AFB/PPRC.6/9
August 31, 2011

Adaptation Fund Board
Project and Programme Review Committee
Sixth Meeting
Bonn, September 14, 2011

PROPOSAL FOR MALI

I. Background

1. The Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, adopted by the Adaptation Fund Board, state in paragraph 41 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the approval by the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would finally require Board's approval.

2. The Templates Approved by the Adaptation Fund Board (Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, Annex 3) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

> *For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.*

3. The first four criteria mentioned above are:
   1. Country Eligibility,
   2. Project Eligibility,
   3. Resource Availability, and
   4. Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:
   5. Implementation Arrangements.

5. Based on the Adaptation Fund Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Adaptation Fund was sent out on April 8, 2010.

6. According to the paragraph 41 of the operational policies and guidelines, a project or programme proposal needs to be received by the secretariat not less than seven weeks before a Board meeting, in order to be considered by the Board in that meeting.

The following programme concept titled "Programme Support for Climate Change Adaptation in the vulnerable regions of Mopti and Timbouctou" was submitted by the United Nations Development Programme (UNDP), which is a Multilateral Implementing Entity of the Adaptation Fund. This is the first submission of the project. It was received by the secretariat in time to be considered in the 15th Adaptation Fund Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number MLI/MIE/Food/2011/1/PC and filled in a review sheet.

7. In accordance with a request to the secretariat made by the Adaptation Fund Board in its 10th meeting, the secretariat shared this review sheet with UNDP, and offered it the

opportunity of providing responses before the review sheet was sent to the Project and Programme Committee of the Adaptation Fund.

8. The secretariat is submitting to the Project and Programme Review Committee the summary of the programme, prepared by the secretariat, in the following section. The secretariat is also submitting to the Committee the technical review sheet and the responses provided by UNDP, in an addendum to this document.

Project Summary

Mali – Programme Support for Climate Change Adaptation in the vulnerable regions of Mopti and Timbouctou
Implementing Entity: *UNDP*
Project/Programme Execution Cost: USD 682,337.5
Total Project/Programme Cost: USD 7,864,837.5
Implementing Fee: USD 668,511.188
Financing Requested: USD 8,533,348.688

Programme Background and Context:

Mali is a West African LDC which is vulnerable to climate change-induced drought and decreasing rainfall.

The Programme **objective** is to increase the resilience of vulnerable communities and the adaptive capacity to climate change in the regions of Mopti and Tumbouctou and particularly those living in the Faguibine system.

The programme presents three components:

Component 1: Enhance measures for water control in vulnerable water buffer zones (USD 1, 518,500)

This Component focuses on the physical restoration of the Faguibine system (clearing and securing of the canals) and other water harvesting schemes using manual labor to re-establish the currently blocked and silted channel, to allow for deep infiltration of water, as well as the promotion of more efficient water management systems, including irrigation. Such an effort will lead to the optimization of total storage capacity to meet supply needs in dry periods; interconnection of isolated units to ensure equitable water supply in dry periods; improvement of the structural integrity and storage systems against extreme weather events; integration of filter elements to improve safety of freshwater supply. The programme will boost water supply needs to trigger economic activities and support food security measures. The capacities of water infiltration, storage and flow under climate change will be restored through the rehabilitation of water canals and channels/silted and obstructed ponds. Similarly, sustainable water management systems will be promoted to improve water access to vulnerable communities to climate change and permit the development of subsistence activities.

Component 2: Resilience in subsistence livelihoods of vulnerable communities (USD 2,428,840)

Component 2 will introduce a range of options, including extension services for communal stakeholders to enhance the resilience of their agricultural, pastoral and forestry systems of production, to climate impacts. Agro pastoral practices and technologies will be developed e.g. integrated crop-livestock rotational system, agroforestry, fodder harvesting etc. to reduce the risks of climate changes in these vulnerable zones. These will involve using extension services as well as introducing drought-resistant seeds among pilot farmers for their yields in rural areas and ascertain for their adaptability to the Mopti and Tumbouctou region. Village grain and seed storehouses for stocking of agricultural products will be established and equipped in addressing period of shortages as well as planting stocks for next season cropping. Sustainable harvesting, conservation and restoration practices will be used to enhance the resilience of forest ecosystems to climate change. Agro-forestry activities will be

carried out in fields to increase soil and forest resilience as well as efforts to restore natural grazing routes, reduce sand erosion, and protect areas with plant species threatened by climate change. Supporting food and income diversification to enhance socio economic resilience of vulnerable communities will be undertaken through promoting income-generating activities and building the commercial capacity of vulnerable communities as well as supporting groups engaged in IGAs to enable them to establish micro-enterprises.

