restore reserves, and to increase seed emergence by increasing hoof impact to break up crusted soil surfaces. An expected outcome is greater plant cover and the emergence of perennial species.

In each commune in the Koulikoro and Kayes Regions, 10 hectares of collective plots will be developed to grow fodders (types of cowpeas and wild sorghum) and woody plants adapted to the area such as *Acacia radiana* and *Acacia senegalansis* to stabilize livestock movements. The project will provide fodder seeds to members of herder

groups who will be in charge of the necessary modifications for growing, collecting, and storing fodder. Where needed, pastoral wells and water distribution systems will be constructed to supply water.

Officers from the technical services with the Environment Department and/or local NGOs will be approached for technical assistance including awareness building, identification of sites, training, carrying out construction, and general counselling for targeted communities.

Activity 2.2.4: Restoration of community forest

In Tella Commune, there are 13,000 ha of forest degraded by human activities and climate change. In Sero Diamanou and Sagabala Communes, there are forests classified as Palmyra Palm that are also being degraded. These forests provide goods and services to populations, specifically for the livestock. The project will restore degraded lands and forests for animal's food production. Native plant species that are adapted to local conditions and have an economic value – Shea in Sikasso Region and *Acacia Senegalensis* in Koulikoro and Kayes Regions – will be promoted. The project will:

- Development of nurseries and production of local plant species (Shea, palm, *Acacia*). Women groups will be trained in nursery practices and production of local plant species;
- Reforestation, carried out by the local population, of areas that have been classified as degraded in the three communes; and
- Train communities in assisted natural regeneration techniques;
- Where necessary, local committees will be established to manage forest restored.

Output 2.3: At least 10 women groups increased their income & entrepreneurship capacity through the development of vegetable garden & cash crops activities

Activity 2.3.1: Development of vegetable gardening activities

The GEF financed project will make possible the growing of onions, tomatoes, cabbage, lettuce, carrots, eggplant, and beets during the dry/cold season and okra, cowpeas, and papaya throughout the year. The activities will be developed in irrigated land developed under Output 1.2. The activities will contribute to improving food security and nutrition, as well as the diversification of household revenue and increases in women's incomes. Following actions will be undertaken to support the development of vegetable activities:

- At least 990 women will be trained in farming techniques, transformation, storage, commercialization and accounting and financial management;
- Quality seeds and gardening material (watering can, water pump, etc.) will be provided;
- Construction of improved storage and conservation facilities;
- Granting women groups with transportation material (donkey charettes) to support transport to local markets.
- Management Committees will be established and trained for management and maintenance of material.

Activity 2.3.2: Produce and store potatoes in Bougoula

This activity will be carried out in the Bougoula Hameau site, located within the Urban Commune of Sikasso. Two hectares will be cultivated, and measures to support this activity will include:

- Train 50 women from the COFERSA cooperative on modern techniques for growing potatoes;
- Provide access to quality seeds that are appropriate for growing and storing as well as access to fertilizer and equipment;
- Provision of packaging material that is environmentally friendly, and creation of storage facilities that are based on local experience and techniques.
- About 50 women through a branch of the COFERSA women's cooperative in the Bougoula Hameau site will carry about this activity. Indirect beneficiaries are estimated to include 550 women, youth, and adult men as merchants, transporters, and service providers.

Activity 2.3.3: Production and transformation of maize and peanut in Yerere, Béma, and Tella

Women's groups in the Yerere, Béma, and Tella Communes expressed a desire for assistance in collective maize and peanut production, which are traditional crops grown in their areas. Analysis of the situation reveals that there is a potential area of land that can be used and that average rainfall in the areas is suitable for growing peanut and maize. The main limitation at present is access to adapted seeds that are appropriate to climate change and equipment to transform crops to create added value. In this vein, project activities will include the following:

- Provision of improved seeds & fertilizer to women's groups and farmers' groups;
- Construction of 3 storage warehouses, one per cooperative;
- Installation of a processing unit to hull maize in Tella, two processing units to transform peanut into peanut paste in Yerere and Béma;
- Training in farming techniques for 440 maize farmers and 660 peanut farmers in marketing and maintaining equipment; and training for farmers in composting techniques.

Activity 2.3.4: Sesame production and transformation in Yorosso

This activity responds to a need expressed strongly in Yorosso. Sesame is an emerging product, which has a strong export demand. Project support will include:

- Training 70 women in modern techniques for growing sesame;
- Provision of selected seeds & adapted fertilizer that correspond to market demands;
- Provision of transformation equipment;
- Construction of a storage facility;
- Connecting farmers with providers of appropriate packaging; and

Activity 2.3.5: Production and transformation of Shea in Bougoula Hameau, Nampossela, Yorosso, and Tella

There is a high demand to reforest areas of Shea trees at sites in the Sikasso Region including Bougoula, Hameau, Nampossela, Yorosso, and Tella. The demand corresponds to a desire to stem the loss of Shea trees that has been occurring due to climate change and human activity. Transformation of Shea nuts into butter is a traditional activity in Mali. To improve the product's quality and partake in the growing value of Shea butter,

dissemination of modern techniques, technology, and knowledge are needed. Project activities for women related to this activity will include:

- Training of at least 490 women on planting and grafting Shea techniques, modern techniques to produce Shea butter and soap, and marketing techniques to facilitate finding markets to sell products.
- Provision of appropriate modern equipment to transform Shea nuts (multifunctional platforms to grind the nuts and equipment to extract the butter);
- Provision of appropriate packaging.

Activity 2.3.6: Production and transformation of honey by male and female producers in Tella commune.

The Tella site is an ideal location to produce honey, as it is a regular activity for the population, especially men. Nonetheless, current equipment and techniques for producing honey are basic. To increase honey production and create added value, the project will carry out the following activities for honey producers in the Tella commune:

- Provide producers with performing beehives;
- Train 60 producers in adapted collection, transformation, and commercialization techniques;
- Put in place five processing units to collect and transform honey;
- Provision of adapted packaging;
- Assist producers to research markets for selling honey;
- Create 10 women's cooperatives for the production of soap and pomade based on beeswax.

Activity 2.3.7: Build market-based & entrepreneurial capacity of women groups & producers

The capacity of beneficiaries on entrepreneurship, marketing of products, managing value chains, and accessing financing and credit will be strengthened. In addition, connections between producers, organizations and micro credit agencies will be built. The main activities will be:

- Develop the market information systems of products developed by women & farmers.
- Builds capacity of producer organizations and links them with traders and processors to ensure consistent supply and quality standards.
- Participation to community group to regional/international commercial exposition;
- Facilitate access to commercialization and business credit. It Support women and producers will be trained & supported to develop and submit applications for credit. Partnership will be established with micro-finance suppliers to lead groups through the application process from beginning to end;
- Training women groups and other producers on entrepreneurship, marketing of products, managing value chains, and accessing financing and credit.

Output 2.4: Lessons learned from the project are shared

Activity 2.4.1: Organize field trips between project sites and between farmers to disseminate techniques and lessons learned

The activity centres on facilitating exchange and sharing information and experiences between different beneficiaries on their knowledge of farming techniques, harvesting techniques, storage methods and commercialization strategies for certain products created by the project interventions. Implementation of this activity will take place through the following stages:

- Identification of sites for visits;
- Organization of local exchange trips and village assemblies to share lessons learned;
- Organization of forums for sharing lessons learned to replicate the project in other communes not covered by the project;
- Use of appropriate communication tools such as knowledge fairs, exposition in bi-weekly markets etc.; and
- Participation in local and regional commercial fairs.

The methodological approach used to carry out this activity is the organization of study and exchange visits. The process will include participation in commercial fairs. It includes an approach focused on analysing feasibility, barriers, and opportunities for the topics covered in the exchanges. The Project Management Unit, communes, and Technical Services will support the logistical organization of the visits.

Activity 2.4.2: Share lessons learned and project experiences at the national and international levels

Collecting and distributing lessons learned and best practices is a key element to the pertinence, efficiency, and impact of adaptation interventions and local development. In addition, it benefits all actors involved the UNFCCC process.

In total, the activity includes identifying pathways and means through which the important results from the project can be diffused in a continual way so that local populations adopt them. This activity will be done through the following steps:

- Capitalisation of best practices in adaptation and lessons learned from the project;
- Preparation of flyers, technical papers, and diverse communications products;
- Translation of communications products into local languages;
- Creation of an information package that can be delivered over community radio or TV stations in the national language;
- Distribution of information products in intervention zones and to local and national media;
- Organization of a national workshop to distribute results;
- Participation on international fora to share project results; and
- Regular contribution to the Internet site.

The activity will be carried out through service providers who support the communications expert. Communications providers will be contracted to supply services in graphic design, creation of films, and copying of materials for distribution.

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

The proposed project indicator framework follows the GEF-5 Adaptation Monitoring and Assessment Tool (AMAT) and is aligned with the UNDP M&E Framework for Adaptation. Objective level indicators and outcome level indicators are specified according to the UNDP nomenclature of Results Based Management (RBM). The project design further foresees the development of more specific M&E tools, especially at the local implementation level. Participatory local level M&E can be a powerful management and communication tool, especially for tracking and demonstrating project results in demonstration sites. It is foreseen that a more detailed M&E project framework will be developed during the project inception phase for national management purposes.

An overall project M&E plan has been devised and is included in the respective section of the project document below. It foresees regular progress reports, as well as audits, a mid-term evaluation and an end-of-project evaluation.

Assumptions underlying the project design include that:

- Existence of national expertise to support households in their adaptation efforts;
- Participation and commitment of target communities
- Women's groups and organizations are operational
- Social cohesion exists in the communities

A complete Risk Log is included in Annex 1 of the project document. It includes risks identified in the project identification form (PIF) (see below) as well as newly identified risks. Additional barriers are included in the Barrier section above and are generally represented by the risks specified below. Most risks are organizational or strategic in nature, and mainly relate to relatively low current institutional and individual capacities of the public service structure in terms of adaptation. In summary, the following key risks were identified (risks identified in the PIF or the Project Preparation Grant phases are identified accordingly):

- Impacts of insecurity in the North leading to a presence of massive refugees (PIF);
- Target communities do not see the benefit of adaptation technologies/ practices (PIF);
- Lack of sufficiently qualified partners (PIF);
- Financial resources are limited for local communities and their institutions (PPG);
- Climate change impacts are more severe than anticipated (PPG);

The Government undertakes an Environmental and Social Management Framework (ESMF) that identify main impacts for each component (PPG Report 8). From an environmental and social safeguard point of view, the project is rated as a Category 3a, with small scale, site-specific and manageable environmental and social impacts. No adverse long-term impacts are anticipated (Annex 8). Social positive impacts of Component 1 are linked to activities undertaken to (i) increase water storage during dry periods and restore fish habitats threatened by the CC, promote climate resilient farms systems and to diversify income for household production, crop diversity and nutrition. Under Component 2, the net social and environmental effect of the project is expected to be highly positive. By it is expected to improve the food security status of households, as crops will not be as susceptible to losses due to drought. The anticipated negative environmental and social impacts of the project would result mainly from hydraulic works associated with (i) the Impounding surface water, the stabilization of soils in pastoral landscapes and (ii) the development of vegetable garden & cash crops activities.

An Environmental and Social Management Plan (ESMPs) is proposed and provide key recommendation for all project components. The Coordination and implementation of the Project's environmental and social safeguards will be carried out by the PCU, which has recruited an M & E expert to be responsible for overseeing Project compliance with the environmental and social guidelines developed. External monitoring and evaluation of safeguards will be undertaken in line with recommendation of the EIA studies. Finally, UNDP will develop key

guidelines to ensure that during overseeing missions, the UNDP GEF RTA will report on the progress of the safeguards.

A.7. Coordination with other relevant GEF financed initiatives

This LDCF funded project will complement other programmes and GEF projects being implemented in the same region but with different objectives and priorities. AEDD has already circumscribing each project's intervention area to avoid duplication. During the Project preparatory process, criteria such as “intervention of other partners” are applied to avoid geographical duplication. The **coordination of all projects** will be undertaken under the Mali Climate Change Group where projects are expected to present the results to see progress made on the National Strategy on Climate Changes.

GEF ID	Agency	Project	Complementarity
3979	FAO	Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas ((Mopti, Kayes and Sikasso)	With the LDCF/FAO, a range of adaptation Tools such sowing guidelines and calendar, technical agricultural forms, is made available to farmers. As member of the Steering committee of FAO project, UNDP will promote best practices from FAO project.
4822	FAO	Strengthening Resilience to Climate Change through Integrated Agricultural and Pastoral Management in the Sahelian zone in the Framework of the Sustainable Land Management Approach (
3776	UNDP	Enhancing Adaptive Capacity and Resilience to Climate Change in the Agriculture Sector in Mali (Kayes, Sikasso, Mopti, Gao, Koulikoro & Segou)	The project is implementing a range of adaptation technologies such as climate resilient seed varieties, erosion control, reforestation and agroforestry associating tree planting and cereals. The technologies with high rate of success will be promoted
5133	WB	Senegal River Basin Climate Change Resilience Development Project (Kayes)	Among activities, the project will pilot (i) agronomic water-saving measures for subsistence farmers and (ii) the implementation of community-based water management measures, including development of existing water user associations and farmers' professional cooperatives to adapt to climate change impacts. Further discussion will be engaged with World Bank during the project inception phase regarding collaboration to develop when establishing water users association and training them on water management
5270	WB	Mali Natural Resources Management in a Changing Climate Project' (Kayes, Koulikoro)	Among activities, the project will establish an Information system and knowledge management system, as well as, scaling-up Sustainable land management practices and diversification of local livelihoods. Key coordination mechanism will be developed during project inception phase with the WB to avoid duplication of resources in Boron & Yerere Communes.

In addition, exchanges information between the two projects is underway for better complementarity of actions on the ground. Lessons learned from the projects will be the basis for adoption of climate resilient practices. On-going GEF projects have already put in place mechanisms to supply drought tolerant seeds, climate information sharing. Experiences gained will be used. The AEDD in collaboration with the Ministry of Agriculture will develop a framework for sharing experiences. It should be noted that both UNDP and FAO LDCF projects

have all held their kic-koff workshops in October 2011 to identify concrete adaptation activities on the sites selected in consultation with the local communities and with the participation of stakeholders directly involved in the proposed AF financed programme. Thus, collaborative planning started in the conceptualization of this programme in building on the complementarities with on-going projects and programmes.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

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

The success of project intervention requires the active involvement and participation of the different stakeholders. Key stakeholders for the project include (i) ministries, local governments and other public institutions implementing the project and/or benefiting from it, (ii) cooperating partners, NGOs, and Civil Society Organizations (CSOs) involved in direct support, and (iii) communities that are living in the targeted rural areas, including the participation of potentially vulnerable groups such as women. The present Plan was designed based on the series of meetings organised with stakeholders during the project inception, for agreeing on project content and operationalization (situation analysis, priority sites for intervention, priority criteria, management arrangements).

Outputs	Lead institution & role	Stakeholders & roles
1.1: Impounding surface water to increase water storage during dry periods and restore fish habitats threatened by the CC	AEDD: coordination of activities Ministry of water: support the identification of target sites & technologies, quality control of hydraulic works, maintenance of infrastructures Fisheries ministry: support the restoration of fish habitats	Regional extension services: monitoring works, training & supervising communities Local government: mobilisation of communities, quality control of works, maintenance of infrastructures Communities: involved in hydraulic works and management of infrastructures, participate management & maintenance of infrastructures
1.2: Development of small-scale irrigation system in zones with high climate risk	AEDD: coordination of activities Ministry of Agriculture: support the identification of target sites & technologies, quality control of works Ministry of water: support the identification of target sites & technologies, quality control of hydraulic works, maintenance of infrastructures	Regional extension services: monitoring works, training & supervising communities Local government: mobilisation of communities, quality control of works, maintenance of irrigation systems Communities: involved in hydraulic works and management of infrastructures, participate management & maintenance of infrastructures
2.1: Integrated farming systems that are resilient to climate change promoted	AEDD: coordination of activities Ministries of Agriculture, Mali Meteo: identification of resilient farming systems, training and supervise communities	Regional extension services: monitoring works, training & supervising communities Regional extension services: monitoring works, training & supervising communities

Outputs	Lead institution & role	Stakeholders & roles
		Local government: mobilisation of communities; Communities; involved in farming systems (beneficiaries), quality control of technical expert supervision Communities radios: diffusion of climate information
2.2: Semi-intensive livestock rearing system promoted to women's groups, herders, and farmers with livestock	AEDD: coordination of activities Ministries of Livestock & Environment (forest department): identification of resilient livestock & forest restoration systems, training and supervise communities	Regional extension services: monitoring works, training & supervising communities Local government: mobilisation of communities; Communities; involved in livestock systems (beneficiaries), quality control of technical expert supervision Communities radios: support awareness campaigns
2.3: at least 10 women groups increased their income & entrepreneurship through the development of vegetable garden & cash crops activities	AEDD: coordination of activities Ministry of Women, Agriculture, Rural development Department: identification of IGA, training and supervise communities Local Banks: support IGA and training of communities groups on rural finance, marketing, etc.	Regional extension services: monitoring works, training & supervising communities Women groups: mobilisation of communities, involved in farming systems (beneficiaries), quality control of technical expert supervision COFERSA monitoring works, training & supervising communities
2.4: Lessons learned from the project are shared	AEDD: capitalisation & sharing project results National media Universities & research centers to support project research and capitalisation	Regional extension services: contribution in collecting and sharing project results Local government: contribution in sharing project results (organisation regional forums) Communities radios: support diffusion of project results

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

Socio-economic benefits:

- a. Risk of crop failure reduced: In areas where SWC on farmlands and flood diversion for supplementary irrigation is introduced, the risk of crop failure is reduced, crop yield is expected to increase, and availability of animal feed is increased (crop residue and pasture land carrying capacity). The development and dissemination of drought-resistant and early-maturing seeds will similarly reduce the

risk of crop failure. The dissemination of drought-resistant livestock and appropriate livestock management techniques will enhance the economic benefits of the off-farm SWC, and, together with the improved extension services, will result in improved rangeland management in the programme area, with associated economic and environmental benefits.

- b. Reversing degradation of natural resources such as land, waters, forests and biodiversity will improve the livelihood of the project's most vulnerable people. Introduction of multipurpose trees including forage and wild fruit trees within catchments and woodlots will reinforce communities' coping mechanism during times of drought to save their lives and their important assets like livestock.
- c. The increased water storage capacity and introduction of climate resilient production practices will support the agro pastoralist community to change expand the current hectares of land used from subsistent rain-fed production to irrigated vegetable production. Farmers will be able to produce at least twice a year. Households of agro-pastoralists using the rehabilitated water supply will increase their production by several folds.
- d. Expected additional benefits from pastoral perimeters are: improved plant cover, re-appearance of rare plant species, longer grazing periods; milk production, calving interval, health and stocking rate; better management of the transhumant herds; household income with the release of labor for other activities and increase of incomes from livestock
- e. A well-managed Local Strategic Grain Reserves (LSGR) could be a relevant instrument for adaptation to climate change. Extreme climate events like drought and floods have triggered the use of LSGR as a response and planning instrument for coping with food shortages.

Gender dimension

Given the importance of the traditional participation of women in natural resource management, activities will explicitly support a gender-sensitive approach through gender-specific measures. The specific needs of women producers will be considered at all stages of project design, from preliminary Vulnerability and Capacity Assessments to project implementation, and particularly when developing climate-resilient income-generating activities (that will be designed to meet their needs), sustainable mechanisms for transmission of climate and weather forecasts (that will be important to their decision-making imperatives and delivered using channels that are relevant to them) and also updating regional plans/programmes and projects. At the same time, recognition will be given to women's comprehensive knowledge of and experience with respect to, for example, seed selection, medicinal plants, local hydrology, and community transformation, as well as coping strategies that can promote adaptation to climate change. Information about climate change and adaptation measures must therefore be designed and disseminated in gender-sensitive ways and be combined with explicit efforts to ensure that women and girls – especially those who are poor or have been denied the right to an education – can easily have access to and absorb the necessary information.

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

Cost-effectiveness

Mali is a poor country and its social indicators remain among the lowest in the world. Most poor people are illiterate and live off subsistence farming.

The proposed LDCF financed projects will support the Government of Mali to overcome key barriers identified as major issues such as: (i) Limited financial support, (ii) insufficient technical support, and (iii) Lack of relevant climate information to support production. Strengthening the resilience of local communities to climate change impacts in Sikasso, Koulikoro & Kayes regions are of highest immediate benefits for the realization of the MDGs especially on Food security and poverty reduction. It also addresses the NAPA priorities 1, 2,3,4,5,6 and 14. These priorities have been weighed for cost-effectiveness and sustainability before the proposed project components were selected and elaborated.

Improving resilience to climate change for populations in vulnerable regions of Mali could follow a number of pathways. Local and rural populations need to develop options and economies that are more resilient. In this

context, it would have been possible to choose to carry out socio-economic activities in the sectors other than the traditional farming and livestock, which were identified for this project. Nonetheless, more than 80 percent of the population in the three regions practices agriculture, and food insecurity has been a chronic problem for many years. As described in the barriers, climate changes induced the decreased of access to assets increasing women's vulnerability. Therefore, preferred adaptation solution will include (i) counteracting the effects of reduced water availability and (ii) promoting diversification of livelihood to respond to immediate food and subsistence needs and cover the cost of future adaptation strategies. This way they could achieve their goals in livelihood diversification and reduce structural vulnerability.

The proposed LDCF project will focus on enhancing adaptive capacities of female produce groups and secure their livelihoods from climate impacts and increase socio-economic resilience in Malian vulnerable communes (Kayes, Koulikoro and Sikasso). The total project cost is estimated at US\$5,460 million over the period of five years. The project area includes the following communes: Sero Diamanou, Béma, Yerere, Boron and Kiban, Sagabala, Sikasso, Tella, Sincina & Yorosso. The proposed interventions outlined in this project are based on consultation of the stakeholders both at the national level and the target regions to determine the interventions, which are most critical for these regions.

During the project design, a number of adaption priorities have been assessed through documentation review, consultations at the municipal and local levels, and sites visit. After initial consultations conducted as part of the PPG, prioritized pilot adaptation activities identified by stakeholders were the following (see Annex 4):

- Farming & livestock activities: Development of vegetables garden growing of small ruminants and poultry, provision of drought tolerant seeds, farms equipment (conservation, transformation & transport materials), seasonal forecasts, construction of roads & markets, production of Sesame, Shea, Honey
- Improving water access through the deepening of garden well, construction of dams, water impoundment
- Training on land restoration and agriculture production transformation & conservation.

After careful and in-depth analysis, it has been decided to focus on 2 specific options: (i) Ensuring access to water for the development of subsistence activities (\$2,527,500, 46% of the total budget) & (ii) Investments on climate resilient farming practices and income diversification for household production, crop diversity and nutrition (2,672,500USD, 49% of the total budget). These options have been selected on the basis of significant direct and indirect economic impacts on livelihood production & the local economy of the project areas.