Component 3: Capacity-building and knowledge generation for adaptation (USD 1,604,160)

Component 3 is expected to result in enhanced capacity of communities and local expertise to better adapt to climate change by improving their competence to understand the opportunities and threats associated with climate change and the impacts of climate variability in order to better update communal development plans (PDSEC) and include the implementation of local adaptation efforts. The preparation of local adaptation plans on the basis of a thorough assessment of the vulnerability and local capacities to adapt to climate shocks will be conducted through a participatory approach and based on traditional knowledge and ongoing mechanisms to address climate change. For the sharing and management of knowledge, the programme will build on local and digital media. Moreover, the programme will utilize the existing official frameworks for knowledge sharing and build-on experiments and the main results achieved by the programme.

DATE OF RECEIPT:
ADAPTATION FUND PROJECT ID:
(For Adaptation Fund Board Secretariat Use Only)

ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

PROJECT/PROGRAMME CATEGORY:	Regular
COUNTRY/IES	MALI
TITLE OF PROJECT/PROGRAMME	Programme Support for Climate Change Adaptation in the vulnerable regions of Mopti and Timbouctou
TYPE OF IMPLEMENTING ENTITY	Multilateral Implementing Entity (MIE)
IMPLEMENTING ENTITY:	United Nations Development Programme (UNDP)
LEAD EXECUTING ENTITY:	Ministry of Environment and Sanitation (MES), Ministry of Agriculture (MA) Ministry of Territorial Administration and Local Collectivities (MTALC)
AMOUNT OF FINANCING REQUESTED:	US $ 8,533,348.688 (US Dollar Equivalent)
CO-FINANCING	US$ 10,000,000 (US Dollar Equivalent)

PROJECT / PROGRAMME BACKGROUND AND CONTEXT:

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.

Geographic, Environmental and Socioeconomic Context:

Mali is a vast landlocked country at the heart of West Africa located between 10 ° and 25 ° N and between 4 ° E longitude and 12 degrees west longitude. The country has a land area of 1,241,238 square kilometers, representing about 4.2% of the total land area of Africa. It shares 7,000 km of borders with seven countries (Senegal, Mauritania, Algeria, Niger, Burkina Faso, Ivory Coast and Guinea Conakry). The relief is characterized predominantly by sandstone plateaux forming the Mandingo Plateau stretching from north of the Niger River on the border with Senegal (800 m above sea level) and the Koutiala Plateau which extends south from the upper Niger River on the border with Burkina Faso.

Located in the Sahel of West Africa, Mali has a dry climate with 65 % of its territory under semi-desert and desert conditions. Mali is characterized by four climate zones: Saharan climate (desert) to the north (annual rainfall <200 mm), Sahelian Centre (annual rainfall between 200 mm and 600 mm), Sudanese (annual rainfall between 600 mm and 1000 mm) and Sudan-Guinea to the south (rainfall> 1000 mm) (Fig 1). Mali's climate exhibits large inter-annual variability, particularly with regard to rainfall.

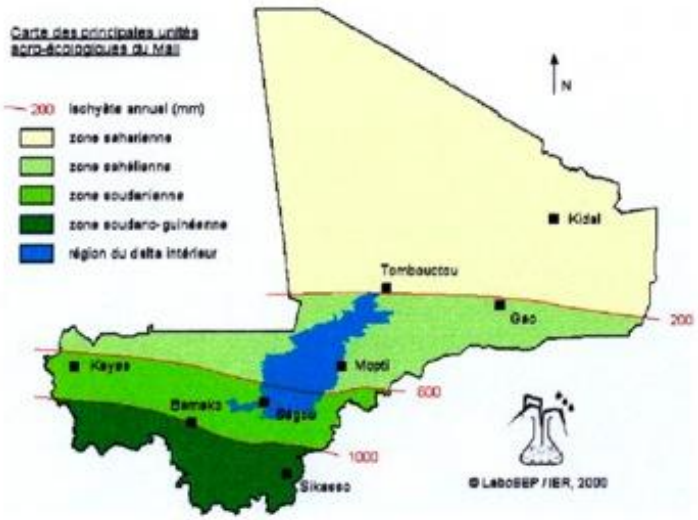

Figure 1: Map showing rainfall zones in Mali (Mali NAPA) the South with rainfall of between 600-1000mm and greater than 1000mm respectively.

Temperatures in Mali can reach maximums of up to 45° C, with little inter-annual and only small seasonal variations. Data from the national Meteorological services demonstrates a southwards encroachment of the Sahelian and Saharan climatic and vegetation zones over the last 40 years, as rainfall has decreased.[1] Analysis of the periods 1951-1970 compared with 1971-2000 for Sikasso in the south and Tessalit in the North shows a decrease in average annual precipitation of 19 and 26 percent respectively. It is widely reported by local government and communities that inter-annual variability has also increased and that the rainy season has become more unpredictable. Temperatures have increased and drought conditions have become more frequent, causing migration, either temporary or permanent, to become an increasingly common coping strategy.[2]

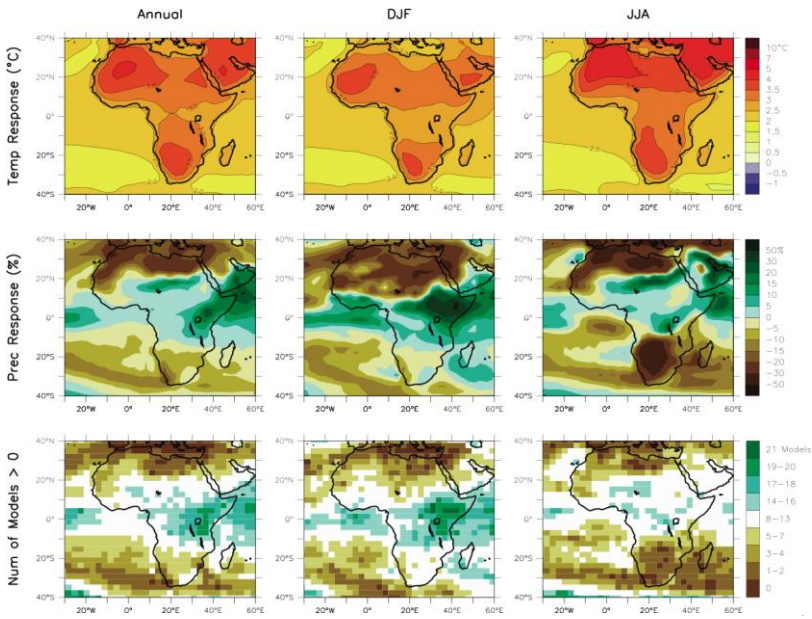

Figure 2: Climate change projections for Africa (IPCC AR4, 2007)

There is a high level of uncertainty associated in climate projections for Mali, and West Africa in general particularly for changes in precipitation.[3] There are significant uncertainties regarding the climatology of the Sahel. In the Third Assessment Report (TAR) of the IPCC,

[1] Ministère de l'Equipement et des Transports (2007) Programme d'action national d'adaptation aux changements climatiques (PANACC), i.e. the NAPA for Mali.
[2] Ministere de l'Equipement et des Transports, NAPA (2007)
[3] Christensen et al. (2007) Regional Climate Projections. IPCC WG II Chapter 11. The uncertainty is mainly due to the inability of most models to produce 'semi-realistic' simulations of the Sahel drought, the lack of vegetation feedback in the models and the fact that small changes in the Inter-Tropical Convergence Zone would produce large changes in rainfall cast doubt on projections for precipitation.

general circulation model simulations suggest a future warming of 0.2 degrees C per decade (low warming scenario) to more than 0.5 degrees C (high warming scenario) by 2030. While some models predict a decrease in precipitation, others suggest increased rainfall under the most rapid global change scenario. No clear outcome regarding future climatology has emerged for the Sahel region.

Models do agree, however, on the increased unpredictability of rainfall, and this is consistent with local observations**.** Figure 2 shows a prediction of overall higher temperatures – and an uncertainty in rainfall variability. For West Africa the IPCC projects a range of +1.8 to +4.7^{o} C for the period 2081-2100 (with a median of +3.3^{o} C). Temperature increases are likely to be greater in the Northern half of Mali than in the South.[4] It is clearer, however, that climate change is expected to increase inter-annual variability and the occurrence of extreme climatic events. It is also likely that there will be increased intra-seasonal variability, for example an increase in the number of dry spells during the rainy season.[5]

Climate Change and Food Security Vulnerability in Mali

Climate change is expected to increase the variability and the incidence of extreme weather events, such as droughts, floods, intense rainfall events. Without improved planning and management and particularly improved water management, climate change will destroy crops and property, and lead to greater degradation of already fragile soils.[6] Regardless of whether there is an increase or decrease in precipitation, increased temperatures will cause greater evapo-transpiration, which will lead to drier soils in many areas and a corresponding decrease in water availability.[7]

Mali's high dependence on the primary agricultural sector (which employs 83 percent of the population, and comprises 50 percent of GDP[8]) renders the country particularly vulnerable to climate change impacts on food security. The Millet/Sorghum farming system in the Sahel is one of the most vulnerable farming systems to drought in the world.[9] According to WPF's analysis, the seasonal variability of market prices for millet, sorghum and maize is more than double as high as that of rice.