For **Component 1**, the adaptation actions will include the impounding surface water to increase water storage during dry periods and restore fish habitats threatened by the CC. The selection of technology for water impoundment is based on considering the utilization of the locally available labour either through the replication of the 'cash-for-work' approach in order to improve cash flow to communities, or limited equipment inputs. Where there is inaccessibility to heavy equipment or this could result in more environmental damage to surrounding biodiversity, the human labour through the 'cash-for-work' scheme will be employed. That would also enhance the skills of local experts and farmers in undertaking the design and construction of similar activities. That will also enhance the capacity to operate and maintain the system for sustainability and cost-effectiveness in contrast of requesting for expert services from abroad and outside the region. In addition, the supplementary irrigation will be enabled by the development of small diversion structures off the main channels to improve crop production and rangeland productivity. These will be simple, farmer-friendly structures, using locally available materials. Such structures do not require sophisticated design and construction, and do not easily become silted, and can be operated and maintained through the empowered local government and strengthened water users groups. Following the decrease in rainfall and erratic nature of its distributions predicted for these regions of Mali, irrigation-based production is crucial to supplement the predominant rain-fed system that has increasingly become instable. Finally, Providing investment funds through Water User Associations will encourage capacity at community level delivery systems, and support their ability to engage with and leverage government social development funds through their local government system.

Component 2, which addresses the resilience in subsistence livelihoods of vulnerable communities, will be achieved cost-effectively through the implementation of some adaptation actions that enhances the production of local livelihood systems. Providing the communities with range of fisheries, agro pastoral practices and technologies e.g. drought- and disease-resistant varieties, integrated crop-livestock production systems etc. in taking advantage of increased water availability to boost productivity, is a cost-effective investment instead of introducing activities outside of their local knowledge-based. The implementation of adaptation actions such as conservation and restoration practices that involve agro-forestry activities to increase soil and forest resilience will be also privilege as cost-effective measures rather than purchasing inorganic fertilizer and purchasing concentrates as animal feed; The seedlings used for reforestation will be from indigenous species. This will capitalize on the local knowledge of the communities in nursing and managing the tree species adapted to the local conditions offering cost-effective solution in restoring the degraded land. This is a cost-effective approach rather than purchasing inorganic fertilizer and purchasing concentrates as animal feed or using exotic tree species even if they are fast-growing species. Diversification of local livelihood strategy is an adaptation action that will be undertaken in increasing the resilience of subsistence livelihoods cost-effectively. Not only does this reduce poverty through income-generation actively, it also increases food security and improves the nutritional level of households. The co-benefits emerging from the actions underscore the cost-effectiveness of the action.

Finally, the project will directly benefit about **5,000 households**, representing 15% of total households in the three selected regions (total households is estimated to be 14,000 according to the general census 2009). With an average size of 5 persons per household and taking into account the partial overlapping over months and years of activities, this will translate into about **25,000 individuals**. Beside the direct beneficiaries, indirect beneficiaries include the large majority of the populations (about 170,000) in the targeted communities.

Sustainability and Replication

The long-term project viability and sustainability will depend greatly on its 'ownership' by communities, specifically women groups. The GEF finance project will undertake the mobilization and engagement of local communities and their various committees, groups and associations as cost-effective way of coordinating their activities and minimizing trade-offs and conflicts under multi-purpose and multi-stakeholders usage of the water resources without compromising the resilience of the system. Experiences from other places have shown that both the extent of long-term benefits, and in particular their sustainability, are directly related to the community ownership promoted through such mobilization efforts and strengthening of community-based groups. A key aspect of the programme is to develop the capacity at the local level to ensure ownership and sustainability of the proposed interventions. The envisaged training of the population and extension services will build their capacities and will create the conditions for sustainable resilience and local development, by fostering the emergence of community groups capable to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Critical factors for project institutional sustainability will be also addressed through a full collaboration with institutions at national and local levels and adequate M&E procedures carried out by different national agencies, specifically the Commissariat of Food Security. The project team will be based in close proximity to the municipalities - within provincial administration services - and a number of civil servants will be identified, equipped and trained at the communes levels in order to work with the project team and closely monitor project activities and results. Along the same line of ensuring the project's sustainability, a strategy for replicating site-level interventions will be developed.

Scaling up of project best practices would help better to disseminate how livelihoods can be better sustained under climate changes and draw synergies from other programs, projects, processes and communities. The project can potentially share:

- ✓ Measurable, quantifiable and qualitative results and how to adhere to high-quality and fair practices/processes;
- ✓ Process for linking with community-managed institutions, benefits and ownerships

- ✓ Participation, decision-making, local and indigenous expertise, partnerships, networking, sharing of costs, equity and enhanced gender relations.
- ✓ How to meet local demands, links markets, and sustains actions on scale and areas.
- ✓ Adaptive management, informal and responsive arrangements and systems created, especially for income generation activities, marketing arrangements etc.
- ✓ Linkages with institutions/banks for access of resources, loans, repayments etc.
- ✓ Technology learnt, adopted, disseminated by the partners with other partners and institutions.

The project scaling up efforts will not only focus on increasing the number of beneficiaries or geographical area, but it will also address additional barriers, forge more partnerships & linkages and generate more co-financing.

To do so, community's members will be skilling in appropriate climate resilient adaptation techniques (Outcome 2) to facilitate further upscale the application of these technologies. The training activities will increase organizational strength of selected extension institutions on climate changes risks management, allowing them to adjust approach. Documenting adaptation practices and technologies will constitute a precondition and point of departure for the process of scaling up and out (quantitative scaling up). Under Output 2.5, project lessons learned will be generating, sharing, capturing, and disseminating among current stakeholders but also future stakeholders who want to promote and implement effective, sustainable, large-scale climate resilient water infrastructure and management practices. The participatory processes and other collaborative planning approaches to be developed at local level by of the project will enable multiple stakeholders to share knowledge, develop awareness, and improve learning and foster replication in other sites.

C. DESCRIBE THE BUDGETED M & E PLAN:

The project will be monitored through the following M& E activities. The M&E budget is provided in the table below. The M&E framework set out in the Project Results Framework in Part III of this project document is aligned with the AMAT and UNDP M&E frameworks.

Project start: A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership of the project results and to plan the first year annual work plan.

The Inception **Workshop** should address a number of key issues including:

Assist all partners to fully understand and take ownership of the project: detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis-à-vis the project team; discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms; discuss the Terms of Reference for project staff again as needed.

Based on the project results framework and the LDCF related AMAT set out in the Project Results Framework in Section III of this project document; finalize the first annual work plan; review and agree on the indicators, targets and their means of verification; and recheck assumptions and risks.

Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements: agree on and schedule the Monitoring and Evaluation work plan and budget.

Discuss financial reporting procedures, obligations, and arrangements for annual audits.

Plan and schedule PB meetings: clarify the roles and responsibilities of all individuals in the project organisation structure and plan meetings; preferably hold the first PB meeting within the first 12 months following the inception workshop.

An Inception **Workshop report** is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.

Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP/GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies a classification as critical).

Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.

Other ATLAS logs will be used to monitor issues and lessons learned. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually: Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative);

Project outputs delivered per project outcome (annual);

Lessons learned/good practices;

AWP and other expenditure reports;

Risk and adaptive management;

ATLAS QPR.

Periodic Monitoring through site visits: UNDP CO and the UNDP-GEF regionally-based staff will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated to the project team and Project Board members no less than one month after the visit.

Mid-term of project cycle: The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (expected to be in October 2015). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties of the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Centre (ERC). The LD/FC/SCCF AMAT as set out in the Project Results Framework in Section III of this project document) will also be completed during the mid-term evaluation cycle.

End of Project: An independent Terminal Evaluation will take place three months prior to the final PB meeting and will be undertaken in accordance with UNDP-GEF guidance. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The Terminal evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response, which should be uploaded to PIMS and to the UNDP ERC.

Learning and knowledge sharing: Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based roundtables and/or any other networks, which may be of benefit to project implementation though lessons learned. The

project will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

There will be a two-way flow of information between this project and other projects of a similar focus.

Audit: Project will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies.

Table 3: Project Monitoring and Evaluation

Type of M&E activity	Responsible Parties	Budget USD <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	Project Manager (PIU) Project Director (CNEDD) UNDP CO, UNDP GEF	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. PIU, esp. M&E expert	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	Oversight by Project Manager PIU, esp. M&E expert Implementation teams	To be determined as part of the Annual Work Plan's preparation. Indicative cost is 25,000	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	Project manager (PIU) UNDP CO UNDP RTA UNDP EEG	None	Annually
Periodic status/ progress reports	Project manager and team	None	Quarterly
Mid-term Review	Project manager (PIU) UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost: 30,000	At the mid-point of project implementation.
Terminal Evaluation	Project manager (PIU) UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost : 45,000	At least three months before the end of project implementation
Audit	UNDP CO Project manager (PIU)	Indicative cost per year: 3,000 (12,000 total)	Yearly
Visits to field sites	UNDP CO UNDP RCU (as appropriate) Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly for UNDP CO, as required by UNDP RCU

Type of M&E activity	Responsible Parties	Budget USD <i>Excluding project team staff time</i>	Time frame
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		USD 122,000 (+/- 3.2% of total LDCF budget)	


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

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

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Alamir Sinan Toure	AEDD	Ministere de l'Environnement	19/10/2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Ms Adriana Dinu Executive Coordinator and Director a.i., UNDP/GEF		Aug. 29, 2014	Ms Mame Diop RTS, GLECRDS	+25191939 6499	mame.diop@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK

<p>The project will contribute to reaching the Common Framework in support to the Transition framework for the UN operational activities in Mali (CCAT):</p> <p>CCAT Outcomes 2012 – 2014:</p> <p>Outcome 1.5: Economic capacity of vulnerable communities, especially women and those affected by the conflict are strengthened</p>
<p>CCAT Outcome Indicators 2015 – 2018:</p> <p>1.5.2: Number of people and women benefiting economic project</p> <p>1.5.3: Number of Income Generating Activities financed</p>
<p>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</p> <p>3. Promote climate change adaptation</p>
<p>Pertinent GEF Strategic Objectives:¹⁹</p> <p>CCA-1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level</p> <p>CCA-2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level</p> <p>CCA-3: Promote transfer and adoption of adaptation technology</p>
<p>Pertinent GEF Expected Outcomes:</p> <p>Outcome 1: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</p> <p>Outcome 2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses</p> <p>Outcome 3: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas.</p>
<p>Relevant GEF Outcome Indicators (Following the AMAT tool):</p> <p>Indicator 1.3.1. Households and communities have more secure access to livelihood assets</p> <p>Indicator 2.3.1.1. Risk reduction and awareness activities introduced at local level.</p> <p>Indicator 3.1.1.1. Type of adaptation technologies transferred to targeted groups</p>

¹⁹ GEF. (May 2011). *Strategy on Adaptation to Climate Change for the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF)*.

	Indicator	Baseline	Target for End of Project	Means of Verification	Risks and Hypotheses
<p>Project Objective</p> <p>Enhance women, producer group's adaptive capacities to secure livelihoods production from climate impacts and increase socio-economic resilience in Malian vulnerable communes (Kayes, Koulikoro and Sikasso).</p>	<p>Number of households that have more secure access to livelihood assets under existing and projected climate change (AMAT indicator 1.3.1)</p>	<p>Number: at least 35,000 households (50% women) have poor access to livelihood assets due to the climate trends that negatively impact communities' livelihoods systems, namely agriculture, fisheries, livestock and forestry.</p> <p>This reduced the availability of food usually from the campaign and makes more precarious food situation of the poorest households, which use crops season to supplement their income.</p>	<p>Number: + 5,000 people, among them 50% women, have secure access to livelihood resources by adopting resilient livelihoods under existing and projected climate change</p>	<p>Survey and M&E Reports</p>	<p><u>Assumption</u></p> <ul style="list-style-type: none"> ➤ Existence of national expertise to support households in their adaptation efforts; ➤ Participation and commitment of target communities <p><u>Risks</u></p> <p>Impacts of insecurity in the North leading to a presence of massive refugees</p> <p>Lack of sufficiently qualified partners</p>
<p>Outcome 1: Sustainable climate resilient water management systems provided to vulnerable communities, including women farmers, which in turn ought to support the development of subsistence activities in the Kayes, Koulikoro, and Sikasso regions.</p>	<p>Number and type of adaptation technologies that increase access to water transferred to communities in the 10 communes for subsistence activities (AMAT indicator 3.1.1.1.)</p>	<p>Number: 2</p> <p>There are on-going efforts on water mobilisation through the construction of dams & the creation of artificial reserves in fluvial systems (Niger & Senegal Rivers).</p> <p>Decreased rainfall, rainfall variability, and increased temperatures aggravated water shortages and water availability for farming systems.</p> <p>Most small farmers, especially women, have limited access to irrigation systems, as irrigation entails high investment costs to purchase equipment and technological expertise to install, operate, and maintain the works. In addition, traditionally women have the right to less fertile land that has low access to water.</p>	<p>Number & Type: +2</p> <p>Water storage capacity increased through the water impoundment</p> <p>Water access improved through the adoption of small-scale irrigation system</p>	<p>Activity and M&E Reports Survey</p>	<p><u>Assumption</u></p> <ul style="list-style-type: none"> ➤ Existence of national expertise to support households in their adaptation efforts; ➤ Participation and commitment of target communities <p><u>Risks</u></p> <ul style="list-style-type: none"> ➤ Impacts of climate change far greater than predicted ➤ Low mobilization of the target group caused by a poor understanding of climate change issues ➤ Lack of sufficiently qualified partners

	Indicator	Baseline	Target for End of Project	Means of Verification	Risks and Hypotheses
Outcome 2. Innovative approach and sustainable climate resilient technologies, provided to women farmers and producers to enhance and secure the production of local livelihood systems from climate impacts in ten communes in the Kayes, Koulikoro, and Sikasso regions.	Number of households participating in risk reduction and awareness activities (AMAT Indicator 2.3.1.1)	Number and type: 0 No risks reduction measures are developed. The capacities in farming and husbandry in the targeted communes will remain weak due to the fragility of natural resources, low use and low availability of farming inputs, high dependence on rainfall, and under development of fodder production.	At least 5 risks reduction measures (e.g. diversification, Improved resilience of agricultural systems, etc.) adopted and 1000 households participating to awareness activities.	Activity and M&E Reports Survey Interviews	<u>Assumptions</u> <ul style="list-style-type: none"> ➤ Women’s groups and organizations are operational ➤ Social cohesion exists in the communities <u>Risks</u> <ul style="list-style-type: none"> ➤ Limited finance available for local communities and their institutions ➤ Target communities do not see the benefit of adaptation technologies/ practices
	Number of households that increase per capita income due to adaptation measures applied (AMAT Indicator 1.3.2.)	Number: 0 But climate change caused significant losses in production and due to low agricultural income (because of weak productivity, poor storage, transport, and commercialization facilities) and scarce access to credit, women and producers do not have the necessary financial resources to undertake the required investments to foster agricultural production (equipment, inputs and irrigation equipment).	At least 5000 households increased their income by applying adaptation measures	Survey Activity and M&E Reports	

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

Question	Recommendation	Response
<p>13. Are the activities that will be financed using GEF/LDCF/SCCF funding based on incremental/additional reasoning?</p>	<p>By CEO Endorsement, kindly clarify the interface between the proposed project and broader investments planned under the 166 Communes Initiative, as the latter could present a vehicle for scaling up successful adaptation measures</p>	<p><u>Institutional interface:</u> As main beneficiary of the project, the Commissariat of the Food Security will be part of the Steering Comity Meeting to ensure that the project is in conformity with 166 Communes Strategy and investments. At regional level, consultation process to be undertaken during project planning will involve key actors of the 166 communes, specifically: the local planning committees; and Formal Associations and Civil Society Organizations involved in MDG-based planning at community, local, regional and national levels. These partners will also benefit training from the project on adaptation technologies promoted.</p> <p><u>Potential for scaling up:</u> Project experiences and good practices will be shared during regional forum and results will be linked to the M&E platform developed for the 166 Communes Initiative.</p>

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS²⁰

A. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:

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

PPG Grant Approved at PIF:			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF/NPIF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Activity 1: Needs assessment and technical feasibility of adaptation options and measures	45,000	30,000	15,000
Activity 2: Project Development	10,000	10,000	
Activity 3: Stakeholders Consultation	35,000	35,000	
Activity 4: Develop a financial plan and co-funding scheme	10,000	10,000	
Total	<u>100,000</u>	<u>85,000</u>	<u>15,000</u>

²⁰ If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

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

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



United Nations Development Program

Country: Republic of Mali

PROJECT DOCUMENT

Project Title: Strengthening the Resilience of Women’s Producer Groups and Vulnerable Communities to Climate Change in Mali.

UNDP Strategic Plan 2014-2017

Outcome 1.4: Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented

Output 1.4.1: Number of countries with systems in place to access, deliver, monitor, report on and verify use of climate finance

Output 1.4.2: Number of countries with comprehensive measures - plans, strategies, policies, programmes and budgets - implemented to achieve low-emission and climate-resilient development objectives.

CCAT Outcomes 2012 – 2014:

Outcome 1.5: Economic capacity of vulnerable communities, especially women and those affected by the conflict are strengthened

CCAT Outcome Indicators 2015 – 2018:

1.5.2: Number of people and women benefiting economic project

1.5.3: Number of Income Generating Activities financed

Executing Agency: Agence de l’environnement et du développement durable (AEDD)

Implementing Agency: United Nations Development Programme (UNDP)

Programme Period:	2015-2018
Atlas Award ID:	
Project ID:	
PIMS:	4790
Start Date:	January 2015
End Date:	December 2018
Management Arrangements	NIM
PAC Meeting Date	November 2014

Description

project intervention areas are found in the Kayes, that disrupt economic activities in these regions are r timing of rains that affects planting dates, irregular length of the rainy season, and irregular distribution of rainfall across space. In addition, the regions see

increases in floods as well as increases in evaporation and the drying up of wetlands and other water bodies due to high temperatures. Finally, land degradation and hydric erosion is prevalent, and arable farmland is becoming increasingly limited due to deforestation and desertification.

Given the nature of climate hazards and vulnerabilities in the regions, the present project is designed to strengthen the livelihoods of women's groups and farmers in ten vulnerable communes in the regions of Kayes, Koulikoro, and Sikasso in Mali to increase their resilience to the impacts of climate change.

The project is developed to encompass two major components: i) improve access to water management systems that are resilient to climate change for vulnerable communities, including women farmers, to support subsistence activities; and ii) invest in innovative climate-resilient approaches and technologies for women farmers and other farmers to enhance and secure the production of local livelihood systems from climate impacts.

Agreed by (Government):

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

Date/Month/Year

Agreed by (UNDP):

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Acronyms

AfDB	African Development Bank <i>Banque Africaine de Développement</i>
AESD	Agency for Environment and Sustainable Development <i>Agence de l'environnement et du développement durable (AEDD)</i>
APR	Annual Project Report
CCC	Community Consultation Committees
CDM	Clean Development Mechanism
CSCR	<i>Cadre Strategique pour la Croissance et la Reduction de la Pauvrete</i> Strategic Framework for Growth and Poverty Reduction
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIZ	<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i> German Cooperation Agency
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
LDCF	Least Developed Countries Fund
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MEAs	Multilateral Environment Agreements
NAPA	National Adaptation Programme of Action <i>Programme d'Action National d'Adaptation (PANA)</i>
NIM	National Implementing Modality
NGO	Non-governmental Organization
NPCC	National Policy on Climate Change <i>Politique Nationale Changement Climatique</i>
PIR	Project Implementation Report
PSC	Project Steering Committee
RGPH	<i>Recensement Général de la Population et de l'Habitat</i> General Population and Housing Census)
IOM	International Organization for Migration
SIDA	Swedish International Development Cooperation Agency
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

UNIDO United Nations Industrial Development Organization
WFP World Food Programme

I. SITUATION ANALYSIS

I.1. Introduction to the Project Regions

Mali is a vast country (1, 241,248 km²) located in the heart of West Africa, specifically in the Sahel and Sahara regions. The country includes eight regions, one district, 49 circles, and 703 communes (of which 666 are rural), and each subdivision is named according to its largest city. The north of the country includes the regions of Gao, Kidal, and Timbuktu, and the south of the country is divided amongst the regions of Kayes, Koulikoro, Mopti, Ségou, Sikasso, and the district of Bamako.

The project “Strengthening the Resilience of Women’s Producer Groups and Vulnerable Communities to Climate Change in Mali” will take place in the Kayes, Koulikoro, and Sikasso Regions. The following sections describe the geographic, environmental, demographic, and economic conditions of each of these three regions.

FIG 1: Map of the three project regions.



Source: IGN 2013

Kayes Region

The Kayes Region is located in the western part of Mali and covers a surface area of approximately 120,760 km², which is 9.7 percent of the national territory. Administratively, Kayes is subdivided into seven circles (Bafoulabé, Diéma, Kayes, Kénièba, Kita, Nioro Sahel, and Yélimané), including 129 communes of whom 12 are urban communes. The project will intervene in: (i) **Sero Diamanou Commune**, located in the Kayes Circle, (ii) **Béma Commune**, located in the Diéma Circle, and (iii) **Yerere Commune**, located in the Nioro Sahel Circle.

The Kayes Region is one of the least densely populated regions in the country with an average of 16.54 habitants per km², according to the 2009 General Census.¹ With an estimated population of 1,966,812 persons, which is 14 percent of the national demographic, the region saw a 3.5 percent average yearly rate of population growth from 1998 to 2009.

Kayes covers three climate zones. The climate is humid near the Guinean border, and it becomes more Sudanese as one moves towards the north, where ultimately it becomes Sahel-like. Kayes sees very high temperatures that go above 45° C from March to May, making Kayes City the hottest city of Africa.

The Kayes Region brims with economic potential including:

- **Surface Water Resources:** The region holds several river systems that include the Bafing, Bakoye, and Baoule Rivers which join at Bafoulabé to form the Senegal River, as well as the Falémé River, which runs along the Mali-Senegal border creating a natural boundary. Together, the rivers provide the region with strong agro- and sylvo-pastoral potential.

¹ GoM INSTAT (2011) RGPH.

- **Mineral Resources:** Resources include: i) iron deposits near the localities of Djidian, Diamou and Balé; ii) calcium near Gangotery, Atro, and Dinguir; iii) marble in the Silenkegny and Madibaya localities, and; iv) gold in the Sadiola, Yatela, Loulo Tabacoto, Dioulafoundou, Farabantourou, and Médinandi localities. Mineral exploitation creates employment opportunities for local people in these places.
- **Migrant Remittances:** According to the National Mali Migration Profile of 2009, approximately 56.7 percent of the households in the region receive money transfers from migrants, constituting the highest rate in Mali. The monthly average amount of remittances received is estimated at about 337.512 CFA Francs and is by far the highest in Mali.