Yield models agree that crop production will decrease under most climate change scenarios. According to models, the impact of decreased water availability due to climate change will lead to a reduction of agricultural output in Mali by 15 - 20 percent.[10] The most vulnerable crops are sorghum, millet and rice which might experience a decrease in production of 18-33 percent with a decrease in rainfall. In addition, a fall in production is accompanied by a decrease in economic output. Food production losses associated with the 1984 Sahel drought in Mali accounted for a

[4] Idem;
[5] Ebi, K., Smith, J. (2006). Mali Pilot Study: Climate Change and Agriculture In Zignasso. Final Report. Washington DC: U.S. Agency for International Development.
[6] Idem;
[7] Danida (2008) Appréciation des impacts des changements climatiques sur les programmes de développement de la cooperation Danoise au Mali. An additional factor leading to this expectation is the expected increased demand due to continued population and economic growth.
[8] Ministère de l'Equipement et des Transports, NAPA (2007)
[9] Hyman, G. S. Fujisaka, P. Jones, S. Wood , M. Carmen de Vicente, J. Dixon (2008). Strategic approaches to targeting technology generation: Assessing the coincidence of poverty and drought-prone production. Agricultural Systems 98: 50-61
[10] Butt et all. 2003 and World Conference on Disaster Reduction. 1994

loss of 9 percent of GDP.[11] An examination of rainfall anomalies and changes in domestic rice production reveals that these are directly and positively correlated. A simulation exercise (assuming an increase in temperature of between 1 and 2.75^{o} C and no adaptation measures) suggests that a decrease in cereal harvests would result in a doubling of food prices in Mali by 2030. Reduced local agricultural output and higher food prices will reduce access to food, particularly for the very poor, and increase the risk of hunger from the present baseline of 34 percent of the population to 64-70 percent by 2030.[12]

Problem Statement: The Climate Change-induced Problem

Mali experience severe droughts, irregular rainfalls and reduction in agricultural yields and water resources severely affecting the livelihoods of the people and national development. The NAPA assessment for example concluded that climate change is likely to cause significant losses in crop production with an estimated reduction in cotton yields by150 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. Similar trends are also projected for rice.

As highlighted in the NAPA, farming systems in Mali are extremely vulnerable to climate change and climate variability. The root causes for the growing vulnerability include significant reliance on rain-fed agriculture, ongoing practices of crop selection, water resource management, rangeland management, drought preparedness, and household income generation that are not compatible with increasing aridation and climatic variability. Additional vulnerability drivers relate to: (i) increasing demographic patterns (including climate-induced refugee movements into regions least affected by drought, which cause intense pressure on productive arable lands); (ii) shortage of basic investment in market mechanisms in rural areas (such as access to credit, limited market outlets, etc.); and (iii) lack of land tenure regulation that hinders development of the the sector. In the context of the above root-causes, the performance of the agricultural sector and its capacity to adapt are limited.

The fragile ecosystems of the country make it very vulnerable to extreme climate phenomena weakening the socio-economic situation and the ability to adapt. Unfortunately, current adaptive capacity is low in the country nursing one of the highest levels of food insecurity characterised by high levels of malnutrition in Africa.

According to the outcomes of various climate models, the climate trends for future scenarios – without improved planning and management, particularly improved water management – will negatively impact the major sectors in Mali[13], namely agriculture, livestock and forestry which directly impact food security. The consequences will be severe for the poor and vulnerable populations, mainly because of their strong dependence on natural resources and their limited capacity to face climate change and variability as well as extreme climate phenomena. There are also climate changed-induced problems affecting the major sectors and their performances in supporting national development programmes that needs conscientious efforts to address them. For example:

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[11] World Conference on Disaster Reduction, 1994

[12] Butt et al., 2003

13 National Action Plan of Adaptation to Climate Change. Ministry of Equipment and Transport in collaboration with National Directorate of Meteorology 2007

Water Resources

The trends in rainfall decrease and variability, and the increase in temperature may lead to a high evaporation-transpiration which could worsen water shortages in the region. Access to water would likely be harder increasing competition for water.

As the major supply of freshwater over several decades, the Niger Inner Delta which mainly covers the regions of Mopti and Tombouctou has been experiencing a decrease in water flows. The average flow of the river Niger at Koulikoro, one of the conventional ABN stations, was 1600 cubic meters/second in 1905, 1350 cubic meters/second in 1955, and hardly 1200 cubic meters/second in 2005. The Delta is characterized not only by a decrease of its water flow, but also by the continuous shrinking of the annually flooded area, which has seen a decrease from 30,000 sq.km in the fifties and sixties to less than 10,000 sq.km today. The decrease in water flow combine with erosion and siltation are blocking the channeling of water into the best parts of the Delta, thus jeopardizing agricultural and pastoral activities. There is a need for action to rehabilitate the systems in order to ensure sustainable productivity of agro-pastoral lands.

The same observations have been made of the Faguibine system. Besides siltation under land use changes, rainfall fluctuations in Guinea, the main source of the river Niger feeding the Faguibine system, and particularly Lake Faguibine, have experienced a gradual decrease in the water level since the mid-seventies, as illustrated by the satellite images in Figure 3. Many canals linking the system are silted and blocked. This has effectively destroyed the system's ability to act as a buffer as the weather and rainfall become more unpredictable.

Figure 3: The total area of Lake Faguibine in 1978 (up) and in 2006 (below) (UNEP 2008)

Agriculture

Though crops are quite diversified in the target regions, they are particularly vulnerable to climate change and affecting their productivity. Models predict between 20 to 34% decrease in the yield of millet and sorghum by 2020 and 30 to 40% by 2050[14]. It is estimated that the risks of chronic hunger, taking into account future climate change, might increase from 34% to more than 60%.

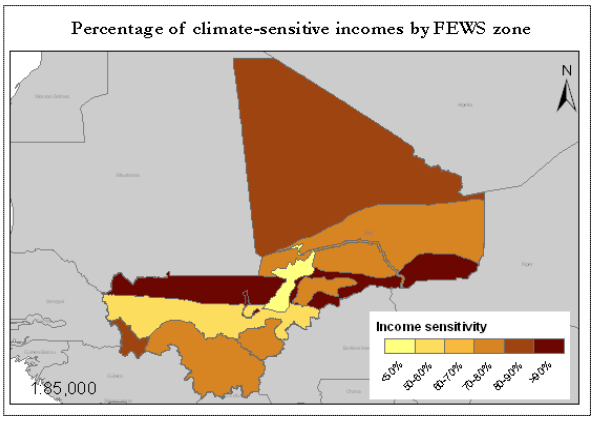


Figure 4: Percentage of climate-sensitive incomes (WFP CFSVA 2005

14 Updating survey of climate change scenarios in Mali. National Scientific and Technological Research Center.2009

The poor majority of the communities are extremely sensitive to climate change because of their strong dependence on agricultural and pastoral activities. Those groups also depend on market access[15], where they buy a large part of their cereals.

Livestock

The rearing of cattle, goats and sheep is a major income earning activity in the regions of Mopti and Timbouctou. Unfortunately under climate change, there is shrinking of natural grazing fields and it is ascertained that this is likely to continue with further decrease and irregularity in water availability. The flood plains of the Delta is likely to be affected following changes in the natural water flow system which depends on rainfall patterns which is a major driver of the hydrological regime of the river Niger. Such phenomena could force cattle grazers into migrate to other lands; and this may lead to conflicts with other stakeholders (farmers, animal breeders and fishermen).

The socio-economic consequences of climate change impacts on the livestock sector could include: (1) sharp increase in prices of livestock and meat following reduction in supply under high animal mortality caused by droughts; (2) shift in livelihood activities by a significant number of nomadic grazers to sedentary activities; (3) fall in incomes of animal grazing; (4) change in the composition of herds through gradual replacement of cattle with small ruminants and camels.[16.]

Forestry

Despite all the benefits they provide, forests are undergoing great changes under climate change and human activities. Between 1990 and 2010, Mali experienced a rate of loss of its forest cover by 0.56% a year representing a loss of 11% of its forest cover, and about 1,582,000 ha. The decrease in water availability (under the shift of isohyets towards the south) and human pressure (through agricultural clearings, over-grazing, bushfires, and the collection of firewood) are the main causes of this phenomenon. The harvesting of forests in Mali is ten times higher that their regeneration potentials.

All these effects of climate change on the sectors will have an impact not only on food security and the local economy but also far beyond. Indeed, the populations depend on woody products (art wood, firewood) and non woody products (fruit and pharmaceuticals). Besides, forests have other benefits such as preserving biodiversity and the delivery of various environmental services on which the population depend. The gradual decrease presently taking place has severe consequences on the livelihood of the populations in the two regions.