Koulikoro Region

The Koulikoro Region covers a surface area of 90,210 km², or 7.2 percent of the national territory. It consists of 108 communes, of which 3 are urban (Koulikoro, Kati, and Karan) as well as 105 rural communes, which are all grouped into 7 circles (Banamba, Dioila, Kati, Kangaba, Koulikoro, Kolokani, and Nara). The project will intervene in the **communes of Boron and Kiban**, located in the Banamba Circle and the **Sagabala Commune** in the Kolokani Circle.

According to the General Census,² Koulikoro is home to 2,422,108 inhabitants, or 16.7 percent of the population of Mali. The region has one of the highest population densities in Mali, with 24.7 inhabitants per km². Only three other regions have higher population density: Sikasso Region with 37.1, Ségou with 36.3, and Mopti with 26.2 inhabitants per km². The national average is considerably lower, at 11.7 inhabitants per km². The demographic weight of the region is partially explained by high population growth, but mostly by the region's proximity to Bamako, which also influences the urban structure of Koulikoro.

The topography of the Koulikoro region contains a large, hilly plateau, of which Mount Minding is the largest. It covers 150 kilometers sweeping across the region from east to the west. The Koulikoro Region is part of the tropical zone which experiences marked alternation between the rainy season, from May to October, and the dry season, from November to April. The highest temperatures, which reach 40°C, are seen between March and June, with the lowest temperatures between December and February. Within the region, there are by three sub groups of climates moving from the north towards the south. The Sahel Zone lies in the north and is characterized by rainfall between 150 and 550 mm per year. The Sudanese Zone lies farther towards the south and sees rainfall between 550 and 1,150 mm per year. Finally, the Guinean Zone in the extreme south sees rainfall above 1,150 mm per year.

The economy in Koulikoro rests essentially on the primary sector, which includes agriculture, livestock, fishing, and forestry.

- **The agriculture sub-sector** employs nearly 90 percent of the active population and is the economic backbone of the region. According to the Regional Directorate for Agriculture,³ the sector includes export crops (cotton and peanuts), food crops (rice, millet, maize, sorghum, cowpeas, cassava, ground nuts, yams, and sweet potatoes), market vegetables (eggplant, peppers, onions, cucumber, garlic, carrots, potatoes, and tomatoes), new commercial crops (sesame, Guinea sorrel, physic nuts, henna, and soy), and arboriculture.
- **The livestock sub-sector** has been progressively increasing. It is practiced by more than 80 percent of the population either through transhumance, in Nara, Lokokani, and Banamaba, or on farms, such as in Kioila, Koulikoro, and Kangaba. Livestock in the region includes, in order of importance, goats, cattle, sheep, mules, horses, swine, and camels.

² GoM INSTAT (2011) RGPH.

³ la Direction Régionale de l'Agriculture

- The fishing sub-sector is also an important economic activity in the region. In 2007, the sector involved 216 villages and 9,950 fishermen.⁴ Products made include fresh fish, smoked fish, and dried fish. Production of fresh fish increased from 27.8 tons in 2006 to 91.57 tons in 2009. Production of smoked and dried fish is also significant. Techniques follow artisan practices and are done by women, who are generally grouped in associations or in Economic Interest Associations. According to the General-Directorate of Fishing, production in 2010 consisted of 466,901 kg of smoked fish and 90,410 kg of dried fish.
- Forestry activities are possible due to the presence of eleven forests classified by the Regional Directorate of Water and Forests in Koulikoro. Three of the largest are also classified at the national level and include Faya (79,822 hectares), Sounsou (37,000 hectares), and Mount Minding (14,579 hectares). The different forested areas lend themselves to forestry and use of wild animal products. Forestry includes wood for timber, general-purpose wood, making carbon, essential leaves, land clearing, harvesting, as well as hunting wildlife. These important resources enable the development of forestry supply chains. The region has become one of the primary areas in the country producing Arabic gum. It is also, behind Sikasso, the second largest producer of Shea nuts. Shea nuts are mostly produced in the circles of Dioila, Koulikoro, Kolokani, and Kangaba.

Sikasso Region

The Sikasso Region is located in the southern part of Mali covering an area of 71,790 km². It includes seven circles (Sikasso, Bougouni, Koutiala, Kadiolo, Kolondiéba, Yanfolila, and Yorosso), 3 urban communes, and 144 rural communes. The project will carry out activities in (i) **Sikasso and Tella Communes** in Sikasso Circle, (ii) **Sincina Commune** in the Koutiala Circle, and (iii) **Yorosso Commune** in the Yorosso Circle.

The population is estimated to 1,782,157 inhabitants in 1998, a number that rose to above 2,643,179 inhabitants in 2009, representing an annual average growth rate of 3.6 percent.⁵ Sikasso is the most populated region in Mali containing 18.2 percent of the national population. It is also the highest population density in the country, with 37.1 inhabitants per km². Already high immigration has increased in recent years with migrants from the Ivory Coast – both Ivoirians as well as native Malians – immigrating to Mali following the Ivorian crisis. In addition, seasonal migrants from livestock regions in the north are arriving in search of pastureland and market outlets, also contributing to immigration. Overall, population in Sikasso increased by one-and-a-half fold between 1990 and 2009. The largest increases were in the circles of Kadiolo (increase of 83%), Koutiala and Yorosso (increase of 50 percent), and Bougouni (increase of 49 percent).

Topography in the region is hilly in the south and less so in the north. The highest point is Mount Kokoum, which is located in the Dogo Commune (Bougouni Circle) and has an altitude of 800 meters. Vegetation is abundant and diverse favouring, in turn, rich and varied wildlife. Wildlife is located primarily in wildlife reserves and game sanctuaries. The Sikasso Region includes four significant rivers: the Sankarani, which feeds Uanfolila Circle before meeting the Wassoulou Ballé and joining the Niger River, the Bagoé, which feeds the Sikasso, Kadiolo, and Kolondiéba Circles through its several tributaries, the Baoule, which feeds the Bougouni Circle and receives water from the tributaries of Bafing and Dégtou, and the Bafing, which feeds Sikasso Circle and receives water from the Lotio.

The Sikasso Region has a tropical, Sudanese climate, and it is subdivided into two areas: the humid Sudanese Zone and the Guinean Zone. It is the most humid region in Mali and receives rainfall between 700 and 1,500 mm per year. The average annual temperature is 27° C, and the dry season extends from November to May, with the wet season occurring from May/June to October/November.

⁴ *Direction Régionale de la Pêche* of Koulikoro (2008).

⁵ GoM INSTAT (2011) RGPH.

Economically, Sikasso is an agro- and sylvo-pastoral zone that contains important potential for fruit orchards such as mangos and bananas. Cotton is one of the main cash crops in the region. Gold mining is also developing in the area with the opening of gold mines in Koumantou, Loulou, Yanfolila, and recently Sélingué, where the population practices artisanal gold mining.

- Agriculture is possible due to the vast flood plains that extend from the north to the northwest of the region. The main activities include growing cereals (millet, sorghum, maize, rice, and *fonio*, arboriculture (mango, cashew, oranges, bananas, papaya), market vegetables (zucchini, peppers, tomatoes, okra, melons, egg plants, green beans, water melon, shallots, onions, garlic, lettuce, tobacco, sweet potato, potato, cassava, and ginger), and market crops (cotton, peanut, groundnuts, soy, cow peas, sesame, and sunflowers).
- Husbandry is well developed in Sikasso, which is the second largest livestock region in Mali following Mopti, and contains 16 percent of national livestock.
- Fishing is mostly practiced in the waters behind the dam at Sélingué, in the Bagoé, Baoule, and Bafing Rivers, and in permanent and temporary wetlands.

I.2. Climate change - induced problem

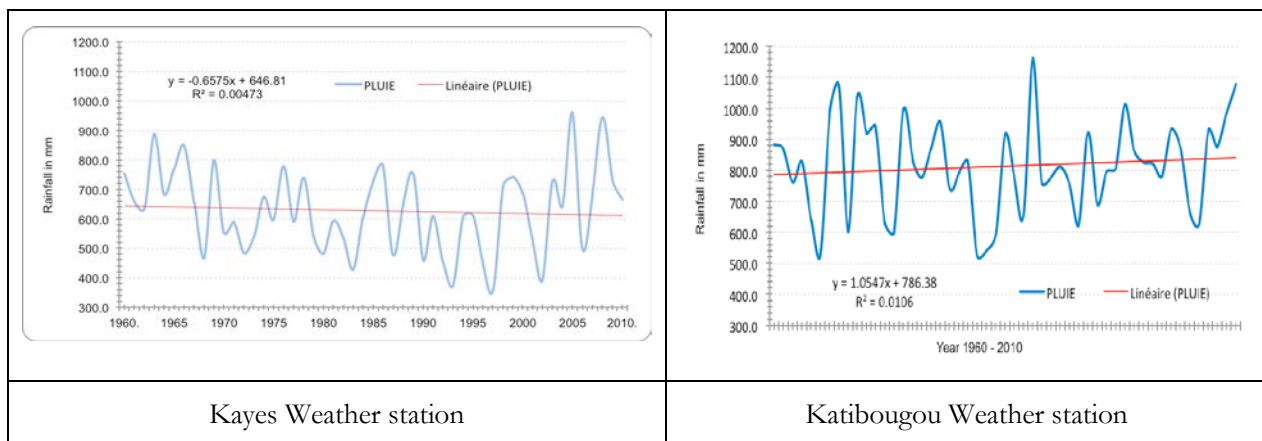
Observed Climate Change

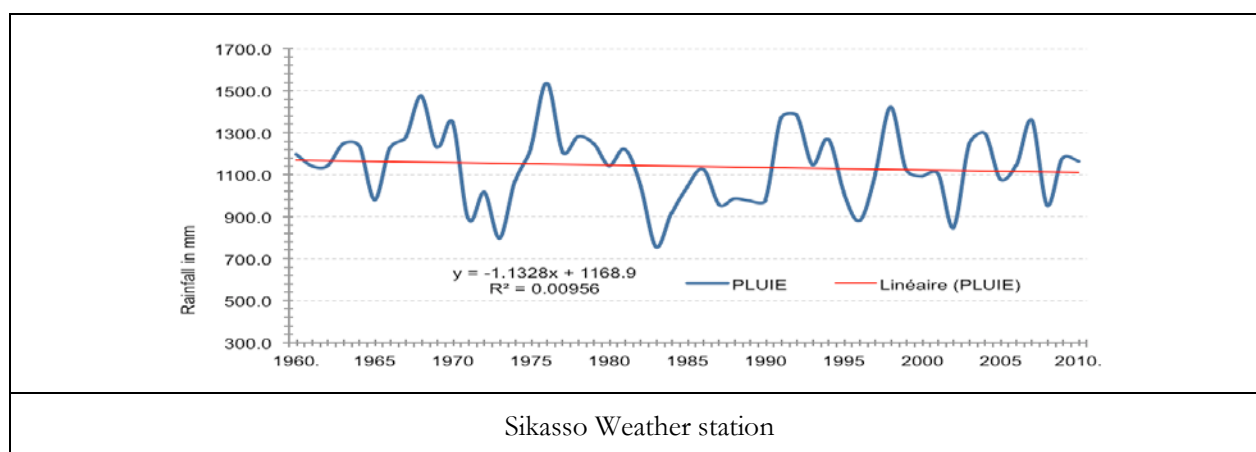
A detail report on Climate changes in Mali presented under the PPG Report 3.

Over the last 70 years overall rainfall has decreased across the country compared to the baseline period from 1941 to 1970. Even if in certain places, such as Bamako, Bougouni, Kayes, Mopti, Nioro, and Ségou, rainfall has slightly increased over the last 30 years (1981-2010 compared to 1971-2000) rainfall remains lower since 1970. The overall deficit varies between 10 and 28 percent with the exception of Tessalite that saw recent floods in 2012 and 2013. In addition, isohyets from the north to the south of the region have been descending between the reference period of 1951-1970 and the period from 1971-2000, as illustrated in the map image below. Of note is that the 1,200 mm isohyet no longer exists in Mali.

The study of climate risks carried out during research for the present project analysed rainfall and temperature data available since 1951 at weather stations in the country. Results showed an inter-annual variability between the periods 1951 – 1970 and 1971 – 2000 that clearly shows: (i) a reduction in average annual rainfall across this period and persistent alternation between dry years and wet years at all of the stations making it difficult to manage climate risks; and (ii) an increase in average temperatures during this period. Nonetheless, for the three project regions across the last ten years there is a tendency of increased rainfall in Kayes and Koulikoro to the north and a tendency of decrease in Sikasso to the south (Figure 2).

FIG 2: Change in Rainfall in the Project Regions (rainfall in blue, trend line in red).





Source: Mali Meteo

Future climate trends

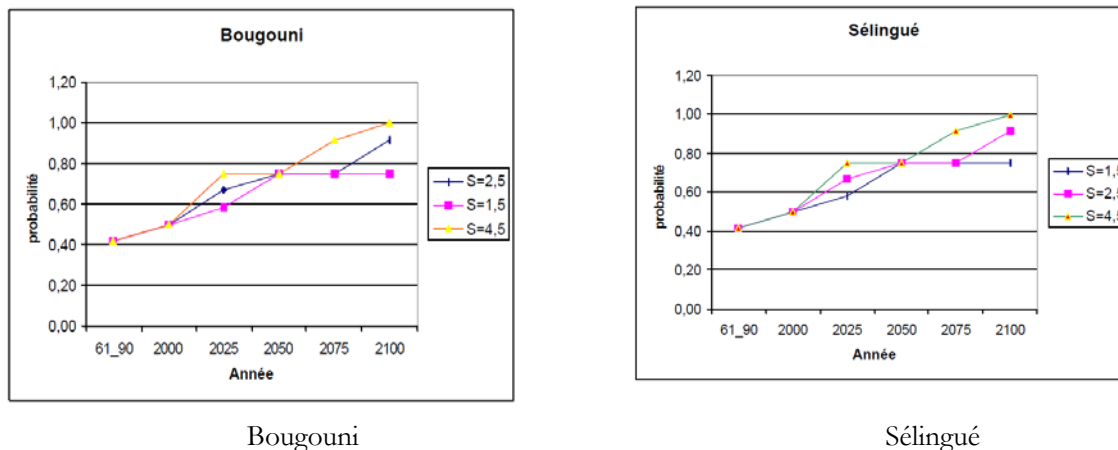
The most recent climate scenarios for Mali were conducted in 2003 as part of the Dutch Assistance Programme to Study Climate Change⁶ using the models of MAGGICC (Model for Assessment of Greenhouse-gas Induced Climate Change) and SCHENGEN (scenario generator). These studies produced the following findings:

- Average temperature will increase from 30.5°C during the 1961 – 1990 period, to 32.5 °C in 2050, and 34.5°C in 2100;
- A 10 to 15 percent decrease in precipitation including shifting of current isohyets towards the south;
- A 35 percent decrease in water resources by 2025 for surface water and by 13 percent for renewable aquifers, compared to the 1961 – 1990 average;
- An increase in the frequency of floods and extreme meteorological events with real impacts on living conditions of populations, particularly in terms of access to safe drinking water, health, and food security needs;
- Droughts that take place in the first half of winter, from May to July, beginning in 2025 or even as early as 2020.

In project sites, studies from the National Center for Science and Technology Research showed an increase in the probability of maximum temperatures in Bougouni and Sélingué based on the average from 1961 – 1990, with maximum temperatures reaching a plateau at some time between 2050 and 2100 if a sensitivity of 1.5 is used and between 2050 and 2075 if a sensitivity of 2.5 is used. Importantly, at both of the two locations, the three climate scenarios give the same probability by the 2050 horizon (see Figure 3).

⁶ *Programme Néerlandais d'Assistance aux études sur les changements climatiques*

FIG 3: Probability of extreme temperatures linked to climate variability



Source: CNRST 2003

In terms of rainfall, climate scenarios conducted in 2003 show potential changes in precipitation in Mali by 2050. For all regions, scenarios show a decrease in rainfall between 5 and 10 percent in 2050 compared to the 190 – 1990 average. Drought will take place in the first half of winter (May, June, and July) beginning in 2025 at all locations if one uses moderate climate sensitivity. According to these scenarios, by 2025 there will be a progressive decrease in rainfall from the east to the west with curves oriented from the northeast and southeast up to the 20°N Latitude. The decrease may also vary significantly within a climate zone.

Climate Change Impacts on communities' livelihoods

The effects of climate variability and change, such as erratic rainfall, increased temperature, long periods of drought, and flooding following droughts, have made farming more and more difficult. The socioeconomic consequences of climate change impacts on the livestock sector are the following: 1) high increase in prices of livestock and meat following the reduction in supply due to increased animal mortality caused by drought; 2) shifts in subsistence activities for a large number of nomads towards sedentary activities; 3) reduced revenues from pasturing animals; and 4) changes in herd composition with progressive replacement of cattle with small ruminants and camels.

Climate change will be a limiting factor for the development of target regions (Kayes, Koulikoro and Sikasso) that are highly sensitive to changes in rainfall, where most households in these regions derive over 70 percent of their income from agriculture, livestock and forestry sectors, and are therefore the most vulnerable to climate change. The trends in rainfall decrease and variability, and the increase in temperature will lead to a high evaporation-transpiration, which could worsen water shortages in the region and their use in production systems. Diminishing access to water would likely result in increasing competition for water with risks of conflicts. Most lakes that were previously perennial in wet periods have become intermittent or temporary due to drought. This shift is a substantial disruption for rural people. For example, in Gourma during the 1980s only the Benzema swamp was perennial; all other bodies dried up for only two months after winter. A significant reduction in average water flow in rivers is also observed specifically the Niger River in Koulikoro.

The socio-economic effects arising from the loss of these ponds are disastrous and their reduction has resulted in a vastly reduced quality of life for many people. Women and children, for example, frequently have to walk for an entire day to collect water. The distances to be walked to collect water in the future are likely to increase as climate change effects continue to manifest. The time required to collect water by these vulnerable groups, also has a negative economic effect in that these water bearers are unable to contribute to agricultural productivity.

The evaluation report of agricultural campaign (2011-2012) showed that the agro-sylvo-pastoral campaign was characterized by climate disturbances more or less pronounced according to the agricultural areas. The late and early rains did not allow a good evolution of cultures including those suitable for rainfed agriculture. The recent rains expected to allow crops to complete their cycle properly in few areas in the Sikasso region. In the region of Kayes, the prospects for flood recession crops of short-cycle maize and sorghum are poor due to the limited extension of flood areas. The possibility of crop season is compromised this year and might not be possible for 75% of the villages surveyed in Kayes.

According to the NAPA, climate change caused significant losses in crop production with an estimated reduction in cotton yields by 150 tons in 2005 and probably up to 3.500 tons by 2025. Similarly, production of millet and sorghum decreased by 150 tons in 2005 and is likely to further diminish by 2.524 tons in 2025. According to the outcomes of various climate models, the climate trends for future scenarios – without improved planning and management, particularly improved water and natural resource management plans – will negatively impact communities' livelihoods systems, namely agriculture, fisheries, livestock and forestry which directly impact households food security and poverty. This would reduce the availability of food usually from the campaign and make more precarious food situation of the poorest households, which use crops season to supplement their income. Yet, the nutrition situation of household is alarming in project target regions. The highest percentage of undernourished mothers is also found in the region of Sikasso (16%) and is additionally a contributing factor to the high rates of child malnutrition. The highest prevalence of wasting (16%) is found in the agriculture-migration zone of northern Kayes and Koulikoro⁷. The improvement of storage facilities as well as training for family heads on financial planning and postharvest management could contribute to the increase of the months of adequate household food provision and therefore reduces rates of under nutrition.

I.3. Preferred Situation and Barriers to Overcome

It is expected that the adverse climatic conditions will negatively affect poor people, particularly women. As a consequence, women's workload will be increased with the drying of surface water and the additional activities automatically undertaken due to men's migration. The higher workload and decreased access to assets increased women's vulnerability. Therefore, preferred adaptation solution will include (i) counteracting the effects of reduced water availability and (ii) promoting diversification of livelihood to respond to immediate food and subsistence needs and cover the cost of future adaptation strategies. There is need to support and implement climate-resilient activities and new technologies, ensuring that most of women households and producers adopt and diffuse them.

However, to date there is insufficient technical, institutional and financial capacities at commune's level to uptake adaptations measures and practices. Some of the barriers to overcome have been identified, among which:

Barrier#1: Limited access of women to financial support. Poverty headcount rates are above 50 percent in four regions (Sikasso, Segou, Mopti, Koulikoro), which account for 4.6 million of the total poor population (around 6 million people)⁸. Women and small-scaled farmers have a limited amount of capital assets that may be needed to reduce the impacts of climate variability on their livelihoods and thus may be least prepared to deal with climate related shocks. Evidence reveals that it is more difficult for rural women to access credit and undertake new entrepreneurship, given the neutrality of most financial products and services with respect to the gender question. In Mali, the property rights in rural areas and the consequent control of assets are usually heavily tilted against women. This poses a serious obstacle for women to enter the credit markets due to lack of security. As financial services are mostly directed to households, the male members are usually the receivers

⁷ USAID MALI (2010): Global Hunger and food security initiative. Feed the Future

⁸ World Bank (2013)-Emergency Safety Net Project

of credit and insurance in rural developing societies. Lower literacy rates among women further prevent them from processing and comprehending information wherever they are accessible.

Barrier#2: Limited market access hinder women's efforts to optimize their income: Most of women group expressed their needs to timely, reliable and accessible market information to market their produce. Moreover, they need advice, formal and informal training and short courses on how to access markets combined with better infrastructure. In addition, women producers are lacking of storage facilities weaken the bargaining power of the women & small-scale farmers when it comes to negotiating the prices of farm produce. This is because most of them cannot store their produce and therefore accept whatever price they are offered. If women producers are not able to get good prices for their produce, they will not be able to repay their loans and this will have serious implications for their ability to contract future loans to implement adaptation strategies. Finally, they have difficulties to access to markets due to inadequate transport infrastructure as well as social restrictions over their mobility.

Barriers#3: Limited support to women for the development and implementation of identified climate-resilient activities/practices: women are often unable to acquire certain skills that would help increase their resilience to these impacts. Women groups highlighted that they are not aware of all the possible adaptation strategies, of all the ways to overcome climatic constraints. Critical types of information and resources are mostly shared with men farmers groups but women are often served last because they are often excluded from and have limited access to the core strategic groups that meet in such knowledge hubs. The technical support provided to them by extension services and research organizations is weak.

Barriers#4: Lack of relevant climate information to support production. The system of meteorological data collection and diffusion is currently not appropriate (incomplete data collection, weak analysis and diffusion). As a consequence, meteorological advice to local communities is non-existent and an agro-hydro-meteorological advice system needs to be designed in order to analyse predictions and meteorological information processed by the DMN, assess their consequences on agricultural and livestock sectors and relay the information to farmers. This lack of adequate and timely information compromises women's capacity to diversity into alternative livelihoods or increase their resilience.

II. PROJECT STRATEGY

II.1. Country ownership: country eligibility and country drivenness

As a Least Developed Country (LDC), Mali is eligible for the [Least Developed Countries Fund \(LDCF\)](#) managed by GEF. Mali ratified the Kyoto Protocol in 1999 after signing the United Nations Framework Convention on Climate Change (UNFCCC) in 1994. As required by the UN Framework Convention on Climate Change, Mali prepared the first National Communication in 2000 and completed the National Adaptation Plan of Action (NAPA) in 2007 where national priorities for adaptation were identified and classified according to the vulnerability to climate risks. The country already submitted to UNFCCC First and Second National Communications (INC in 2000 and SNC in 2009). The proposed project constitutes a response to urgent and immediate adaptation needs. It is designed to address the additional costs of priority adaptation measures identified in the NAPA and it will also create the necessary capacity to continue to do so even after project completion (sustainability). The ratio of LDCF funds to co-financing is consistent with the sliding scale⁹.

The project is also in conformity with a variety of other initiatives aimed at furthering the development of Mali.

- The Strategic Framework for Growth and Poverty Reduction (SFGPR 2012-2017): The proposed LDCF financed project will support the implementation of the Axis 1 “Promoting sustainable growth and job creation” by increasing the resilience of agro pastoral and fisheries production, diversifying woman incomes sources, while strengthening their capacities to respond to the increasing incidence of extreme weather events.
- The “Initiative 166 Communes” launched to combat food insecurity in the 166 municipalities (communes), identified as the most vulnerable to food crises. The Initiative is focuses on 8 axis: (i) Agriculture and Hunger, (ii) Education , (iii) Gender, (iv) Health, (v) Energy, (vi) Water supply and Sanitation, (vii) road and transport and (viii) Environment. Under the proposed LDCF project the adaptive capacities of vulnearble groups will be enhanced in the context of resilience to expected climate change pressures.
- The National policy on climate change (PNCC): the proposed LDCF is aligned with the Objective 2 that the promotion of adaptation technologies on key livelihoods sectors: agriculture, livelihoods, forestry and fisheries.
- UNDP Strategic Plan. The project is aligned with Outcome 3: Resilience-building by facilitating the integration of disaster risk reduction with adaptation to climate change and address differentiated social and economic impacts; and preparedness for disaster management and recovery at the sub-national and national levels.
- And finally, the proposal is aligned with the objective 3 of the Common Framework in support to the Transition (CCAT) - framework for the UN operational activities in Mali, implemented during this exceptional period of transition.

This project is elaborated through a participative process. Key stakeholders and a selection of direct beneficiaries have been involved in priority settings and project design. The Agency of the Sustainable Development (AEDD) has led project formulation. The process of elaboration of the project document is on following steps:

⁹ GEF/LDCF, 2006, Articles 18 and 19

- i. Organisation of the PPG inception meeting (20 June 2013, see **PPG Report 1**) with the participations of representatives from central Ministries (Agriculture, Water, Women), specialised Agencies (DNM, CTDL, partners (e.g. USAID, etc.), Consultants and UNDP. the outcome was to: (1) develop a common understanding of the project; (2) establish criteria for the selection of target; (3) guide the consultants on the methodology for the collection of data.
- ii. Organisation of a series of meetings with stakeholders for agreeing on project content and operationalization (situation analysis, priority sites for intervention, priority criteria). The Table 1, in below, identified key institutions and organisations that contributed to the project design. The team of 4 consultants (Socio-economy, Agro-meteorologist, Hydraulic, Gender) organised more than 5 meetings with beneficiaries (women groups), technical regional services and other key partners intervening in the project areas. The Consultation Report (**PPG Report 2**) highlight findings of fields mission. The stakeholders participation plan in ANNEX E identify the key stakeholders and their interests relative to the project and describe how stakeholders will be involved in the implementation of each project outcome.
- iii. Development of sectoral reports (PPG report 3 to 7) and Prodoc by the Consultants (the contain of the sectoral reports are presented in Annex 2)
- iv. The project strategy, the logical framework, the budget and institutional machinery have been presented and validated during a full day national workshop, held in Bamako in March 2014.
- v. To conclude, the draft project document was finalized and validated by UNDP on July 2014.

Table 1: Stakeholders involvement during the preparatory phase

Stakeholders	Specific contribution
AEDD, Ministry of Environment & Sanitation	Guidelines on the project strategy Coordination of partners (identification of key partners, contact partners, organised meetings) Identification of project sites; Facilitate local meetings Contribute in the Project document (review and inputs); Contribute to the need assessments on climate information, community supports Recruit international & national consultants
Ministries of Agriculture, Decentralisation, Women, Water, Mali Meteo, ANICET	Guidelines on the project strategy Participate in consultations meetings Contribute in the Project document (review & and inputs), specifically contributed on the identification of capacity needs to support communities based on Adaptation measures
Decentralised government	Guidelines on the project strategy Facilitate and participate in local consultations meetings Contribute in the Project document (review & and inputs)
Women Organisations: FEMNET/MALI ; RESO CLIMAT MALI ; AMADE PELCODE ; AIF-DONASIGUI ; CCA-ONG ;	Participate in local consultations meetings Contribute the Project strategy, specifically evaluation of needs, problems, identification of key activities

Stakeholders	Specific contribution
AWLAE MALI ; COFESFA ASSOCIATION SOLEIL D'AFRIQUE ; COFEM ; PROMODEF ; AFISD ; ADCOPS MALI-FOLKE CENTER NYTAA.	
Partners (UICN , AGCCC, USAID, UNCDF,	Participate in consultations meetings; Provide key recommendation on project strategy

II.2. Project rationale and policy conformity

The Government of Mali requested the support of the LDCF to prepare a Full-Seized Project (FSP) responsive to priority 1, 2,3,4,5,6 and 14 of the NAPA.

- ***NAPA Priority Projects #1&2: Adoption of improved food varieties adapted to climate change:*** the objective is to improve the living conditions of communities facing to food insecurity associated with the adverse effects of climate change. The proposed LDCF project will provide improved seeds, livestock and fish varieties provided to 1500 farmers, herders and fishermen to increase their productivity under changing climatic conditions.
- ***NAPA Priority Project #3: Promotion of income-generating activities and development of mutual assistance:*** This NAPA project is contributing to fight against poverty through income sources diversification. In the proposed LDCF project, women groups will be engaged into resilient income generating activities (such as fisheries, market gardening, etc.) to diversify and increase households sources of income;
- ***NAPA Priority Project #4: Five-year aquaculture program in Mali (2008-2012):*** The objective is to promote sustainable fish production and diversify the communities fishing activities. The proposed LDCF project will support rivers and ponds dredging and channels protection from erosion in selected communes to restore fish habitats threatened by the CC and increase fish production/communities protein resources;
- ***NAPA Priority Project #5: Promoting cereal Banks in Mali:*** The objective is to support vulnerable people to cope with the shortfall in production associated with climate risks through the creation of cereal banks. The proposed LDCF project will establish and equip village grain and seed storehouses and other technologies for preservation to supply food during critical periods.
- ***NAPA Priority Project #6:*** Use of meteorological information to improve agricultural production and contribute to food security in Mali. The objective is to provide advice to rural areas; meteorological advice and technical support to better plan and execute efficiently their agricultural activities to improve production. The propose LDCF project will provide agro-meteorological information to rural producers in order to minimize climate risk and secure or increase agricultural and livestock productions.
- ***NAPA Priority Project #14:*** Development CES / DRS actions for agriculture, forestry and pastoral purpose : the objective is to recover degraded lands and improve the socioeconomic status of vulnerable populations. The proposed LDCF project will support stabilisation of soils in agro-pastoral landscapes using soil and water conservation measures (CES/DRS), including banquettes, planting trees and sowing seeds of drought-resilient fodder species.

The project is coherent with the guidelines defined by the LDCF. It is developed along the lines of the « *Programming Paper for Funding the Implementation of NAPAs under the LDC Trust Fund* »¹⁰ and its formulation has followed the guidelines of UNDP/GEF « *Adaptation Policy Framework for Climate Change* ». ¹¹ The project is consistent with LDCF criteria, notably: (1) follow a country led participative approach; (2) operationalize NAPA priority; (3) support hands-on approach (learning by doing); (4) adopt a multidisciplinary approach; (5) promote gender equity; (6) follow complementarity. More specifically:

- *Follow a country led participative approach:* Project design was informed by a series of consultations with different actors. National stakeholders were consulted in Bamako; Interviews and consultations with prospective beneficiaries and provincial and municipal authorities have been held in several areas by the consulting team accompanied by AEDD. Field visits have permitted to analyze different type and level of vulnerability to climate change, depending on geographical position and on socio-economic factors, to define priorities and local adaptation strategies while identifying institutional arrangements. Field visits report in Annex E provides an overview of key points proceeding from meetings. These key points and a provisional project strategy were presented to stakeholders during a national workshop in Bamako (see PPG Report 9). Observations and suggestions shared during the workshop have been integrated in the PRODOC.
- *Support hands-on approach:* this project provides opportunities for women associations and producers to implement full range of adaptation activities at local level related to the restoration of water points, extension of irrigation areas, the promotion of Soil Protection and Restoration / Soil and Water Conservation measures, the development of livestock rearing system, vegetable gardening and other income generating activities in the 10 target communes. Measures to strengthen resilience will be adapted to local needs expressed by the communities. Cost-benefits analysis will be realized in the frame of the M&E activities, and will inform good practices on strategic issues included land use.
- *Promote gender equity:* gender considerations have been part of the formulation process. In the consultation phase, efforts were done to reach out to individual women and to women's group – as civil society active member, farmers, and institutional leaders – as allowed by the time and budget available. Key issues have been captured in the specific report on Gender (PPG Report 7). The outputs and outcomes of the project will contribute to understand how adaptation measures to increase resilience and response mechanisms in emergencies can allow progress towards gender equality. The project aims at implementing adaptation measures in a very participative fashion, through the inclusion of all social groups, included marginalized, to guarantee maximum coverage of impact and structural consideration in planning adaptation intervention of the most vulnerable (and exposed to the impact of climate change) in the group receiving beneficial effects
- *Follow a complementary approach:* This initiative will complement other programmes and projects being implemented in the same region but with different objectives and priorities. The National Steering Committee (NSC), to be chaired by the Minister of Environment, Water & Sanitation and composed of representatives of key ministries, Regional and Municipalities, will ensure coherence between the Project and other UNDP-supported projects in Mali, as well as with relevant projects and activities funded or implemented by other development partners (included World Bank and GIZ). The project will harness results and outputs of these initiatives will use their lessons learned, the tools developed, and will cooperate with the local partners who proved more reliable. It will generate information on cost effectiveness of intervention in each project area.

The project was designed to be compliant with general GEF requirements for formulation and operationalization. The following criteria have been considered and incorporated:

¹⁰ GEF/LDCF, 2006

¹¹ UNDP/GEF 2005

- ✓ *Sustainability*: The project was designed to have sustainable impact at both community and national level (see also below the sustainability section). The overall project sustainability is ensured through a strong Government of Mali ownership and commitment to a successful implementation of this project. The institutional sustainability is expected to remain high: capacity will be strengthened to promote transparency, coordination, efficiency, partnerships, and to develop community involvement. The technical sustainability for this project is expected to be high as best practices and technologies that will be used in the project have been successfully tested and used by UNDP.
- ✓ *Monitoring and Evaluation (M&E)*: Project implementation will include an effective M&E plan (see below M&E section). Lessons learned will be developed as the project is being implemented and will then be shared to become a reference and a learning opportunity for other similar initiatives.
- ✓ *Replication*: The project has a demonstrative character, as it focuses on setting up tailored integrated interventions in the selected communes (Sero, Diamanou, Bema, Yerere, Boron, Kiban, Sagabala, Sikasso, Tella, Sincina and Yorosso. This will facilitate the replication of the project in other parts of the same municipalities/circles and Regions and in other parts of the country with similar characteristics.
- ✓ *Involvement of actors*: The project will facilitate coordination and participation of different stakeholders, included those involved in environment management and development planning. Annex E presents the stakeholders' analysis and their involvement in implementation of the project.

This project supports national development goals and plans to achieve Millennium Development Goals (MDGs) 1, 3 and 7.

- *MDG 1: Eradicate extreme poverty and hunger* – at least 5000 households will be supported to develop climate resilient livelihoods activities to improve household's livelihood. Key adaptation measures will be promoted in order to enhance agricultural & livestock production and generate income for vulnerable households, specifically women. Means and skills will be to help them to be prepared and act appropriately and effectively in a timely manner, in case of climate shocks. Seasonal forecasts can enable the rural population to take adaptive farming measures to protect productivity;
- *MDG 3: Promote gender equality and empower women* – Adaptation measures and relevant associated training will be tailored to end-user needs, in particular the needs of women who have little access to climate information. Women's group and association will become partners in the implementation of climate resilient adaptation and awareness activities. As highlighted in section II.2, the project aims at implementing adaptation measures in a very participative fashion, through the inclusion of all social groups, also the marginalised, to guarantee maximum coverage of impact and structural consideration of the most vulnerable (and exposed to the impact of climate change) in planning adaptation interventions and early warning in the areas receiving beneficial effects.
- *MDG 7: Ensure environmental sustainability* – The foundation of this project is to ensure environmental sustainability by promoting Soil Protection and Restoration / Soil and Water Conservation measures. This approach can assist in the sustainable use of natural resources through good land- and watershed-management practices.

II.3. The design principles and strategic considerations

On-going relevant national initiatives

The proposed project will be built on baseline programmes supporting food and nutritional improvement in selected vulnerable communes.

The UNCDF's Programme on "Food and Nutritional Security in Nara (Kayes) and Nioro (Koulikoro)" (2014-2018, expected Co-financing USD\$ 8,500,000) aims to maintain a sustainable improvement of food security of vulnerable groups, by promoting their access to inputs, technologies and markets and by strengthening the

capacities of local actors to act against food insecurity in the local development. This project is part of a multi-partner program of the Belgian Fund for Food Security. The Programme focused on:

- Building technical and institutional capacities to manage food security: the baseline project will build capacity of mainly municipalities to more effectively integrate the various dimensions of food security, knowledge, climate change and gender issues. In addition, municipalities will improve the access of internal resources to unlock the potential of local revenue collection and the development of programs / agreements with municipal authorities for more effective and sustained mobilization. With GEF financing, national research partners, regional technical services, and Ministers in charge of Agriculture, Livestock, the Environment and Water, as well as local and national NGOs and farmer organizations will improve their technical skills on adaptation technologies to better support communities in their climate resilient activities.
- Establishment and improvement of production systems and infrastructures to improve food security. The baseline will establish a Food Security Fund (FSA- € 3 million) to establish investment projects at the community level such as: services infrastructures for education, rehabilitation of water infrastructures, basics works to increase agriculture productivity, and investments for the protection and exploitation of available water. Additional funds are expected from LDCF to cover climate resilient activities and improve business capacity of women producers.

*The Ministry of Agriculture -Feed the Future- funded project (2010-2015, expected co-financing USD\$ 5,000,000) aims to provide targeted assistance to increase average yields of irrigated and lowland rice—by 33 percent and 66 percent, respectively—as well as double sorghum yields and increase, by 50 percent, millet yields in targeted areas. Additionally, 100,000 hectares will expand crops using new technologies. More than 255,000 children will be reached with services to improve their nutrition and prevent stunting and child mortality. Significant numbers of additional rural populations will achieve improved income and nutritional status from strategic policy engagement and institutional investments. Feed the Future in Mali will concentrate its interventions in 143-targeted communes in three of Mali’s eight regions—**Sikasso**, Mopti and Timbuktu—and the two communities in the Millennium Challenge Corporation intervention zones in the Alatona district of Segou region. Experiences from the Initiative will be scaled up, specifically the market information system for of products developed by women & farmers (Output 2.3)*

The UNDP support Programme on Management of Environment and Sustainable Development (PAGEDD in French, 2010-2016, expected co-financing USD\$ 2,000,000) offers synergies in institutionalization and capacity building in the field of environment and climate change. The component 1 of PAGEDD is supporting the mainstreaming of climate changes into relevant policies and strategies; the component 2 is building partnership with national institutions (e.g. parliamentarian, economic and Social Council, etc.); the component 3 is improving national communication/advocacy on CC and the component 4 is mainstreaming gender issues. With GEF resources, awareness products developed by PAGEDD will be adapted to the needs of women producers to support awareness and training on climate changes.

National and local benefits

Socio-economic benefits:

- Risk of crop failure reduced: In areas where SWC on farmlands and flood diversion for supplementary irrigation is introduced, the risk of crop failure is reduced, crop yield is expected to increase, and availability of animal feed is increased (crop residue and pasture land carrying capacity). The development and dissemination of drought-resistant and early-maturing seeds will similarly reduce the risk of crop failure. The dissemination of drought-resistant livestock and appropriate livestock management techniques will enhance the economic benefits of the off-farm SWC, and, together with the improved extension services, will result in improved rangeland management in the programme area, with associated economic and environmental benefits.

- Reversing degradation of natural resources such as land, waters, forests and biodiversity will improve the livelihood of the project’s most vulnerable people. Introduction of multipurpose trees including forage and wild fruit trees within catchments and woodlots will reinforce communities’ coping mechanism during times of drought to save their lives and their important assets like livestock.
- The increased water storage capacity and introduction of climate resilient production practices will support the agro pastoralist community to change expand the current hectares of land used from subsistent rain-fed production to irrigated vegetable production. Farmers will be able to produce at least twice a year. Households of agro-pastoralists using the rehabilitated water supply will increase their production by several folds.
- Expected additional benefits from pastoral perimeters are: improved plant cover, re-appearance of rare plant species, longer grazing periods; milk production, calving interval, health and stocking rate; better management of the transhumant herds; household income with the release of labor for other activities and increase of incomes from livestock
- A well-managed Local Strategic Grain Reserves (LSGR) could be a relevant instrument for adaptation to climate change. Extreme climate events like drought and floods have triggered the use of LSGR as a response and planning instrument for coping with food shortages.

Gender dimension: Given the importance of the traditional participation of women in natural resource management, activities will explicitly support a gender- sensitive approach through gender-specific measures. The specific needs of women producers will be considered at all stages of project design, from preliminary Vulnerability and Capacity Assessments to project implementation, and particularly when developing climate-resilient income-generating activities (that will be designed to meet their needs), sustainable mechanisms for transmission of climate and weather forecasts (that will be important to their decision-making imperatives and delivered using channels that are relevant to them) and also updating regional plans/programmes and projects. At the same time, recognition will be given to women’s comprehensive knowledge of and experience with respect to, for example, seed selection, medicinal plants, local hydrology, and community transformation, as well as coping strategies that can promote adaptation to climate change. Information about climate change and adaptation measures must therefore be designed and disseminated in gender-sensitive ways and be combined with explicit efforts to ensure that women and girls – especially those who are poor or have been denied the right to an education – can easily have access to and absorb the necessary information.

Comparative Advantages of UNDP

The comparative advantage of UNDP to implement the project is defined in the Country Program Document for the current cycle, 2009 – 2013, in which special accent is placed on strengthening national and local capacities to implement the Framework for Growth and Poverty Reduction. Since 2008, UNDP has supported the implementation of planning, financial, and M&E tools with community services at the local level. These tools are today a reference for operationalizing the process of decentralization in Mali. In addition, targeted support has contributed to strengthening the participation of civil society in national policy dialogue. In terms of sustainable environmental development, UNDP support centers on: i) improving access to employment and credit for vulnerable groups and promoting income-generating activities, and ii) strengthening the capacity of institutions and communities to sustainably manage natural resources.

UNDP is one of the most active bodies to support the Government of Mali in the domain of climate change. UNDP supported the development of the NAPA and supplied support to the government in implementing the first NAPA project in the agriculture sector. UNDP supported the country to update a strategic framework for green growth and adaptation to climate change, with proposed programs to mobilize rapid financing. The framework has two sectoral pillars: 1) adaptation and climate resilience, and 2) green economy: mitigation measures and REDD+ with two cross cutting themes of development, and technology transfer and financing mechanisms.

In terms of financing mechanisms associated with the strategic framework, UNDP supports the establishment of two financing windows:

- The national fund for the environment, called the **Mali Green Fund**,¹² is planned to be operational in 2015. In the meantime, work is being carried out to make sure that when the Fund launches it will have a strong structure in terms of project cycle management, costs, ownership, and responsibility to mobilize national resources through taxes. In addition, studies are being carried out to cover possible sources, amounts, and types of financial instruments as well as opportunity costs, impacts, and regulations. Finally, consultations are being carried out with stakeholders, such as the private sector, government, communities, sectoral Ministries, NGOs, and civil society.
- The **Fund for Multi-Donor, Special Allocation to Mali**¹³ is intended to mobilize international resources available through current finance flows related to climate and opportunities for future financing. The above initiatives supported by UNDP are a solid indication of human resources in the Country Office at Bamako to support implementation of the proposed project. UNDP staffs are already engaged in a number of activities that are pertinent to the ones proposed by the project. In addition, the operations of the Country Office are supported by regional technical support located in the UNDP Regional Office in Addis Ababa. UNDP has a Regional Technical Advisor who focuses on supporting programs and implementation of adaptation in a variety of sectors, including those targeted by the present project, such as disaster management, development infrastructure, ecosystem-based adaptation, development capacity, and local government reform.

II.4. Project Outputs, and Activities

Among the 166 most vulnerable local government communes across the country and prioritized by the Malian government for specific efforts to promote the achievement of the Millennium Development Goals, at least 30% of them fall in the three target regions. Target communes are characterized by high poverty, high food insecurity and high vulnerability to climate change. Increased attention has to be given to the co-utilization land and water by agriculture, cattle and fisheries. Increased pressure on natural resources due to climate change risk to lead to increasing environmental degradation, excessive use of natural resources, and not least conflicts among different population and livelihood groups. Vulnerable rural communities (specifically women) and their associated livelihood would diminish over time, with loss of economic productivity and increased migration to urban areas, resulting of increasing pressure on already constrained urban economies. Addressing these challenges and capitalizing on the natural and human potential of the areas to increase climate resiliency and promote improved adaptation to climate change requires important intervention with adaptation measures to promote resilience and safeguard from climate impacts.