Addressing the effects of climate change on the livelihood of the populations, and poverty and food security in rural areas will be difficult without well targeted technical and financial assistance. It is in this context that this concept note is meant to access funds from the Adaptation Fund Board by the Ministry of Environment and Sanitation of Mali, which is the government authority in charge of climate change related issues. The proposed project will address the inter-related NAPA follow-up priority measures in a coherent and programmatic way, through one integrated project in one of the critical regions vulnerable to climate change. The project will generate clear

16 Updating survey of climate change scenarios in Mali. National Scientific and Technological Research Center.2009

adaptation benefits that will assist Mali make the transition towards climate resilient food security through: (i) enhanced ability of small farmers and pastoralists to cope with increasing climate variability; (ii) systematic integration of the risks associated with climate change, including variability into key natural resources, water and agriculture development policies, plans and legislation; and (iii) strengthened institutional capacity to prepare and respond to climate change threats on water and food production systems. Adaptation benefits will also result from the catalytic and innovative nature of the project and the valuable lessons learnt and information generated. By its simultaneous focus on enhancing food security, promoting resilient rural household livelihoods, rehabilitation of water systems, and facilitating access to adaptation technologies, the project brings together the crucial elements needed for demonstrating climate-proofing and fostering a paradigm shift in water and agricultural development in Mali.

Project Target Area

The regions of Mopti and Timbouctou are characterized by fragile and extremely vulnerable ecosystems.[17]

Three quarters of the target zone are under the Sahara desert. They are characterized by an arid (Sahara), semi-arid (Sahel) climate or by a micro-climate of the Inner Niger Delta, which is watered by rivers Niger, Bani and Sourou (Figure 5). Arid zones are highly dependent on the availability of water resources.

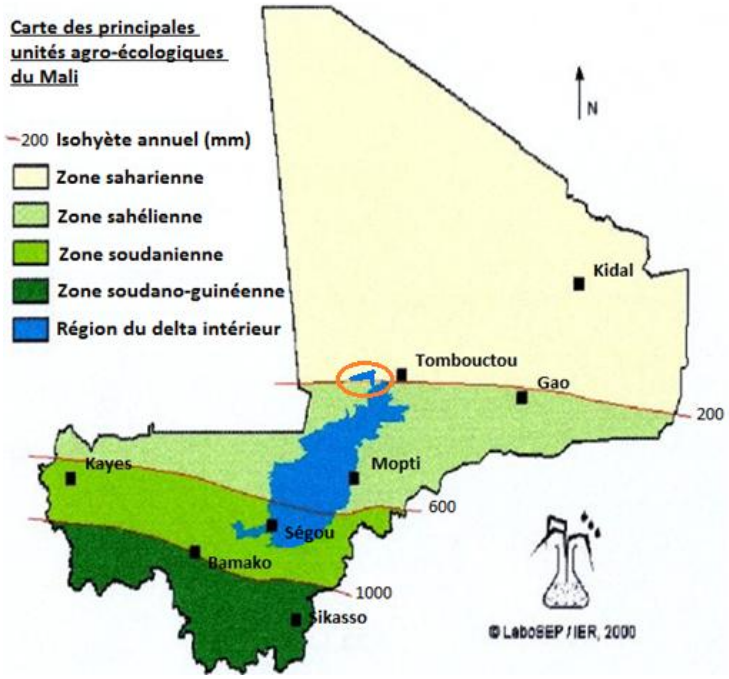


Figure 5: Agro-ecological Units in Mali

The humid zones of the Niger Inner Delta, which include the Faguibine system, are characterized by an ecosystem which is very fragile to the deficit in water resources. The two regions have a total population of 2,251,501 people on a territory of 576 943 sq.km. However, more than 2/3 of the populations in these two regions live in the Niger Inner Delta because of the economic opportunities it offers[18].

The 'Faguibine system is particularly sensitive to climate change impacts. The system (see the red circle in Figure 3, below) is located 80 km west of Timbuktu. Its land area of 3360 km^2 involves a number of lakes and canals converging and draining a low-lying fertile plain fed by annual flooding of the Niger River. The system is situated at a critical point between the northern Arabo-Berber nomadic pastoralists and the southern sedentary farmer communities who rely on the Lake's regular cycle. During periods of high rainfall the water can spill over the main Lake Faguibine further north, providing livelihood opportunities in

17 Local governance and poverty reduction in Mali : from words to Action. The experience of the Support Projects to the Rural Communes in Mopti and Tombouctou MACTL/DNCT. 2004

18 National Plan of Action for Adaptation to Climate Change. Ministry of Equipment and transports in collaboration with the National Department of Meteorology. 2007

agriculture (180 to 350 km² of arable land), fisheries and dry season grazing. The Faguibine system also accommodates large numbers of water birds, mainly wintering flocks from Europe.

The Baseline Situation Report[19] of Mali shows 79% poverty rate (1 USD/a day threshold) in the region of Mopti and 55% in the region of Tumbouctou, against 47% for the rest of the country.