The Government of Mali emphasized in the NAPA and PNCC the importance of investing on adaptation to strengthen the climate resilience of most vulnerable groups (especially women and children) at the community level. The proposed LDCF project will focus enhancing women and producer group's adaptive capacities to secure livelihoods production from climate impacts and increase socio-economic resilience in Malian vulnerable communes (Kayes, Koulikoro and Sikasso). The targeting of women is especially important because they are significantly involved in farming and are the main providers for the household. Gender inequality is extremely high with a global ranking of 143 in 2011. Although females constitute 50.6% of the total population, they represent only 38.4% of the economically active population¹⁰. Women constitute the majority of the agricultural share of the economically active population with 74.9% yet represent only 3.1% of the total agricultural landholders in Mali. This emphasizes the fact that women will bear a disproportionate share of the burden of climate change impacts on agriculture, and lack access to resources e.g. land rights and the capacity to cope. Women are not prominent in farmer associations and a majority lack the requisite

¹² *Fonds vert du Mali*

¹³ *Le Fonds d'affectation spéciale multi donateurs au Mali*

technical skills to make the necessary adjustments – on farm, and thereby through a significant portion of the local economy – to address a changing climate. The project will be developed around the two main components.

Component 1: Ensuring access to water for the development of subsistence activities

Outcome 1: Sustainable climate resilient water management systems provided to vulnerable communities, including women farmers, which in turn ought to support the development of subsistence activities in the Kayes, Koulikoro, and Sikasso regions.

Baseline for Component 1

The land areas in target communes involves a number of lakes and canals converging and draining low-lying fertile plain fed by annual flooding of the Niger River. For Example:

- In Sero Diamanou Commune, there are several rivers, large ponds, such as Lake Magui, and Lake Kolimbine. The presence of Lake Magui and other water bodies offers possibilities to install hydro-agricultural works to develop agriculture, fishing, fish farming, livestock, and gardening.
- In Yerere Commune, there are a large number of lowlands and ponds. The principle lowlands are Yerere, Nomo, and Djinthié, and the major pond is the Korokodjo, which is 27 km long and 1 km wide.
- In Bema Commune, there are also has a large number of small backwaters and a large pond at Kounga.
- In Tella Commune, more than 5,000 flat lands have been identified that could be converted near the Mani backwater.
- In Sagabala Commune has the best access to water in the Kolokani Circle. A river flowing to Baoule crosses it, where a small dam to benefit ten villages could be built.
- In Kiban Commune is crossed by four rivers, the Déhala, Lambakoré, Lambaguilé and Souralambiné.

Improvement of access to water resources is a major priority identified in the Initiative 166 communes and the various environmental and agriculture policies, such as the Strategy for Rural Development,¹⁴ the Agricultural Orientation Law, the Action Program for Integrated Water and Resource Management,¹⁵ and the Program for Sustainable Land and Water Management.¹⁶ The development baseline will take opportunities on existing investment on the water sector in target regions.

- In **Sikasso**, one of the obstacles to agricultural productivity is water runoff and a resulting loss of soil nutrients that are vital for crop growth. A well-documented technological solution to this problem is ridge tillage, or the practice of creating earthen ridges along the contour lines of a sloping field to prevent water runoff. The Ministry of Agriculture “Feed the Future” initiative (funded by USAID) is significantly expanding the farmland currently under ridge tillage in Mali from approximately 17,000 hectares to about 100,000 hectares in the Sikasso and Mopti regions. **The expected co-financing associated with Feed the Future activities is USD 3,000,000** (see attached co-financing letter from the Minister of Agriculture). It is expected that this operation will help to diversify and raise the incomes of about 10,000 farmers by 20 per cent.
- In **Kayes and Koulikoro**, the new UNCDF Programme “Food and Nutritional Security” will support vulnerable producers in Nara and Nioro to improve their agricultural capacity through the development of lowlands irrigation schemes (300 ha), rehabilitation of 16 ha and construction of a storage dam. The

¹⁴ *Stratégie de Développement Rural (SDR)*

¹⁵ *le Programme d'action pour l'eau intégré gestion des ressources (PAGIRE)*

¹⁶ *Programme pour la terre et la gestion durable de l'eau (GDTE)*

investments considered as co-financing to this LDCF financed project (**estimated to be \$4,5 millions**) will significantly improve water access and develop a participatory management of water resources to reduce environmental risks and social conflicts in the intervention communities. The present project will make use of experience and available information in the communes concerned by water management, sanitation, etc.

Despite all of these possibilities, the communes are facing early drying up of ponds and existing water bodies a few months after winter due to high evapo-transpiration linked to increased temperatures. The trends in rainfall decrease and variability, and the increase in temperature will lead to a high evaporation-transpiration, which could worsen water shortages in the selected region and their use in production systems. The decrease in water flow in combination with erosion and siltation are blocking the channelling of water, thus jeopardizing fishing, agricultural and pastoral activities. This makes exploitation of water resources difficult. Most of small producers, particularly women farmers, still have limited access to irrigation systems that require high investment cost for purchasing the equipment, and high technological expertise for installation, operation and maintenance. While the UNCDF programme is supporting irrigation scheme, the scope of intervention is limited to two cercles out of 15. Furthermore, without the protection and rehabilitation of water sources irrigation cannot be sustained in long run, especially in the face of climate change. LDCF funding will therefore be invested to rehabilitate and sustainably manage water systems.

Cost of Component 1

- **Co-financing for Component 1: US\$ 7,500,000**
- **Funds GEF/LDC requested: US\$ 2,527,500**

Refer to section IV for more details

Alternative

The NAPA identified a certain number of different options to promote water infiltration, water storage and water flow to improve water availability, farming production, and sustainability. Nonetheless, these options have not been exploited due to insufficient capacities, knowledge and information of actors. Without LDCF intervention, women and small-scale farmers will lack access to financing for equipment to prepare contours as erosion and drainage control and materials for the construction of small reservoirs for sustainable household and agricultural water availability. Most small farmers, especially women, have limited access to irrigation systems, as irrigation entails high investment costs to purchase equipment and technological expertise to install, operate, and maintain the works. In addition, traditionally women have the right to less fertile land, often with low access to water.

The LDCF project will support sustainable and resilient water management systems to improve access to water for vulnerable communities, in turn supporting development activities. Water infiltration, storage and flow will be improved through the rehabilitation of the water canals and channels, and unblocking silted and obstructed ponds. Supplementary irrigation using small diversion structures off the main channels will be constructed to improve crop production and rangeland productivity. Similarly, sustainable climate resilient water management systems will be promoted to improve water access to vulnerable communities, which in turn ought to support the development of subsistence activities.

Outputs & Activities

Two main outputs will contribute to achieving this outcome. They include:

Output 1.1: Impounding surface water to increase water storage during dry periods and restore fish habitats threatened by the CC

Water availability is the first condition for undertaking farming & fishing activities and create wealth. These works will allow for an improved capture and storage of run-off water along valleys and small streams in the communes so that rice growing or other farming activities, such as vegetable gardening, can be developed. It will also contribute to replenishing the ground water supply, as well as improving the capacity of wells and bore holes located along or just upstream from the water reservoirs. Following activities will be undertaken:

Activity 1.1.1: Creation/rehabilitation of water reservoirs in Sero Diamanou, Tella, Nampossela, Sagabala, Kiban, and Yerere.

This activity participates in increased availability of water for agricultural (market gardening and arboriculture) and fish production. Thus, these structures contribute to mitigating the water deficit created by repeated droughts, to reducing the vulnerability of breeding and better pastureland use/management. It will allow at least 1,550 direct beneficiaries in target zones to pursue farming, such as vegetable growing or arboriculture, throughout the year. In addition, works will reduce: (i) the water shortages that happen with cyclical drought; and the livestock vulnerability through improved management and use of pastureland. The Construction of infrastructure will take place under supervision of the Rural Engineering and Hydrology Technical Services and will include:

- A technical feasibility study;
- A social and environmental impact study;
- Construction of infrastructure;
- Restore indigenous plant cover to riverbanks;
- Establishment of Water User Associations to ensure their maintenance with supervision from the Regional Technical Services. The training of these groups will be organized on climate risks, the management and maintenance of ponds as well as in the methods of water conservation for sustainability and better management of the infrastructures.
- And Monitoring and surveying works.

The selection of technology is based on considering the utilization of the locally available man-power through the ‘cash-for-work’ approach in order to improve cash flow to communities

Activity 1.1.2: Deepening of natural ponds to increase water storage during dry periods in Sero Diamanou, Tella, Sagabala, Kiban, Nampossela, and Yerere Communes.

This activity will increase the adaptive capacity of wetlands ecosystems, populations, and animals to rainfall variability. It will be carried out in following ponds: Magui Lake, Kounga Pond, Korokodjo Pond, Déhala, Lambakoré, Lambaguilé and Souralambiné Rivers, Sagabala Pond, and the Mani backwater. It will be undertaken:

- Technical, socio-economic, and environmental studies by the Regional Technical Services with a strong involvement of targeted communities.
- Deepening or enlarging existing ponds to increase water supply for fisheries and livestock;
- Introduction of fish in the ponds to increase the availability of protein sources for local communities.
- Establishment of Water User Associations to ensure their maintenance with supervision from the Regional Technical Services. The training of these groups will be organized on climate risks, the

management and maintenance of waterways as well as in the methods of water conservation for sustainability and better management of the infrastructures.

Output 1.2: Development of small-scale irrigation system in areas with high climate risk

Following the decrease in rainfall and erratic nature of its distributions predicted for these regions of Mali, irrigation-based production is crucial to supplement the predominant rain-fed system that has increasingly become instable. Supplementary irrigation will be enabled by the development of small diversion structures off the main channels to improve crop production and rangeland productivity. These will be simple, farmer-friendly structures, using locally available materials. **Fifty-five (55) hectares of irrigated surface** area will be created in areas with high climate risk through micro-irrigation systems. In addition, techniques for using micro-irrigation and sustainable water resource management will be distributed. Such structures do not require sophisticated design and construction, and do not easily become silted, and can be operated and maintained through the empowered local government and strengthened water users groups.

Activity 1.2.1: Extension of irrigated village areas through equipped boreholes in ten communes

As a consequence of increased evapotranspiration as result of increasing temperature and reduced rainfall linked to climate change, the NAPA process highlighted that the area under irrigation at a village level requires expansion. This project will test this form of adaptation response by constructing 10 boreholds and distributing water to crop fields through appropriate technologies (e.g drip irrigation at some sites). Additional measures for ensuring the success of the irrigated lands include construction of fences. Irrigation projects tend to fail if the land is not well fenced, because children and livestock often damage the crops. Specific activities will include:

- Feasibility studies and other due-diligence assessments with respect to environmental and other standards;
- Construct of 10 boreholes equipped with distribution system, solar panels to pump water;
- Fence newly irrigated lands with wire fences and tree/shrub hedges.
- Establishment of management committees of the irrigated land run by women. Training will be organised for the members on the use and maintenance of equipment. The Regional Technical Services will be involved in training and monitoring quality of the service.

Activity 1.2.2: Access to micro-irrigation systems such as drip irrigation, Californian irrigation, and sprinklers.

The advantages to drip irrigation technology are the regular management of water and fertilizing nutrients and their uniform distribution in small doses at a local scale. Distribution is made by micro drip system through small diameter tubes, and water flows in drops to water soils in small doses, but in a continuous fashion. Sub-activities include:

- Feasibility studies to identify of needs & relevant technologies
- Undertake environmental, economic & social impacts studies
- Installation of individual drip irrigation kits (100m²) for 2 ha of land in each commune;
- Training of beneficiaries on the use and maintenance of equipment;
- Monitoring and evaluation of installed structures; and
- Dissemination of the technology's results and advantages through workshops.

Component 2: Investments on climate resilient farming practices and income diversification for household production, crop diversity and nutrition

Outcome 2: Innovative approach and sustainable climate resilient technologies, provided to women farmers and producers to enhance and secure the production of local livelihood systems from climate impacts in Kayes, Koulikoro, and Sikasso regions.

Baseline for Component 2

According to the outcomes of various climate models, the climate trends of future scenarios will negatively impact the major sectors in target regions, namely agriculture, fisheries, livestock and forestry that directly impact food security and poverty. The consequences will be severe for the poor and vulnerable majority of populations, mainly because of their strong dependence on natural resources and their limited capacity to address climate change especially extreme climate events such as droughts.

The Government of Mali is currently tackling development constraints through the implementation of baseline activities which include various agricultural and rural development initiatives focusing primarily on stimulating rural economies, improving agricultural productivity and promoting sustainable land management. The proposed project builds on a number of baseline projects implemented by the Government in response to increasing concerns vis-à-vis food security in vulnerable communes and to integrate climate variability into development strategies.

- In Sikasso, the “Feed the Future Initiative”, is improving the development of key agriculture sectors. The baseline project is relevant for the GEF funded project since it adapting agricultural technologies to local conditions. Thus, the University of Bamako’s Rural Polytechnic Institute,¹⁷ and technical schools specializing in agriculture are improving their knowledge base on use of improved seed varieties. Partnership is developed with the Agriculture Market Observatory¹⁸ to improve information systems on the market for cereals and livestock, including an expansion of text messaging services updated by cell phones. The [Feed the Future Innovation Lab for Collaborative Research on Assets and Market Access](#) (AMA), based at the University of California, is developing insurance products that mitigate risk for smallholder farmers. Working with PlaNet Guarantee, Allianz Insurance Company and CMDT (the national Malian cotton company), researchers developed an insurance product for cotton farmers and then used a randomized control trial to measure the impacts of cotton insurance on farmer production decisions. Farmers with access to the insurance expanded the area planted with cotton by just under 20 percent and increased use of more yield enhancing inputs by just over 20 percent. To combat inequality and increase yields for women from farming and transforming millet and sorghum, “Feed the Future” promoted measures such as food processing technologies to reduce the time intensity for farming and other activities that occupy women. ***The investments, considered as co-financing to this LDCF financed project, is estimated to be 2 millions.***
- Another relevant project baseline is the new UNCDF initiative to be implemented in Kayes and Koulikoro. This investment will provide relevant capacities to farmer organizations, including literacy, and promote access to income-generating activities, developing commercial strategies and operations in tandem with cereal banks. In the livestock sector, investment will facilitate the implementation of appropriate credit mechanisms and transformation groups (milk), and facilitates access to markets. ***The investments, considered as co-financing to this LDCF financed project, is estimated to be \$4 millions.***
- Under the UNDP “Support Programme on Management of Environment and Sustainable Development (PAGEDD)” is improving national communication/advocacy on climate changes and mainstreaming

¹⁷ Institut Polytechnique Rural

¹⁸ l’Observatoire du Marché Agricole (OMA)

gender issues. The UNDP baseline is relevant to the project funded by the LDCF since it provides relevant communication tools on climate changes to enhance women producers understanding on climate changes. *The resources allocated are estimated at 2,000,000 USD, which is considered a co-financing of the project.*

Additional co-financing provided in cash and in-kind

- AEDD, the executing partner for this initiative, will provide *in-kind contribution estimated at USD 500,000* to the project implementation. This in-kind contribution will cover office maintenance and running costs (electricity, water, etc.) in Bamako.
- UNDP Country Office will co-finance in cash this initiative for an amount estimated at *USD 500,000*. The UNDP Trac contributions includes: (i) Purchase of two vehicles; (ii) Recruitment of UNVs, one for each intervention region; (iii) Contribution to VNU operation costs; (iv) transportation equipment; and (v) Computers and additional ITs equipment.

Cost of Component 2:

Amount of co-financing mobilized for Component 2: **US\$ 8,000,000**

GEF/LDCF funds requested: **US\$ 2,672,500**

Refer to section IV for more details

Alternative

The component 2 addresses resilience of livelihood and subsistence activities for vulnerable communities. The target communities will have access to quality, drought and disease resistant local seed varieties, will have knowledge of integrated farming and livestock management options, and an increased availability of water. These in combination will help improve agricultural productivity in the face of climate change. An innovative approach of the project lies in an integrated farming and livestock management practice that will be introduced. Further, taking into consideration the women specific vulnerabilities and their adaptation needs the project will explicitly support a gender sensitive approach.

Without this intervention, resilient practices developed through support of other initiatives will remain at a pilot scale and won't be distributed and scaled up. The present project will support the distribution and adaptation to local needs of resilient measures and the distribution of traditional practices for the ten communes. These measures will increase adaptive capacity and lead to sustainable socio-economic development for the communes. Rural farmers, particularly women, will be involved in the economic activities that are the most resilient. This project takes into consideration best practices and lessons learned from initiatives implemented through NAPA projects.

Without this project, capacities in farming and husbandry in the targeted communes will remain weak due to the fragility of natural resources, low use and low availability of farming inputs, high dependence on rainfall, and under development of fodder production. Conflicts between farmers and livestock raisers will be exacerbated due to competition for diminishing resources. The project will contribute to strengthening the capacity of farmers in the ten communes. To contribute to increasing farmers' yields, the project will support production and distribution of improved seeds for millet, sorghum, maize, and rice that are resistant to variable rainfall and drought.

In the absence of such a project, local community capacity to adopt resilient practices and techniques, to develop local enterprise, to access sources of financing, and to transform, store, and sell products in a context

of climate change will be weak. Technical support will be provided to rural farmers, including women, in the ten prioritized vulnerable communes to develop small businesses, facilitate access to financing, and to transform, store, and sell products. Access to micro finance systems will be facilitated to finance, among other things, implementation of income-generating activities and resilient farming practices. The expertise of UNCDF in integrated finance will contribute to extending access of financial services that exist in the regions to project beneficiaries.

Responding to the high vulnerability of rural households and communities in the regions to ecological, economic, and climate factors, will require a coordinated and concentrated approach that supports implementation and adoption of revenue sources, investment and resilient income-generating activities.

Support will be carried out for the development, supply, and management of farm input stores to improve the availability and use of farming and livestock inputs (fertilizer, pesticides, materials, etc.). Finally, soil and water conservation/soil protection and restoration measures will be promoted to improve the availability and quality of arable land for farming. Systems to collect, analyse, and disseminate climate information to rural communities, technical services, and political decision-makers will be put in place. The chain for meteorological information from collection and analysis of data to diffusion of advice and meteorological bulletins will be strengthened. The system involves Mali-METEO, the Regional Directorate of Agriculture, and rural radios. Equipment and means to implement the system will be provided. Equipment and means will be provided to ensure a regular diffusion of climate and agro-meteorological information. Moreover, Local Meteorological Assistance Groups for Rural Areas¹⁹ will be strengthened through diffusion of information on flood risks. National research partners, regional technical services, and Ministers in charge of Agriculture, Livestock, the Environment and Water, as well as local and national NGOs and farmer organizations will be involved in the implementation of resilient income-generating activities and adaptation measures and techniques.

Globally, this approach involves larger investments in technology and practices that are resilient to climate threats that become increasingly more frequent and more intense. Investments will show not only management approaches for climate risks but will also bring direct solutions to the most vulnerable communities of the three regions.

Outputs & Activities

Four outputs will contribute to achieving this outcome. They are described below.

Output 2.1: Integrated farming systems that are resilient to climate change promoted

Activity 2.1.1: Soils in pastoral landscapes stabilised using Soil Protection and Restoration / Soil and Water Conservation (SPR/SWC) measures

Pastoral landscapes are also prone to severe soil erosion in Mali because of highly dispersive soils and intense rain events. Climate change is likely to lead to a greater intensity of rain events and this will aggravate the current soil erosion problem. The adoption of SPR/SWC measures have multiple benefits: i) improve water management; ii) increase the productivity of farmland and pastures; and iii) create management that is environmentally, socially, and economically sustainable. Under LDCF Finance, it will be established **half moons on 200 ha of farmland; pasture land, or degraded forests in Kayes and Koulikoro**. The project will also promote **installing farming and sylvo-pastoral banquettes on 200 ha** (6 to 8 banquettes per ha). The technique includes building a rectangular mound from compact earth, stones or a mix of the two. This activity will also include installing works that prevent erosion and infiltration from rainwater. Specific activities include:

- Information/awareness building for the population on SPR/SWC measures;

¹⁹ *les Groupes Locaux d'Assistance Météorologique au Monde Rural (GLAM)*

- Identification of degraded sites with stakeholders;
- Construction of at least 25 banquettes (barriers) and half-moon (demi-lunes), indigenous water-capturing technique;
- Planting woody species with three per half moon and 16 per banquettes and protection of sites by village committees. The half moons in farming plots will be seeded with cereals.
- Establishment of village committees to manage treated community areas and survey pilot farmers to treat individual farming plots;
- Training of committee's members and individual farmers on maintaining banquettes, half moon & plantation;

Officers from the Environment Technical Services and local NGOs will provide technical assistance (awareness raising, identification of sites, training, and carrying out works) and consulting for targeted communities.

Activity 2.1.2: Production and storage of drought-tolerant seed varieties

Due to reduced soil water retention and increased temperatures leading to high evapotranspiration, certain lands that were previously farmed by farmers will no longer be appropriate to grow cereals. However, there are varieties of millet, sorghum, maize, beans, etc. that are adapted to a drier climate and could be used to help increase resilience to climate change and variability. At the same time, obstacles exist to the widespread use of these crop varieties because of i) low technical and financial capacity of rural farmers, and ii) unavailability of improved seeds at the local level for rural farmers, especially women.

The project will contribute to implement a system for the production, distribution, and storage of drought-tolerant seed varieties in target communes. Following actions will be undertaken:

- *Organization and training of rural seed producers*– At least 500 farmers, among them 50% women, in each site will be trained in seed production techniques. For each farmer, it will be provided seeds of drought-resilient crops to enable him to plant at least half a hectare of such crops. The national agriculture research centre will support this activity and monitor the productivity of the drought-resilient crops relative to other crops grown at the site.
- *Implementation of seed banks* – The goal is to store locally produced seeds or buy them elsewhere to ensure availability during the planting period.
- *Establish and train management committees* of at least 10 members (including five women) at each site to facilitate the adoption of drought-resilient crops by the wider community. The committees will establish clear mechanisms for sustainability of the production of drought-resilient crops in coordination with research centers, seeds multipliers and agriculture banks.

Activity 2.1.3. Building Local Strategic Grain Reserves (LSGR) at commune level to address climate-triggered food shortages.

In anticipation that food will not always be available in the quantity needed, Local Strategic Grain Reserves as a way of buffering/offsetting shortfalls in food supply or in order to stabilise prices with the goal of maintaining food security. This is a method to manage food security in communities. The objective is to facilitate the collection of excess cereal yields, store them in a warehouse, and resell them to the population during shortages keeping consumption prices accessible. A small and well-managed stock could provide "degrees of freedom" in responding to crises, allowing quick sales or emergency distribution as needed until commercial imports and food aid can arrive. A committee will manage the LSGR and will be trained on finance, management & warrantage techniques.

Activity 2.1.4: Provision of agro-meteorological information

In all of the communes visited, populations identified the following as major climate limitations that disturb economic activity: i) reduction and increased irregularity of rain, ii) unpredictability of the rainy season, planting dates, and the duration of the rains, iii) increase in the frequency of floods, and iv) drying up of ponds and other water bodies due to temperature and evapo-transpiration. The project will provide agro-meteorological information and advice distributed through innovative communication channels, (text messages, community radio, television, etc.) to help farmers, and especially women, to make decisions that minimize the risks that climate events pose to their socio-economic activities. This will include:

- Provision of 50 rain gauges and other tools to rural observer farmers in each commune to facilitate the collection of agro-climatic data;
- Establishment of local agro-meteorological assistance groups (GLAM) in each commune, among them 50% women;
- Develop agreement with Mali Meteo for the production and local distribution of agro-meteorological products that integrate local knowledge and are adapted to each commune.
- Communication and dissemination of agro-meteorological information between to the local agro-meteorological assistance groups and other framers through community radios;
- Training of about 20,000 women, farmers and extension agents within the targeted municipalities in data collecting methods and in the practical use of agro-meteorological information with the aim of demonstrating the advantages of using this information before taking decisions related to agricultural production; and

This activity will be carried out in partnership with Mali-Meteo that will bring necessary expertise as well as service provision.

Output 2.2: Semi-intensive livestock rearing system promoted to women's groups, herders, and farmers with livestock

Mali is an agro-pastoral country. In the past, extensive livestock existed in harmony with agriculture in the different agro-climatic zones. For example, pastoral nomads – whose lifestyle is based on herders moving their herd across large spaces in search of pasture resources such as grazing plants and water – were initially common in the Sahel/Sahara band and in the Sahara. Transhumant practices, where herders migrate with their livestock and families in search of pasture periodically depending on the season, is traditionally practiced in the Sahel and the Sudanese-Sahelian zone. Sedentary livestock raising is traditionally limited and is practiced around villages in the Sudanese/Sahelian and Sudanese zone.

Since the periods of strong drought in 1972–1973 and 1983–1984, a dryer climate settled over the country, including a tendency towards overall reduced rainfall and movement of isohyets by 200 km towards the south. This meant a drying up of multiple water sources and degradation of pasture lands (grasses for cattle becoming more sparse) making livestock communities and livestock fragile.

There is more and more migration of livestock from traditional livestock areas towards zones farther to the south where pastoral resources (feed and water) are easier to come by than in the traditional livestock areas. This has meant there is more pressure on natural resources leading to rapid degradation. Farmers and herders must nonetheless coexist on the same reduced space (areas that are also pastureland) and exploit the same resources, such as water sources. The presence of transhumant herders amongst sedentary populations, who have their own small numbers of livestock, creates competition and violent conflict between herders and farmers. History unfortunately shows that these conflicts can degenerate into civil war with resulting suffering and massive emigration.

Faced with this situation, which is expected to grow worse as the impacts of climate change increase, it is urgent to take measures to reduce the vulnerability of rural populations to additional risks posed by climate change in agro-pastoral production systems. The activities described below will be carried out to show

women, herders, and farmers with livestock, semi-intensive livestock techniques as an adaptive measure to climate change. It includes:

Activity 2.2.1: Increase awareness of adaptive livestock practices for women’s groups, herders, and farmers with livestock. This activity consists of:

- Organization of 5 training sessions in all communes for women, herders, and farmers with livestock on following topics:
 - Techniques for growing forage crops;
 - Techniques for reaping and conserving natural forage plants;
 - Techniques for building haystacks;
 - Techniques for rationing animals;
 - Techniques to enrich straw; and
 - Techniques to construct stable manure disposals;
- Carry out an emission each month on local radio to raise awareness and knowledge on climate change adaptation for herders and farmers with livestock.

Activity 2.2.2: Small-scale livestock rearing and husbandry by women’s groups

This activity will be carried out in sites of Béma, Yérére, and Sero Diamano in Kayes, and in Sagabala and Niama in Koulikoro where support is requested to promote fattening of small ruminants as income-generating activity. In these areas, which are natural optimal livestock zones, a stock of bovines and sheep will be provided to women’s groups. Implementing this activity will include the following phases:

- Acquisition and distribution of livestock for raising;
- Organisation and training of women’s groups in techniques for raising sheep; and
- Monitoring and evaluation of implementation.

These activities will be implemented through a partnership of different stakeholders that includes local NGOs, different Management Committees established for the activity who will supervise animals and beneficiaries, and Extensions Services for livestock that will conduct monitoring and evaluation of activities.

Activity 2.2.3: Establishment of pastoral perimeters

The pastoral perimeters will be created or restored to intensify production and preserve the livestock from climate impacts. The Pastoral perimeters seeks to improve plant resilience by giving plants time to restore reserves, and to increase seed emergence by increasing hoof impact to break up crusted soil surfaces. An expected outcome is greater plant cover and the emergence of perennial species.

In each commune in the Koulikoro and Kayes Regions, 10 hectares of collective plots will be developed to grow fodders (types of cowpeas and wild sorghum) and woody plants adapted to the area such as *Acacia radiana* and *Acacia senegalensis* to stabilize livestock movements. The project will provide fodder seeds to members of herder groups who will be in charge of the necessary modifications for growing, collecting, and storing fodder. Where needed, pastoral wells and water distribution systems will be constructed to supply water.

Officers from the technical services with the Environment Department and/or local NGOs will be approached for technical assistance including awareness building, identification of sites, training, carrying out construction, and general counselling for targeted communities.

Activity 2.2.4: Restoration of community forest

In Tella Commune, there are 13,000 ha of forest degraded by human activities and climate change. In Sero Diamanou and Sagabala Communes, there are forests classified as Palmyra Palm that are also being degraded. These forests provide goods and services to populations, specifically for the livestock. The project will restore

degraded lands and forests for animal's food production. Native plant species that are adapted to local conditions and have an economic value – Shea in Sikasso Region and *Acacia Senegalensis* in Koulikoro and Kayes Regions – will be promoted. The project will:

- Development of nurseries and production of local plant species (Shea, palm, *Acacia*). Women groups will be trained in nursery practices and production of local plant species;
- Reforestation, carried out by the local population, of areas that have been classified as degraded in the three communes; and
- Train communities in assisted natural regeneration techniques;
- Where necessary, local committees will be established to manage forest restored.

Output 2.3: At least 10 women groups increased their income & entrepreneurship capacity through the development of vegetable garden & cash crops activities

Activity 2.3.1: Development of vegetable gardening activities

The GEF financed project will make possible the growing of onions, tomatoes, cabbage, lettuce, carrots, eggplant, and beets during the dry/cold season and okra, cowpeas, and papaya throughout the year. The activities will be developed in irrigated land developed under Output 1.2. The activities will contribute to improving food security and nutrition, as well as the diversification of household revenue and increases in women's incomes. Following actions will be undertaken to support the development of vegetable activities:

- At least 990 women will be trained in farming techniques, transformation, storage, commercialization and accounting and financial management;
- Quality seeds and gardening material (watering can, water pump, etc.) will be provided;
- Construction of improved storage and conservation facilities;
- Granting women groups with transportation material (donkey charettes) to support transport to local markets.
- Management Committees will be established and trained for management and maintenance of material.

Activity 2.3.2: Produce and store potatoes in Bougoula

This activity will be carried out in the Bougoula Hameau site, located within the Urban Commune of Sikasso. Two hectares will be cultivated, and measures to support this activity will include:

- Train 50 women from the COFERSA cooperative on modern techniques for growing potatoes;
- Provide access to quality seeds that are appropriate for growing and storing as well as access to fertilizer and equipment;
- Provision of packaging material that is environmentally friendly, and creation of storage facilities that are based on local experience and techniques.

About 50 women through a branch of the COFERSA women's cooperative in the Bougoula Hameau site will carry about this activity. Indirect beneficiaries are estimated to include 550 women, youth, and adult men as merchants, transporters, and service providers.

Activity 2.3.3: Production and transformation of maize and peanut in Yerere, Béma, and Tella

Women's groups in the Yerere, Béma, and Tella Communes expressed a desire for assistance in collective maize and peanut production, which are traditional crops grown in their areas. Analysis of the situation reveals that there is a potential area of land that can be used and that average rainfall in the areas is suitable for growing peanut and maize. The main limitation at present is access to adapted seeds that are appropriate to

climate change and equipment to transform crops to create added value. In this vein, project activities will include the following:

- Provision of improved seeds & fertilizer to women's groups and farmers' groups;
- Construction of 3 storage warehouses, one per cooperative;
- Installation of a processing unit to hull maize in Tella, two processing units to transform peanut into peanut paste in Yerere and Béma;
- Training in farming techniques for 440 maize farmers and 660 peanut farmers in marketing and maintaining equipment; and training for farmers in composting techniques.

Activity 2.3.4: Sesame production and transformation in Yorosso

This activity responds to a need expressed strongly in Yorosso. Sesame is an emerging product, which has a strong export demand. Project support will include:

- Training 70 women in modern techniques for growing sesame;
- Provision of selected seeds & adapted fertilizer that correspond to market demands;
- Provision of transformation equipment;
- Construction of a storage facility;
- Connecting farmers with providers of appropriate packaging; and

Activity 2.3.5: Production and transformation of Shea in Bougoula Hameau, Nampossela, Yorosso, and Tella

There is a high demand to reforest areas of Shea trees at sites in the Sikasso Region including Bougoula, Hameau, Nampossela, Yorosso, and Tella. The demand corresponds to a desire to stem the loss of Shea trees that has been occurring due to climate change and human activity. Transformation of Shea nuts into butter is a traditional activity in Mali. To improve the product's quality and partake in the growing value of Shea butter, dissemination of modern techniques, technology, and knowledge are needed. Project activities for women related to this activity will include:

- Training of at least 490 women on planting and grafting Shea techniques, modern techniques to produce Shea butter and soap, and marketing techniques to facilitate finding markets to sell products.
- Provision of appropriate modern equipment to transform Shea nuts (multifunctional platforms to grind the nuts and equipment to extract the butter);
- Provision of appropriate packaging.

Activity 2.3.6: Production and transformation of honey by male and female producers in Tella commune.

The Tella site is an ideal location to produce honey, as it is a regular activity for the population, especially men. Nonetheless, current equipment and techniques for producing honey are basic. To increase honey production and create added value, the project will carry out the following activities for honey producers in the Tella commune:

- Provide producers with performing beehives;
- Train 60 producers in adapted collection, transformation, and commercialization techniques;
- Put in place five processing units to collect and transform honey;
- Provision of adapted packaging;
- Assist producers to research markets for selling honey;
- Create 10 women's cooperatives for the production of soap and pomade based on beeswax.

Activity 2.3.7: Build market-based & entrepreneurial capacity of women groups & producers

The capacity of beneficiaries on entrepreneurship, marketing of products, managing value chains, and accessing financing and credit will be strengthened. In addition, connections between producers, organizations and micro credit agencies will be built. The main activities will be:

- Develop the market information systems of products developed by women & farmers.
- Builds capacity of producer organizations and links them with traders and processors to ensure consistent supply and quality standards.
- Participation to community group to regional/international commercial exposition;
- Facilitate access to commercialization and business credit. It Support women and producers will be trained & supported to develop and submit applications for credit. Partnership will be established with micro-finance suppliers to lead groups through the application process from beginning to end;
- Training women groups and other producers on entrepreneurship, marketing of products, managing value chains, and accessing financing and credit.

Output 2.4: Lessons learned from the project are shared

Activity 2.4.1: Organize field trips between project sites and between farmers to disseminate techniques and lessons learned

The activity centres on facilitating exchange and sharing information and experiences between different beneficiaries on their knowledge of farming techniques, harvesting techniques, storage methods and commercialization strategies for certain products created by the project interventions. Implementation of this activity will take place through the following stages:

- Identification of sites for visits;
- Organization of local exchange trips and village assemblies to share lessons learned;
- Organization of forums for sharing lessons learned to replicate the project in other communes not covered by the project;
- Use of appropriate communication tools such as knowledge fairs, exposition in bi-weekly markets etc.; and
- Participation in local and regional commercial fairs.

The methodological approach used to carry out this activity is the organization of study and exchange visits. The process will include participation in commercial fairs. It includes an approach focused on analysing feasibility, barriers, and opportunities for the topics covered in the exchanges. The Project Management Unit, communes, and Technical Services will support the logistical organization of the visits.

Activity 2.4.2: Share lessons learned and project experiences at the national and international levels

Collecting and distributing lessons learned and best practices is a key element to the pertinence, efficiency, and impact of adaptation interventions and local development. In addition, it benefits all actors involved the UNFCCC process.

In total, the activity includes identifying pathways and means through which the important results from the project can be diffused in a continual way so that local populations adopt them. This activity will be done through the following steps:

- Capitalisation of best practices in adaptation and lessons learned from the project;
- Preparation of flyers, technical papers, and diverse communications products;
- Translation of communications products into local languages;
- Creation of an information package that can be delivered over community radio or TV stations in the national language;

- Distribution of information products in intervention zones and to local and national media;
- Organization of a national workshop to distribute results;
- Participation on international fora to share project results; and
- Regular contribution to the Internet site.

The activity will be carried out through service providers who support the communications expert. Communications providers will be contracted to supply services in graphic design, creation of films, and copying of materials for distribution.

II.5. Project Indicators, Risks, and Assumptions

The proposed project indicator framework follows the GEF-5 Adaptation Monitoring and Assessment Tool (AMAT) and is aligned with the UNDP M&E Framework for Adaptation. Objective level indicators and outcome level indicators are specified according to the UNDP nomenclature of Results Based Management (RBM). The project design further foresees the development of more specific M&E tools, especially at the local implementation level. Participatory local level M&E can be a powerful management and communication tool, especially for tracking and demonstrating project results in demonstration sites. It is foreseen that a more detailed M&E project framework will be developed during the project inception phase for national management purposes.

An overall project M&E plan has been devised and is included in the respective section of the project document below. It foresees regular progress reports, as well as audits, a mid-term evaluation and an end-of-project evaluation.

Assumptions underlying the project design include that:

- Existence of national expertise to support households in their adaptation efforts;
- Participation and commitment of target communities
- Women’s groups and organizations are operational
- Social cohesion exists in the communities

A complete Risk Log is included in Annex 1 of the project document. It includes risks identified in the project identification form (PIF) (see below) as well as newly identified risks. Additional barriers are included in the Barrier section above and are generally represented by the risks specified below. Most risks are organizational or strategic in nature, and mainly relate to relatively low current institutional and individual capacities of the public service structure in terms of adaptation. In summary, the following key risks were identified (risks identified in the PIF or the Project Preparation Grant phases are identified accordingly):

- Impacts of insecurity in the North leading to a presence of massive refugees (PIF);
- Target communities do not see the benefit of adaptation technologies/ practices (PIF);
- Lack of sufficiently qualified partners (PIF);
- Financial resources are limited for local communities and their institutions (PPG);
- Climate change impacts are more severe than anticipated (PPG);

II.6. Cost effectiveness

Mali is a poor country and its social indicators remain among the lowest in the world. Most poor people are illiterate and live off subsistence farming.

The proposed LDCF financed projects will support the Government of Mali to overcome key barriers identified as major issues such as: (i) Limited financial support, (ii) insufficient technical support, and (iii) Lack of relevant climate information to support production. Strengthening the resilience of local communities to climate change impacts in Sikasso, Koulikoro & Kayes regions are of highest immediate benefits for the realization of the MDGs especially on Food security and poverty reduction. It also addresses the NAPA priorities 1, 2,3,4,5,6 and 14. These priorities have been weighed for cost-effectiveness and sustainability before the proposed project components were selected and elaborated.

Improving resilience to climate change for populations in vulnerable regions of Mali could follow a number of pathways. Local and rural populations need to develop options and economies that are more resilient. In this context, it would have been possible to choose to carry out socio-economic activities in the sectors other than the traditional farming and livestock, which were identified for this project. Nonetheless, more than 80 percent of the population in the three regions practices agriculture, and food insecurity has been a chronic problem for many years. As described in the barriers, climate changes induced the decreased of access to assets increasing women's vulnerability. Therefore, preferred adaptation solution will include (i) counteracting the effects of reduced water availability and (ii) promoting diversification of livelihood to respond to immediate food and subsistence needs and cover the cost of future adaptation strategies. This way they could achieve their goals in livelihood diversification and reduce structural vulnerability.

The proposed LDCF project will focus on enhancing adaptive capacities of female produce groups and secure their livelihoods from climate impacts and increase socio-economic resilience in Malian vulnerable communes (Kayes, Koulikoro and Sikasso). The total project cost is estimated at US\$5,460 million over the period of five years. The project area includes the following communes: Sero Diamanou, Béma, Yerere, Boron and Kiban, Sagabala, Sikasso, Tella, Sincina & Yorosso. The proposed interventions outlined in this project are based on consultation of the stakeholders both at the national level and the target regions to determine the interventions, which are most critical for these regions.

During the project design, a number of adaption priorities have been assessed through documentation review, consultations at the municipal and local levels, and sites visit. After initial consultations conducted as part of the PPG, prioritized pilot adaptation activities identified by stakeholders were the following (see Annex 4):

- Farming & livestock activities: Development of vegetables garden growing of small ruminants and poultry, provision of drought tolerant seeds, farms equipment (conservation, transformation & transport materials), seasonal forecasts, construction of roads & markets, production of Sesame, Shea, Honey
- Improving water access through the deepening of garden well, construction of dams, water impoundment
- Training on land restoration and agriculture production transformation & conservation.

After careful and in-depth analysis, it has been decided to focus on 2 specific options: (i) Ensuring access to water for the development of subsistence activities (\$2,527,500, 46% of the total budget) & (ii) Investments on climate resilient farming practices and income diversification for household production, crop diversity and nutrition (2,672,500USD, 49% of the total budget). These options have been selected on the basis of significant direct and indirect economic impacts on livelihood production & the local economy of the project areas.

For Component 1, the adaptation actions will include the impounding surface water to increase water storage during dry periods and restore fish habitats threatened by the CC. The selection of technology for water impoundment is based on considering the utilization of the locally available labour either through the replication of the 'cash-for-work' approach in order to improve cash flow to communities, or limited

equipment inputs. Where there is inaccessibility to heavy equipment or this could result in more environmental damage to surrounding biodiversity, the human labour through the ‘cash-for-work’ scheme will be employed. That would also enhance the skills of local experts and farmers in undertaking the design and construction of similar activities. That will also enhance the capacity to operate and maintain the system for sustainability and cost-effectiveness in contrast of requesting for expert services from abroad and outside the region. In addition, the supplementary irrigation will be enabled by the development of small diversion structures off the main channels to improve crop production and rangeland productivity. These will be simple, farmer-friendly structures, using locally available materials. Such structures do not require sophisticated design and construction, and do not easily become silted, and can be operated and maintained through the empowered local government and strengthened water users groups. Following the decrease in rainfall and erratic nature of its distributions predicted for these regions of Mali, irrigation-based production is crucial to supplement the predominant rain-fed system that has increasingly become unstable. Finally, Providing investment funds through Water User Associations will encourage capacity at community level delivery systems, and support their ability to engage with and leverage government social development funds through their local government system.

Component 2, which addresses the resilience in subsistence livelihoods of vulnerable communities, will be achieved cost-effectively through the implementation of some adaptation actions that enhances the production of local livelihood systems. Providing the communities with range of fisheries, agro pastoral practices and technologies e.g. drought- and disease-resistant varieties, integrated crop-livestock production systems etc. in taking advantage of increased water availability to boost productivity, is a cost-effective investment instead of introducing activities outside of their local knowledge-based. The implementation of adaptation actions such as conservation and restoration practices that involve agro-forestry activities to increase soil and forest resilience will be also privilege as cost-effective measures rather than purchasing inorganic fertilizer and purchasing concentrates as animal feed; The seedlings used for reforestation will be from indigenous species. This will capitalize on the local knowledge of the communities in nursing and managing the tree species adapted to the local conditions offering cost-effective solution in restoring the degraded land. This is a cost-effective approach rather than purchasing inorganic fertilizer and purchasing concentrates as animal feed or using exotic tree species even if they are fast-growing species. Diversification of local livelihood strategy is an adaptation action that will be undertaken in increasing the resilience of subsistence livelihoods cost-effectively. Not only does this reduce poverty through income-generation actively, it also increases food security and improves the nutritional level of households. The co-benefits emerging from the actions underscore the cost-effectiveness of the action.

Finally, the project will directly benefit about 5,000 households in the three selected regions. With an average size of 5 persons per household and taking into account the partial overlapping over months and years of activities, this will translate into about 25,000 direct beneficiaries. Beside the direct beneficiaries, indirect beneficiaries include the large majority of the populations (about 175,000) in the targeted communities.

II.7. Sustainability and Replication

The long-term project viability and sustainability will depend greatly on its ‘ownership’ by communities, specifically women groups. The GEF finance project will undertake the mobilization and engagement of local communities and their various committees, groups and associations as cost-effective way of coordinating their activities and minimizing trade-offs and conflicts under multi-purpose and multi-stakeholders usage of the water resources without compromising the resilience of the system. Experiences from other places have shown that both the extent of long-term benefits, and in particular their sustainability, are directly related to the community ownership promoted through such mobilization efforts and strengthening of community-based groups. A key aspect of the programme is to develop the capacity at the local level to ensure ownership and sustainability of the proposed interventions. The envisaged training of the population and extension services will build their capacities and will create the conditions for sustainable resilience and local

development, by fostering the emergence of community groups capable to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Critical factors for project institutional sustainability will be also addressed through a full collaboration with institutions at national and local levels and adequate M&E procedures carried out by different national agencies. The project will provide support to the entities to strengthen their capacities in line with their role in the project. The project team will be based in close proximity to the municipalities - within provincial administration services - and a number of civil servants will be identified, equipped and trained at the provincial municipal and collines levels in order to work with the project team and closely monitor project activities and results. Along the same line of ensuring the project's sustainability, a strategy for replicating site-level interventions will be developed.

Scaling up of project best practices would help better to disseminate how livelihoods can be better sustained under climate changes and draw synergies from other programs, projects, processes and communities. The project can potentially share:

- ✓ Measurable, quantifiable and qualitative results and how to adhere to high-quality and fair practices/processes;
- ✓ Process for linking with community-managed institutions, benefits and ownerships
- ✓ Participation, decision-making, local and indigenous expertise, partnerships, networking, sharing of costs, equity and enhanced gender relations.
- ✓ How to meets local demands, links markets, and sustains actions on scale and areas.
- ✓ Adaptive management, informal and responsive arrangements and systems created, especially for income generation activities, marketing arrangements etc.
- ✓ Linkages with institutions/banks for access of resources, loans, repayments etc.
- ✓ Technology learnt, adopted, disseminated by the partners with other partners and institutions.