The food insecurity rates are higher in the regions of Mopti and of Tumbouctou, as shown in figure 2[20]. The region of Tumbouctou is ranked second in the country in terms of the prevalence of acute malnutrition (7.1%). Besides, the households depending on rice as a staple food regularly face a greater risk of acute malnutrition.[21]

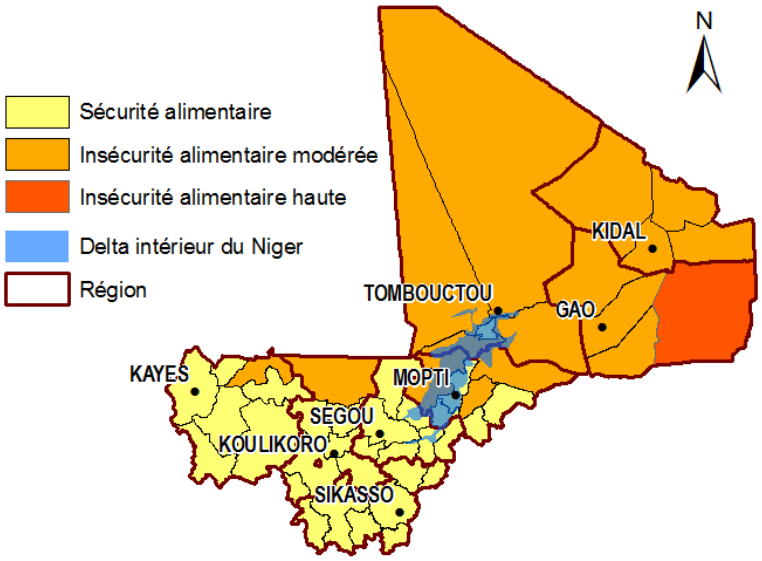


Figure 6: Map of estimated food security conditions, March 2010.

Climate Change Accelerants and Impacts

The central/Sahelian region of Mali is the most sensitive to changes in rainfall, and most households in this region derive over 70 percent of their income from agriculture and/or livestock sector, and are therefore the most vulnerable to climate change. This project focuses on the region of Mopti and Tumbouctou especially on the Faguibine system in the central/Sahelian region of Mali and on those communities) found to be most vulnerable to climate change by the Comprehensive Food Security and Vulnerability Analysis (CSFVA) conducted by WFP using the following indicators:[22]

- Production: lowest diversification in crops grown, or in classes of animals owned
- Consumption: lowest percentage of food consumed from own production
- Expenditures: highest percent of income spent on nutrition and second largest per capita expenditure on non-food items
- Coping strategies: highest reliance on food-based coping strategies to mitigate shocks

19 Baseline Situation I166.Republic of Mali. Final Report 2009

20 USAID, http://www.usaid.gov/ml/documents/Mali_alert_23_fevrier_2010_fr.pdf. Source: Fews Net

21 Report on Sentinel Site Survey Post-Harvest 2008 – 2009; Commissioner for Food Security, Early Warning system, 2009,

22 Analysis of Livelihood Sensitivities to Climate in Mali, WFP, March, 2011 (Draft)

The analysis of the CFSVA and climate data also indicates a close correlation between rainfall and food production for the major crops in the region. This suggests that significant changes in rainfall would negatively affect food production in the absence of adaptation measures.

With increasing unpredictability in the water flowing into the system, the Faguibine will lose the advantage of being relatively more food-secure than neighbouring zones. Rice is the dominant crop, both in terms of production (incomes) and household consumption, followed by millet, sorghum and maize. Most rice is cultivated through submersion and therefore highly dependent on water flows. Only a small proportion of rice is irrigated. While controlled irrigation would increase and stabilize yields, irrigation is uncommon due to high investment costs. For all crops, poor climate conditions and irregular rainfall combined with traditional agricultural practices limit agricultural productivity to average yields of only 1.5 metric tons per ha. The basic diet in the area is generally cereals (millet and rice) with little variety because of low levels of vegetable production.[23] However, livestock breeding is an important livelihood activity in the region of Mopti and Tumbouctou. The main species that depend on the Lake include bovines, goats and mutton. Among these, bovines have the highest economic value and only the wealthier groups own them.

The poorest households especially suffer in the pre-harvest period of July-October due to a lack of cereal stock and cash from the previous harvest season. During this period, which also sees the highest rates of migration to urban areas, prices for local or imported rice increase by up to 17 percent, while those for millet, sorghum or maize increase by 33-39 percent (national figures). These months are also those with the highest production of cattle milk, after the new births of calves between June and August as well as – traditionally through the improvement in grazing land from increasing rainfall. The main harvest period is between November and February. The period between March and June is the hottest and driest of the year. These are the hardest months for livestock and the people who depend on them.