The project scaling up efforts will not only focus on increasing the number of beneficiaries or geographical area, but it will also address additional barriers, forge more partnerships & linkages and generate more co-financing. To do so, community's members will be skilling in appropriate climate resilient adaptation techniques (Outcome 2) to facilitate further upscale the application of these technologies. The training activities will increase organizational strength of selected extension institutions on climate changes risks management, allowing them to adjust approach. Documenting adaptation practices and technologies will constitute a precondition and point of departure for the process of scaling up and out (quantitative scaling up). Under Output 2.5, project lessons learned will be generating, sharing, capturing, and disseminating among current stakeholders but also future stakeholders who want to promote and implement effective, sustainable, large-scale climate resilient water infrastructure and management practices. The participatory processes and other collaborative planning approaches to be developed at local level by of the project will enable multiple stakeholders to share knowledge, develop awareness, and improve learning and foster replication in other sites.

II.8. Compliance with UNDP Safeguards Policies

The Government undertakes an Environmental and Social Management Framework (ESMF) that identify main impacts for each component (PPG Report 8). From an environmental and social safeguard point of view, the project is rated as a Category 3a, with small scale, site-specific and manageable environmental and social impacts. No adverse long-term impacts are anticipated (Annex 8). Social positive impacts of Component 1 are linked to activities undertaken to (i) increase water storage during dry periods and restore fish habitats threatened by the CC, promote climate resilient farms systems and to diversify income for household production, crop diversity and nutrition. Under Component 2, the net social and environmental effect of the project is expected to be highly positive. By it is expected to improve the food security status of households, as crops will not be as susceptible to losses due to drought. The anticipated negative environmental and social impacts of the project would result mainly from hydraulic works associated with (i)

the Impounding surface water, the stabilization of soils in pastoral landscapes and (ii) the development of vegetable garden & cash crops activities.

An Environmental and Social Management Plan (ESMPs) is proposed and provide key recommendation for all project components. The Coordination and implementation of the Project's environmental and social safeguards will be carried out by the PCU, which has recruited an M & E expert to be responsible for overseeing Project compliance with the environmental and social guidelines developed. External monitoring and evaluation of safeguards will be undertaken in line with recommendation of the EIA studies. Finally, UNDP will develop key guidelines to ensure that during overseeing missions, the UNDP GEF RTA will report on the progress of the safeguards.

III. PROJECT RESULTS FRAMEWORK

<p>The project will contribute to reaching the Common Framework in support to the Transition framework for the UN operational activities in Mali (CCAT):</p> <p>CCAT Outcomes 2012 – 2014:</p> <p>Outcome 1.5: Economic capacity of vulnerable communities, especially women and those affected by the conflict are strengthened</p>
<p>CCAT Outcome Indicators 2015 – 2018:</p> <p>1.5.2: Number of people and women benefiting economic project</p> <p>1.5.3: Number of Income Generating Activities financed</p>
<p>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</p> <p>3. Promote climate change adaptation</p>
<p>Pertinent GEF Strategic Objectives:²⁰</p> <p>CCA-1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level</p> <p>CCA-2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level</p> <p>CCA-3: Promote transfer and adoption of adaptation technology</p>
<p>Pertinent GEF Expected Outcomes:</p> <p>Outcome 1: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</p> <p>Outcome 2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses</p> <p>Outcome 3: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas.</p>
<p>Relevant GEF Outcome Indicators (Following the AMAT tool):</p> <p>Indicator 1.3.1. Households and communities have more secure access to livelihood assets</p> <p>Indicator 2.3.1.1. Risk reduction and awareness activities introduced at local level.</p> <p>Indicator 3.1.1.1. Type of adaptation technologies transferred to targeted groups</p>

²⁰ GEF. (May 2011). *Strategy on Adaptation to Climate Change for the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF)*.

	Indicator	Baseline	Target for End of Project	Means of Verification	Risks and Hypotheses
<p>Project Objective</p> <p>Enhance women, producer group's adaptive capacities to secure livelihoods production from climate impacts and increase socio-economic resilience in Malian vulnerable communes (Kayes, Koulikoro and Sikasso).</p>	<p>Number of households that have more secure access to livelihood assets under existing and projected climate change (AMAT indicator 1.3.1)</p>	<p>Number: at least 35,000 households (50% women) have poor access to livelihood assets due to the climate trends that negatively impact communities' livelihoods systems, namely agriculture, fisheries, livestock and forestry.</p> <p>This reduced the availability of food usually from the campaign and makes more precarious food situation of the poorest households, which use crops season to supplement their income.</p>	<p>Number: + 5,000 people, among them 50% women, have secure access to livelihood resources by adopting resilient livelihoods under existing and projected climate change</p>	<p>Survey and M&E Reports</p>	<p><u>Assumption</u></p> <ul style="list-style-type: none"> ➤ Existence of national expertise to support households in their adaptation efforts; ➤ Participation and commitment of target communities <p><u>Risks</u></p> <p>Impacts of insecurity in the North leading to a presence of massive refugees</p> <p>Lack of sufficiently qualified partners</p>

	Indicator	Baseline	Target for End of Project	Means of Verification	Risks and Hypotheses
<p>Outcome 1: Sustainable climate resilient water management systems provided to vulnerable communities, including women farmers, which in turn ought to support the development of subsistence activities in the Kayes, Koulikoro, and Sikasso regions.</p>	<p>Number and type of adaptation technologies that increase access to water transferred to communities in the 10 communes for subsistence activities (AMAT indicator 3.1.1.1.)</p>	<p>Number: 2</p> <p>There are on-going efforts on water mobilisation through the construction of dams & the creation of artificial reserves in fluvial systems (Niger & Senegal Rivers).</p> <p>Decreased rainfall, rainfall variability, and increased temperatures aggravated water shortages and water availability for farming systems.</p> <p>Most small farmers, especially women, have limited access to irrigation systems, as irrigation entails high investment costs to purchase equipment and technological expertise to install, operate, and maintain the works. In addition, traditionally women have the right to less fertile land that has low access to water.</p>	<p>Number & Type: +2</p> <p>Water storage capacity increased through the water impoundment</p> <p>Water access improved through the adoption of small-scale irrigation system</p>	<p>Activity and M&E Reports Survey</p>	<p><u>Assumption</u></p> <ul style="list-style-type: none"> ➤ Existence of national expertise to support households in their adaptation efforts; ➤ Participation and commitment of target communities <p><u>Risks</u></p> <ul style="list-style-type: none"> ➤ Impacts of climate change far greater than predicted ➤ Low mobilization of the target group caused by a poor understanding of climate change issues ➤ Lack of sufficiently qualified partners
<p>Outcome 2. Innovative approach and sustainable climate resilient technologies, provided to women farmers and producers to enhance and secure the production of local livelihood systems from climate impacts in ten communes in the Kayes, Koulikoro, and Sikasso</p>	<p>Number of households participating in risk reduction and awareness activities (AMAT Indicator 2.3.1.1)</p>	<p>Number and type: 0</p> <p>No risks reduction measures are developed. The capacities in farming and husbandry in the targeted communes will remain weak due to the fragility of natural resources, low use and low availability of farming inputs, high dependence on rainfall, and under development of fodder production.</p>	<p>At least 5 risks reduction measures (e.g. diversification, Improved resilience of agricultural systems, etc.) adopted and 1000 households participating to awareness activities.</p>	<p>Activity and M&E Reports Survey Interviews</p>	<p><u>Assumptions</u></p> <ul style="list-style-type: none"> ➤ Women's groups and organizations are operational ➤ Social cohesion exists in the communities <p><u>Risks</u></p> <ul style="list-style-type: none"> ➤ Limited finance available for local communities and their

	Indicator	Baseline	Target for End of Project	Means of Verification	Risks and Hypotheses
regions.	Percentage of households that increase per capita income due to adaptation measures applied (AMAT Indicator 1.3.2.)	Percentage: 0 Due to low agricultural income (because of weak productivity, poor storage, transport, and commercialization facilities) and scarce access to credit, women and producers do not have the necessary financial resources to undertake the required investments to foster agricultural production (equipment, inputs and irrigation equipment).	25% of targeted households increased their income by applying adaptation measures	Survey Activity and M&E Reports	institutions ➤ Target communities do not see the benefit of adaptation technologies/practices

IV. TOTAL BUDGET AND WORK PLAN

Award ID:	000082341	Project ID(s):	00091312
Award Title:	PIMS 4919		
Business Unit:	ML10		
Project Title	Strengthening the Resilience of Women's Producer Groups and Vulnerable Communities to Climate Change in Mali		
PIMS no.	PIMS 4919		
Executing Agency	AEDD/UNDP		

GEF Outcome/Atlas Activity	Responsible Party/	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount year 1 (USD)	Amount year 2 (USD)	Amount year 3 (USD)	Amount year 4 (USD)	Amount year 5 (USD)	Total	Budget notes
	Implementing Agent											
Component 1: Ensuring access to water for the development of subsistence activities	AEDD	62160	GEF/LDCF	71300	National Consultants	63,750	63,750				127,500	a
				71400	Contractual Services - Individual	24,600	24,600	24,600	24,600	24,600	123,000	b
				71600	Travel	29,900	29,900	29,900	29,900	29,900	149,500	c
				72100	Contractual services - Companies	48,000	48,000	48,000	48,000	48,000	240,000	d
				72200	Equipment and furniture	50,000	742,500	742,500			1,535,000	e
				74200	Audio Visual & Print Prod Costs	50,000	50,000	50,000	50,000	50,000	250,000	f

GEF Outcome/Atlas Activity	Responsible Party/	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount year 1 (USD)	Amount year 2 (USD)	Amount year 3 (USD)	Amount year 4 (USD)	Amount year 5 (USD)	Total	Budget notes
	Implementing Agent											
				75400	Training, Workshop and Conf.	18,000	18,000	18,000	18,000	18,000	90,000	g
				74500	Miscellaneous Expenses	2,500	2,500	2,500	2,500	2,500	12,500	h
				Total Budget Component 1					286,750	979,250	915,500	173,000
Component 2: Investments on climate resilient farming practices and income diversification for household production, crop diversity and nutrition	AEDD	62160	GEF/LDCF	71200	International Consultants			16,250	16,250		32,500	i
				71400	Contractual Services - Individual	24,600	24,600	24,600	24,600	24,600	123,000	j
				71600	Travel	63,800	63,800	63,800	63,800	63,800	319,000	k
				72100	Contractual Services - Companies	157,000	157,000	157,000	157,000	157,000	785,000	l
				72200	Equipment and furniture	230,000	230,000	230,000	230,000	230,000	1,150,000	m
				74200	Audio Visual & Print Prod Costs	50,000	50,000	50,000	50,000	50,000	250,000	n
				75400	Training, Workshop and Conf.	106,000	106,000	106,000	106,000	106,000	530,000	o

GEF Outcome/Atlas Activity	Responsible Party/	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount year 1 (USD)	Amount year 2 (USD)	Amount year 3 (USD)	Amount year 4 (USD)	Amount year 5 (USD)	Total	Budget notes
	Implementing Agent											
				74500	Miscellaneous Expenses	2,000	3,000	3,000	3,000	2,000	13,000	p
Total Budget Component 2						527,400	528,400	544,650	544,650	527,400	2,672,500	
Subtotal components						814,150	1,507,650	1,460,150	717,650	700,400	5,200,000	
Project management	AEDD	62160	GEF	71400	Contractual Services - Individual	48000	48000	48000	48000	48000	240,000	q
				72100	Contractual Services - Companies	3,000	3,000	3,000	3,000	3,000	15,000	r
				74500	Miscellaneous Expenses	1,000	1,000	1,000	1,000	1,000	5,000	s
	Total Management						52,000	52,000	52,000	52,000	52,000	260,000
TOTAL PROJECT						866,150	1,559,650	1,512,150	769,650	752,400	5,460,000	

Budget Note	Description
a	National expert micro-dam: 150 days; 250 USD/day National expert on borehole: 120 days; 250 USD/day National expert on micro-irrigation system: 90 days; 250 USD/day 3 National Experts EIA: 150 days; 250 USD/day
b	M& E Expert (50%): 9000/year Communication Expert (50%): 7500/year Admin Assistant (50%): 4500/year Driver (50%): 3600/year
c	DSA for micro-dam expert: 100 days; 50 USD/day DSA for expert on borehole: 60 days; 50 USD/day DSA for expert on micro-irrigation system: 60 days; 50 USD/day DSA for 3EIA experts: 90 days; 50 USD/day Travel for micro-dam expert: 12 travels; 250 USD/travel Travel for expert on borehole: 20 travels; 250 USD/travel Travel for expert on micro-irrigation system: 20 travels; 250 USD/travel Travel for 3 EIA expert: 36 travels; 250 USD/travel DSA International for MPU staff (2)= 14 days; 500USD/day/staff Travel PMU staffs (supervision missions)=20000/year International travel for PMU staffs (2)=2500 USD/travel/staff

Budget Note	Description
d	Control Office, micro-dams works: 100days; 250 USD/day Control Office, borehole: 150 days: 250 USD/day Universities & research centers (5) to support project research and capitalisation (50%) MOU with Regional extension services: feasibility studies deepening ponds, monitoring works, training & supervising communities
e	Office equipment & maintenance, including 3 UNV offices (50%) 6 Micro-dams, including protection works: 160,000/dam 10 boreholes e with distribution system, solar panels to pump water: 40,000/borehole Deepening 9 ponds, including protection works: 15,000/ponds 10 irrigation systems: 35,000/system Fencing irrigation areas (10): 12000/areas
f	Printing of training tools: 20,000/year Communication material/publication (national & international): 30,000/year
g	Trainings (50) of water management committees: 1,000USD/training Project inceptions and awareness workshops (50%) Regional forums (3): 10,000USD /forum
h	Contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.
i	International Expert on marketing & trade: 50 days; 650 USD/day
j	M& E Expert (50%): 9000/year Communication Expert (50%): 7500/year Admin Assistant (50%): 4500/year Driver (50%): 3600/year
k	DSA local for exchanges visits (25,000) DSA International Expert on marketing & trade: 30 days; 190 USD/day DSA International for MPU staff (2)= 7 days; 500USD/day/staff DSA International for 12 community groups members to participate to at least 2 commercial exposition 7 days; 500USD/member Travel local for exchanges visits (30,000) Travel International Expert on marketing & trade: 12 travels; 250 USD/travel Travel PMU staffs (supervision missions)=20000/year International travel international for PMU staffs =2500 USD/travel/staff Travel International for 12 community groups members to participate to at least 2 commercial exposition

Budget Note	Description
l	Agreement with <ul style="list-style-type: none"> – Regional extension services: monitoring works, training & supervising communities – Regional extension services or NGO: Evaluation of needs Local grain identification of sites to establish half moon & banquettes and relevant technologies – National agriculture research center (IER)) – Mali Meteo training & supervising GLAM – Communities radios (6) on the diffusion of agro-meteorological information & awareness and knowledge on climate change – COFERSA monitoring works, training & supervising communities in Boula on potatoes production – Universities & research centers (5) to support project research and capitalisation (50%):
m	Output 2.1: Construction of 24 banquettes realization of half moon by communities planting activities seed banks, construction of 10 local grain reserves, procurement of 300 rain gauges Output 2.2: livestock activities, realization of fodders perimeters pastoral wells and water distribution systems, forest restoration activities, including plant nursery; Output 2.3: vegetable gardens (seeds, fertilizers & materials), storage facilities for all products, packaging material for all products, transportation material, seeds & fertilizers for potatoes, peanut & sesames, processing units (Peanut, sesame, Shea & honey), plantation Shea, beehives
n	Printing of training tools: 20,000/year Communication material/publication (national & international): 25,000/year Production & distribution of agro-meteorological information
o	Trainings on maintenance of half moon & banquettes, production of seeds, management seed banks, management of local grain reserves, use of agro-meteorological information, sustainable livestock management, forest regeneration techniques, training women/producers groups on farming techniques, transformation (maize, sesame, Shea & soap production, etc.) & storage management, commercialization, business, trade, marketing accounting and financial management Awareness on SPR/SWC measures, resilient seeds, adaptive livestock practices Meetings with communities for the establishment of relevant adaptation technologies Project inceptions and awareness workshops (50%): Regional forums (3)
p	Contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.

Budget Note	Description
q	National coordinator (30,000/year); Admin & Finance Officer (18000/year)
r	Regional & national steering comity meetings
s	Contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.

Co-financing:

Co-financing has been confirmed for the following partners. Co-financing letters are included as Annexes.

Partner	Amount of Co-financing expected
AEDD	500,000
Ministry of Agriculture	5,000,000
UNDP	2,500,000
UNCDF	8,500,000

The UNDP Cash contribution includes:

- Purchase of project vehicles & 3 moto for UNVs
- Salary of 3 UNVs
- Mid Term and Final Evaluation (including translation)
- Management costs
- Information Technology equipment

V. INSTITUTIONAL ARRANGEMENTS

The United Nations Development Programme (UNDP) will implement the project under its National Implementing (NIM) modality, over a period of five years beginning from the PRODOC signature date.

The implementing partner in Mali will be the Agency for Sustainable Development (AEDD), who will closely coordinate project implementation with the Ministers in charge of Agriculture, Livestock, Hydrology/Environment, the Promotion of Women and Children, as well as commune and regional authorities to implement activities at the local level. The management arrangements were determined based on an institutional capacity assessment carried out during the preparation phase of the project.

The National Comity on climate changes will serve as the **Project Board (PB)**, specifically the adaptation sub-comity where most of target ministries supporting communities are represented. It will be added key actors such as representative from Municipalities or community groups. The definitive list of members (a maximum of 15) will be elaborated during the inception phase of the project implementation after consulting with regional and national authorities. The Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

The **Project Implementation Unit (PIU)**, based in Bamako, will assure day-to-day implementation and management of project activities as well as close collaboration with intervention municipalities and communities. Members for the PIU will be recruited by AEDD with support from UNDP. The PIU will consist of one National Project Manager (PM), one M&E experts, one Finance and Administration Manager, one Secretary, two drivers, one utility men and one gard. The project will also develop MOU with extension services based in target regions to support resilient activities. Finally, UNDP will hire UNVs to support management of project in select Regions. The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Support role provides project administration, management and technical support to the Project Manager as required by the needs of the individual project or Project Manager. The Detailed TOR for each of these will be prepared prior to the Inception Workshop, approved by the PB and by UNDP/GEF.

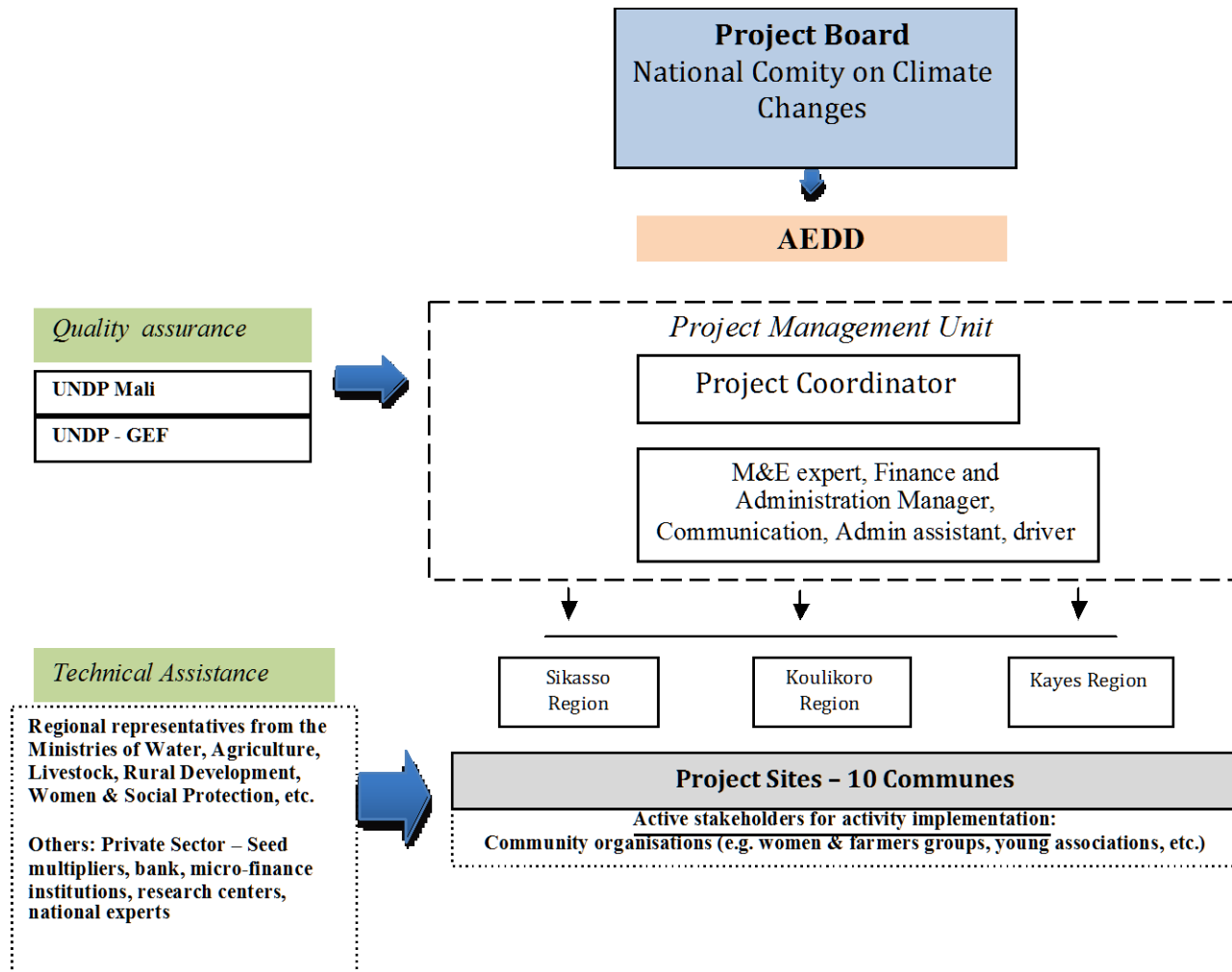
At the departmental level, agents (department or regional) from the Ministries of Agriculture, Livestock, Water/Environment, MALI METOE, the Institute for Rural Economics, as well as other representatives of pertinent administrations will support implementation of the project. Memorandums of understanding will be developed with stakeholders to define roles and responsibilities as well as modalities for implementation.

At the local level, Community Consultation Committees (CCC), or local community groups, will be made through existing entities. In the case were there are none, they will be created in the targeted municipalities if appropriate structures do not already exist. They will group together principle beneficiaries as well as commune representatives, NGO representatives, representatives from the organizations of rural people, etc. The CCC will be responsible for following implementation of pilot adaptation initiatives and will act as a link between the rural population and the project. In addition, they will examine and give their opinion and

participate in planning and approving financing of activities for the project at the local level. To this end, the CCC will meet at least once per trimester.

During project implementation, different specialist consultants will be sought, as needed. Details concerning the type of consultant and their mandates will be developed.

PROJECT ORGANIGRAM



VI. MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following M& E activities. The M& E budget is provided in the table below.

Project start:

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the relevant SOF (e.g. GEF) Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and SOF (e.g. GEF) reporting requirements.
 - The APR/PIR includes, but is not limited to, reporting on the following:
 - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
 - Project outputs delivered per project outcome (annual).
 - Lesson learned/good practice.

- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.
- Describe M&E framework for specific outputs that are based on RCT principles, including who is to be involved, budget, survey instrument etc.

Periodic Monitoring through site visits:

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#). The relevant SOF (GEF) Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

An independent Final Terminal Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and SOF (e.g. GEF) guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The Final Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#). The relevant SOF (e.g. GEF) Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing:

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements:

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects need to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at:

http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf.

Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

Table 4: M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	Project Manager UNDP CO, UNDP CCA	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	UNDP CCA RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	Oversight by Project Manager Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	Project manager and team UNDP CO UNDP RTA UNDP EEG	None	Annually
Periodic status/ progress reports	Project manager and team	None	Quarterly

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Mid-term Evaluation	Project manager and team UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	Project manager and team, UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost : 40,000	At least three months before the end of project implementation
Project Terminal Report	Project manager and team UNDP CO Local consultant	0	At least three months before the end of the project
Audit	UNDP CO Project manager and team	Indicative cost per year: 3,000	Yearly
Visits to field sites	UNDP CO UNDP RCU (as appropriate) Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US\$ 93,000 (+/- 5% of total budget)	

Audit: Project will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies.

VII. LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- a. Put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b. Assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

VIII- ANNEXES

Annex 1: Project Risk Log

Project Title: Strengthening the Resilience of Women’s Producer Groups and Vulnerable Communities to Climate Change in Mali	Award ID:	Date: July 2014
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#	Description	Date Identified	Type	Impact & Probability (1-5)	Countermeasures / Management response	Owner	Last Update
1	Impacts of insecurity in the North leading to a presence of massive refugees	October 2012 (PIF)	Political	I=3 P=3	Affected people are benefiting support from the relocation Programme established jointly by UN agencies in Mali in Partnership with local Authorities	UN Agencies	The war that occurred over 2013 had reinforced this risk. However presidential and legislative elections happened in early 2014 and the situation should now improve. However, insecurity in the North remains. UN agencies in partnership with local authorities are still working with affected people from the conflict happening in the North.
2	Target communities do not see the benefit of adaptation technologies/ practices	October 2012 (PIF)	Organizational and operational	I=3 P=4	Implement a participatory approach when identifying and designing adaptation technologies Sensitization to the effects of climate change and new adaptation technologies	AEDD, Ministry of Agriculture, Ministry of Livestock, Ministry of Water and Environment Targeted Communes	A capacity needs assessment has been carried out during the PPG. Several capacity building and awareness raising activities are planned as part of project implementation.
3	Lack of sufficiently qualified	October 2012 (PIF)	Organizational and	I=3 P=3	Capacity-building Permanent Screening and evaluation	AEDD, Ministry of Agriculture,	A capacity needs assessment has been carried out during the PPG. Several capacity building and awareness raising

#	Description	Date Identified	Type	Impact & Probability (1-5)	Countermeasures / Management response	Owner	Last Update
	partners		operational		of partners Collaboration with communes at a decentralized level	Ministry of Livestock, Ministry of Water and Environment Targeted Communes	activities are planned as part of project implementation.
4	Limited finance available for local communities and their institutions	May 2014	Financial	I=3 P=3	Provide support to engage micro finance institutions	AEDD, technical partners	
5	Impacts of climate change far greater than predicted	May 2014	Environmental	I=4 P=2	Should the margin of error regarding predictions be far greater than anticipated, it may prove very difficult to identify new measures and practices, which may undermine the project strategy. However, the design of the project took this risk into account and a system to follow climate change impacts will be implemented. Results from this system will then be used to take relevant decisions during the implementation of the project.	AEDD, DNM, UNDP	

Annexe 2: Key Assessment reports

The following key reports were produced as part of the PPG phase, based on detailed TORs developed during the inception of the PPG phase/work planning. They are available in French.

Climate Science Consultant (PPG Report 3)

CS 1: Climate scenarios, vulnerability and impacts

CS 2: Vulnerability baseline situation in project sites and adaptation strategies

Agro economist Consultant (PPG Report 4)

AE1: analysis of the economic activities, the potential resources

AE2: Assessment of the needs of the population and identification of potential adaptation activities

Agro-meteorologist Consultant (PPG Report 5)

AM 1: Overview on climate change and its impacts on the communities, meteorological forecasts, and community's knowledge's and observations on climate change

AM 2: Assessment of the meteorological information needs of the population and way of delivering these information.

Water Resources Consultant (PPG Report 6)

WR 1: Information on water resources and evaluation of the vulnerability to climate change of the current systems for water management,

WR2: identification of the priority sectors for adaptation in water sector and water management techniques suitable for adaptation to climate change.

Gender Consultant (PPG Report 7)

GC 1: Analysis of the gender situation and constraints and the level of organization of women association and theirs activities,

GC 2: Identification of gender sensitive options for adaptation to climate change.

Environment Impacts Assessment (PPG Report 8)

EIA 1: Reference situation

EIA 2: Political and legal framework for EIA in Mali

EIA 3: Methodology EIA

EIA 4: Identification & Evaluation of EIA

EIA 5: Environmental & Social Management Plan

Annexe 4: References

AEDD Mai 2011 : SNCC Mali Audit Climat Mali

Birama Diarra, 1997. Perspectives de l'Assistance Agro météorologique au Monde rural

CNRST, 2003 : Elaboration de scenarios de changements climatiques pour le Mali

CNRST/Projet Climat, 2003 : Vulnérabilité et adaptation du maïs et du coton aux effets des changements climatiques au Mali

CNRST/Projet Climat, 2003 : Elaboration de scénarios climatiques de changement climatique pour le Mali, Avril 2003

Commune de Yorosso, Programme de Développement Economique, Social et Culturel de la Commune Rurale de Yorosso période 2011-2015

Commune de Tella, Programme de Développement Economique, Social et Culturel de la Commune Rurale de Tella période 2009-2013

Commissariat à la Sécurité Alimentaire (2006). *Plan de sécurité alimentaire de la commune rurale de Béma 2007-2011.*

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FEM, *Politiques sur les normes de sauvegarde environnementale et sociale et sur l'internalisation de la parité des sexes.* (2011).

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MALI METEO/UNPE/GEF/ENDA/METEXA CONSULTING, 2012 : Evaluation des besoins technologiques et plan d'action technologique d'adaptation aux changements climatiques

MEA/STP/CIGQE, 2005. Rapport de l'étude sur la perception des risques des changements climatiques par les couches les plus vulnérables

ME/UNDP/GEF, 2011 : Seconde communication nationale du Mali sur les changements climatiques

Ministère de l'Administration territoriale et des Collectivités locales /GERAD, 2012 : Etude diagnostique des secteurs économiques porteurs et espaces économiques partagés dans les régions de Kayes, Koulikoro et Sikasso

Ministère de l'Environnement, 2007 : Programme d'Action National d'Adaptation aux Changements Climatiques

Ministère de l'Agriculture, de l'Elevage et de la Pêche. (2004). *Politique nationale de développement de l'élevage.*

Ministère de l'Agriculture. (2013). *Document de Politique de Développement Agricole du Mali.*

Ministère de l'aménagement du territoire, de l'environnement et de l'urbanisme. (1998). *Politique nationale de protection de l'environnement.*

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Ministère de la promotion de la femme, de l'enfant et de la famille. *Politique Nationale Genre du Mali*.

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Ministère du développement rural. (2001b). *Schéma Directeur du Secteur Développement Rural (SDDR). Volume III Plan d'action*.

Ministère du développement rural et de l'environnement. (2002). *Stratégie Nationale de Sécurité Alimentaire*.

Monographie de la Commune rurale de Tella dans la région de Sikasso

Monographie de la région de Sikasso

PNUD, *Normes environnementales et sociales du PNUD (2014). Version préliminaire*.

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Région de Koulikoro, Programme de Développement Economique, Social et Culturel de la Région de Koulikoro période 2011-2015

Région de Kayes, Programme de Développement Economique, Social et Culturel de la Région de Kayes période 2011-2015

Annexe 4: Target community's needs

Communes	Association de femmes	Besoins
SAGABALA ET NIAMO	<p>DANAYA : 30 femmes. Elles mènent comme activités principales le maraichage, la culture du mil dans des champs individuels.</p> <p>MUSO DAMBE Cette association fait le maraichage et cultive le mil, le niébé et le sésame sur un champ collectif.</p>	<p>Pour le maraichage : formation en technique de transformation, dotation en moyen de transport des produits, clôture des parcelles, surcreusement des puits maraichers, réalisation de forages à haut débit).</p> <p>Pour l'élevage : l'embouche de petits ruminants</p> <p>Pour l'agriculture : matériels agricoles, réalisation de micro-barrages pour inonder 100ha pour la riziculture.</p> <p>Pour la santé : traitement des eaux des puits pendant l'hivernage).</p>
BORON	Faitière des femmes productrices de BORON	Le projet retenu est l'aménagement de 2 ha de maraichage pour la faitière des femmes productrices.
KIBAN	Groupement des femmes de KIBAN	Le projet d'aménagement des cours d'eau pour le maraichage et la pisciculture a été identifié pour développer des actions d'adaptation au changement climatique.

Communes	Association de femmes	Besoins
BOUGOUDALA HAMEAU	COFERSA : les femmes regroupées en coopérative : Convergence des Femmes Rurales pour la Souveraineté alimentaire y possède une concession rurale d'une superficie totale de 05ha . La Coopérative détient les titres provisoires délivrés par le Préfet du cercle de Sikasso. Le champ est clôturé par du grillage. Le champ contient des pieds de karité.	<ul style="list-style-type: none"> - cueillette et transformation de noix de karité, - culture riz et arachide ; - maraîchage ; - pisciculture ; - nécessité de faire des points d'eau équipés ; - fourniture de matériels et intrants agricoles ; - appui conseils.
YOROSSO	Le groupement des femmes (environ 50 femmes) possède un champ de 5 ha situé à 3km du chef-lieu de la commune. Le champ contient quelques pieds de karité . Elles cultivent du haricot et du sésame .	<ul style="list-style-type: none"> - production et de la transformation du Karité ; - culture de sésame ; - maraîchage.
TELLA	Dans la commune, il ne se pose pas de problèmes de terre. La mairie et les chefs de village sont prêts à mettre la terre cultivable à la disposition des femmes et des jeunes, à les sécuriser lorsque le besoin est exprimé.	<p>Disponibilité et l'accessibilité de semences améliorées adaptées aux changements climatiques ;</p> <p>Disponibilité et l'accès aux engrais pour toutes les cultures pratiquées ;</p> <ul style="list-style-type: none"> - les magasins de conservation ; - les techniques de conservation ; - les moyens appropriés de transport ; - les techniques de conservation ; - le renforcement des capacités pour la transformation du Karité et la pisciculture ; - les aménagements des plaines et la construction de petits barrages ; - la motivation pour les activités de reboisement.
NAMPOSSELA	NIMPAGALO : 160 femmes Champ communautaire de 3ha protégé par du grillage sur un coté mis à disposition par le village. Cette exploitation peut être portée à 05 ha si les moyens supplémentaires sont fournis.	la culture du riz sur 1,5 ha le maraîchage en saison sèche avant que les eaux de pluies récupérées ne tarissent la production artisanale de savon de karité.

Communes	Association de femmes	Besoins
SERO-DIAMANOU	Groupement des femmes de SERO-DIAMANOU	<p>L'agriculture : maraichage, riziculture,</p> <ul style="list-style-type: none"> - techniques de rotation des terres, - la mise à disposition de semences adaptées, des équipements agricoles, des engrais, des informations sur les prévisions saisonnières, - des pistes rurales et la construction d'un marché. <p>L'élevage : embouche de petits ruminants et volaille</p>

Annexe 5: Stakeholder involvement plan

The success of project intervention requires the active involvement and participation of the different stakeholders. Key stakeholders for the project include (i) ministries, local governments and other public institutions implementing the project and/or benefiting from it, (ii) cooperating partners, NGOs, and Civil Society Organizations (CSOs) involved in direct support, and (iii) communities that are living in the targeted rural areas, including the participation of potentially vulnerable groups such as women. The present Plan was designed based on the series of meetings organised with stakeholders during the project inception, for agreeing on project content and operationalization (situation analysis, priority sites for intervention, priority criteria, management arrangements).

Outputs	Lead institution & role	Stakeholders & roles
1.1: Impounding surface water to increase water storage during dry periods and restore fish habitats threatened by the CC	<p>AEDD: coordination of activities</p> <p>Ministry of water: support the identification of target sites & technologies, quality control of hydraulic works, maintenance of infrastructures</p> <p>Fisheries ministry: support the restoration of fish habitats</p>	<p>Regional extension services: monitoring works, training & supervising communities</p> <p>Local government: mobilisation of communities, quality control of works, maintenance of infrastructures</p> <p>Communities: involved in hydraulic works and management of infrastructures, participate management & maintenance of infrastructures</p>
1.2: Development of small-scale irrigation system in zones with high climate risk	<p>AEDD: coordination of activities</p> <p>Ministry of Agriculture: support the identification of target sites & technologies, quality control of works</p> <p>Ministry of water: support the identification of target sites & technologies, quality control of hydraulic works, maintenance of infrastructures</p>	<p>Regional extension services: monitoring works, training & supervising communities</p> <p>Local government: mobilisation of communities, quality control of works, maintenance of irrigation systems</p> <p>Communities: involved in hydraulic works and management of infrastructures, participate management & maintenance of infrastructures</p>
2.1: Integrated farming systems that are resilient to climate change promoted	<p>AEDD: coordination of activities</p> <p>Ministries of Agriculture, Mali Meteo: identification of resilient farming systems, training and</p>	<p>Regional extension services: monitoring works, training & supervising communities</p> <p>Regional extension services: monitoring</p>

Outputs	Lead institution & role	Stakeholders & roles
	supervise communities	works, training & supervising communities Local government: mobilisation of communities; Communities; involved in farming systems (beneficiaries), quality control of technical expert supervision Communities radios: diffusion of climate information
2.2: Semi-intensive livestock rearing system promoted to women's groups, herders, and farmers with livestock	AEDD: coordination of activities Ministries of Livestock & Environment (forest department): identification of resilient livestock & forest restoration systems, training and supervise communities	Regional extension services: monitoring works, training & supervising communities Local government: mobilisation of communities; Communities; involved in livestock systems (beneficiaries), quality control of technical expert supervision Communities radios: support awareness campaigns
2.3: at least 10 women groups increased their income & entrepreneurship through the development of vegetable garden & cash crops activities	AEDD: coordination of activities Ministry of Women, Agriculture, Rural development Department: identification of IGA, training and supervise communities Local Banks: support IGA and training of communities groups on rural finance, marketing, etc.	Regional extension services: monitoring works, training & supervising communities Women groups: mobilisation of communities, involved in farming systems (beneficiaries), quality control of technical expert supervision COFERSA monitoring works, training & supervising communities
2.4: Lessons learned from the project are shared	AEDD: capitalisation & sharing project results National media Universities & research centers to support project research and capitalisation	Regional extension services: contribution in collecting and sharing project results Local government: contribution in sharing project results (organisation regional forums) Communities radios: support diffusion of project results

Annexe 6: Terms of Reference for Project Personnel

The Project Implementation Unit is responsible for day-to-day implementation and management. It is notably responsible for technical support to all activities, and establishing technical working relationships with a range of projects and programmes and activities throughout the 10 communes

Tasks

- Preparing Annual and Quarterly work plans;
- Preparing Financial and progress report;
- Preparing TOR for all activities, inputs and services;
- Overseeing the identification, selection and supervision of all service providers;
- Providing technical support to the implementation of climate-resilient activities at the community level. This includes regular visits to communities' areas to observe and advise on all local activities;
- Providing technical support and direct inputs to all capacity development activities at local, municipal and provincial levels. This includes the design and implementation of training programmes;
- Prepare policy papers, recommendation, as appropriate and necessary;
- Ensuring coordination with all related projects in the sector and related sector;
- Arrange and ensure the smooth implementation of all PB meetings;
- In-between PB meetings, ensure the PB members are informed of all major developments and reports on a regular basis as specified by the PB (note: this should take place at least twice a year other than planned PB meetings);
- Building working technical partnerships;
- Overseeing lesson learning and lesson dissemination;
- Providing training in line with work plans and budget;
- Implement the M&E plan;
- Oversee communications: website, newsletters, leaflets, etc.;
- Ensure that appropriate accounting records are kept, and financial procedures for NIM are followed;
- Facilitates and cooperates with audit processes at all times as required;

Staffing

The PIU will consist of one National Project Manager (PM), one M&E experts, one Finance and Administration Manager, one Secretary, and two drivers. National and international consultants will support the PM: National expert micro-dam, borehole, micro-irrigation system, Environmental Impacts Assessment (EIA). The project will also develop MOU with extension services and relevant NGO & Producers Federation to support resilient communities activities. Finally, UNDP will hire 3 UNVs to support management of project in select Region. The Detailed TOR for each of these will be prepared prior to the Inception Workshop, approved by the PB and by UNDP/GEF.

National Project Manager

Reports to: Project Board

Timing/Duration: This is a full-time position for the five years of the project.

Objective/scope:

This is a high-level policy/leadership position to oversee the project implementation.

- The initial objective is to establish the PIU and oversee the recruitment of its staff and its operationalization.

- The next objective is to ensure regular work planning, adaptive management and monitoring of project progress towards project objectives and goals, and management of all PIU staff.
- The third objective is to ensure the PIU interacts functionally with all partners, national and international, at high levels. This includes developing joint objectives and activities with international partners and other projects.

He/she will be a locally recruited national selected based on an open competitive process. He/She will be responsible for the overall management of the project, including the mobilization of all project inputs and the supervision of project staff, consultants and sub-contractors. He/she will report all substantive and administrative issues to the MEE deputy minister. The PM will report to the Project Board (PB) on a periodic basis and will be responsible for meeting the project's government obligations under the national implementing modality (NIM). He/She will act as a liaison between the Government and the liaison officer that will be nominated in the CNEDD, UNDP and other UN Agencies, NGOs and project partners, and will maintain close collaboration between the project and other co-financing donor agencies.

Tasks (these include, but are not limited to):

PIU Management and Planning

1. Assume operational management of the project in consistency with the project document and UNDP policies and procedures for nationally executed projects;
2. Oversee preparation and updates of the project work plan as required; and formally submits updates to UNDP and reports on work plan progress to the PB and UNDP as requested but at least quarterly;
3. Oversee the mobilization of project inputs under the responsibility of the Executing Agency;
4. Oversee the recruitment of all consultants and sub-contractors;
5. Ensures that appropriate accounting records are kept, and financial procedures for NIM are followed, and facilitates and cooperates with audit processes at all times as required;
6. Ensures all reports are prepared in a timely manner;
7. Assist in the finalization of TORs and the identification and selection of national consultants to undertake the rapid assessment;
8. Assists in the planning and design of all project activities, through the quarterly planning process and the preparations of TOR and Activity Descriptions;
9. Supervises the project staff and consultants assigned to project;
10. Throughout the project, when necessary, provides advice and guidance to the national consultants, to the international experts and to project partners;
11. Assist in the dissemination of project findings, notably to relevant governmental departments and internationally.

Partnerships

1. Oversee development and implementation of communication strategy;
2. Oversee development and implementation of the M&E monitoring system;
3. Build working relationships with national and international partners in this sector;
4. Ensure the coordination of project activities work with related work of partners;

Qualifications

The PM will have nationally renowned expertise in at least one of the following fields: Environmental, Disaster Risks Management, or rural economics; Natural resources management, and, climate change forecasting and impact forecasting. In addition, the following qualifications will be key to the project success:

- Appropriate University Degree in natural resources management, economics or agriculture;
- Substantial experience and familiarity with the ministries and agencies in Burundi;
- Verified excellent project management, team leadership, and facilitation;
- Ability to coordinate a large, multidisciplinary team of experts and consultants;
- Fluency in English;
- Knowledge in English is an asset.

Supported staff

The M&E Expert will be national expert. He/She will:

- Provide technical expertise and guidance to all project components, and support the Project Coordinator in the coordination of the implementation of planned activities under the LDCE project as stipulated in the project document/work plan;
- Be specifically responsible for the technical input into the development of a M&E framework and its implementation and follow-up with all relevant stakeholders at national, county and demonstration site level, in line with the project results framework in section III of the project document and in line with the GEF tracking tool for LDCE project AMAT and GEF M&E guidance;
- Ensure that technical contracts meet the highest standards; provide input into development of Terms of Reference for sub-contracts, assist with selection process, recommend best candidates and approaches, provide technical peer function to sub-contractors; provide training and backstopping where necessary;
- Provide technical inputs into the work of the PB, and other relevant institutions implicated in the project management and implementation arrangements;
- Undertake regular reporting in line with project management guidelines.

The Finance and Admin Manager will be a national expert. He/she will:

- Set up and maintain project files;
- Collect project related information data;
- Update plans;
- Administer PB and other relevant meetings;
- Administer project revision control;
- Establish document control procedures;
- Compile, copy and distribute all project reports;
- Responsible for the financial management tasks under the responsibility of the PM;
- Provide support in the use of Atlas for monitoring and reporting;
- Review technical reports;
- Monitor technical activities carried out by responsible parties.

Annexe 7: Special Clauses

The schedule of payments and UNDP bank account details.

The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization by the UNDP of the payment, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNDP shall inform the Government with a view to determining whether the Government could provide any further financing. Should such further financing not be available, the assistance to be provided to the project may be reduced, suspended or terminated by UNDP.

The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities. It may be amended to be consistent with the progress of project delivery.

UNDP shall receive and administer the payment in accordance with the regulations, rules and directives of UNDP.

All financial accounts and statements shall be expressed in United States dollars.

If unforeseen increases in expenditures or commitments are expected or realized (whether owing to inflationary factors, fluctuation in exchange rates or unforeseen contingencies), UNDP shall submit to the government on a timely basis a supplementary estimate showing the further financing that will be necessary. The Government shall use its best endeavours to obtain the additional funds required.

If the payments referred above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph above is not forthcoming from the Government or other sources, the assistance to be provided to the project under this Agreement may be reduced, suspended or terminated by UNDP.

Any interest income attributable to the contribution shall be credited to UNDP Project Account and shall be utilized in accordance with established UNDP procedures.

Ownership of equipment, supplies and other properties financed from the contribution shall vest in UNDP. Matters relating to the transfer of ownership by UNDP shall be determined in accordance with the relevant policies and procedures of UNDP.

The contribution shall be subject exclusively to the internal and external-auditing procedures provided for in the financial regulations, rules and directives of UNDP.

Annexe 8: Co-financing Letters