Table 1: Wealth group characteristics (Lake Faguibine)

Wealth group	Percentage	Household size	Harvest area	Animals	Other assets
Very poor	10 %	3-5	0.5 - 1 ha	3-5 (poultry)	None
Poor	40 %	6-8	1.0 - 2 ha	5-10 goats, 3-5 muttons, 10-15 poultry, 2 donkeys	None
Average	30 %	10-12	5 - 8 ha	20-30 bovines, 10-20 goats, 6-15 muttons, 20-30 poultry, 2-3 donkeys	1-2 ploughs, 1 handcart
Rich	20 %	15-25	12 - 15 ha	40-60 bovines, 30-50 goats, 20-30 muttons, 4-6 donkeys	3-4 ploughs, 2-3 handcarts

Table 1 shows the characteristics of the different wealth groups (defined by their available livelihood assets) in the zone comprising Lake Faguibine. Half the

[23] Comprehensive Food Security and Vulnerability Assessment (CFSVA) for Mali, a detailed food security and vulnerability baseline conducted by the Government, WFP and partners between 2007 and 2008.

population is characterized as very poor or poor. In terms of food consumption patterns, there are significant differences between wealth groups (Figure 5). The better off groups are able to live off their own food production, while the poorer groups – which cannot sustain their consumption throughout the lean period from their own harvest - largely depend on markets.

Climate change trends in the target zone

Future climate trends for the Sahel, including Mali, for rainfall and temperature were simulated by the Inter-government Expert Group on Climate Change (IEGCC) and the translation of these regional trends at the national level was conducted by the National Scientific and Technological Research Center of Mali (NSTRC).

Despite uncertainties on the climate scenarios for Mali, the country may face a progressive decrease in rainfall and an increase in temperature in all the cities in the area of project intervention in the long term (horizons 2020 and 2050). Climate change will result in an increase in rainfall variability and an increase in the frequencies of extreme events such as droughts, floods, violent winds and strong rains.[24]

The most vulnerable sectors of Mali and the direct and indirect impacts of climate change on those sectors were identified during a number of vulnerability and adaptation assessments of those sectors.[25,26] In the framework of this programme, vulnerable sectors identified through such in country processes were retained (agriculture, livestock and forestry) given that they are deemed to be the pillars of food security in the programme area. Beside these sectors, it is proper to add water resources (underground and surface waters) whose availability is indispensable for the populations as well as for the key sectoral activities.

Climate Change Impacts in the Project Area

Climate change has led to the degradation of the regions of Mpoti and Tumbouctou, which, without adaptation action, will not recover even if climate change results in increased precipitation. This is of particular concern given that the expected unpredictability of temperature and rainfall make the availability of a reliable buffer even more crucial.

The dependence on rain-fed agriculture makes the project area highly vulnerable to changes in rainfall and climate change projections of an increasing unpredictability in rice and other crop production in the area, associated with increasingly erratic rainfall patterns. Decreasing agricultural output due to lower availability of water resources, combined with the high volatility of food prices will have adverse consequences for food security in and around the area – in particular for the poorest households and communities that comprise 50 percent of the population. Declining yields have

24 Updating surveys of the climate change scenarios in Mali. National Scientific and Technological Research Center. 2009

25 These surveys were respectively conducted in the framework of the Initial National Communication (INC, 2000), of the Netherlands Climate Assistance Program (NCAP, 2004), of the National Climate Adaptation Plan of Action (PANA, 2007), and of the ongoing Second National Communication (SNC). The identification of those impacts is the combined result of field observations, local consultations with the populations, and findings of scientific surveys conducted (in general) under research and/or development projects. These vulnerable sectors are: water resources, agriculture, livestock, fisheries, forests, energy, health, fauna, transportation, education, industry, habitat.

26 Updating survey of climate change scenarios in Mali. National Scientific and Technological Research Center. 2009

already led to unsustainable coping strategies including the lowering of quality and quantity of meals. The region of Tumbouctou has the second highest prevalence of acute malnutrition in the country (7.1 percent); and livelihoods depending on submersion rice culture already show the greatest risk of acute malnutrition (28.5 percent).[27]

Many communities have been forced to abandon their traditional livelihoods while nomadic groups are becoming sedentary in order to take advantage of emergency relief programmes. As a result, agriculture and fisheries are being replaced by grazing on poor pastures which grow only during the short rainy season, from July to September and are prone to overuse and degradation. Over the past 3 years, more than 200,000 people have migrated from the area into cities. Without adaptation action, this degradation and exodus is expected to continue.

The Need for Adaptation

Adaptation actions can be expected to have a significant effect on agricultural yields and livelihoods in the targeted region, and counteracting the effects of reduced water availability.[28] This calls for Government leadership in the formulation of overall policies and programmes, providing the framework for a host of adaptive actions promoted by various partners. As expressed in national environmental and agricultural policies, the Government of Mali has emphasized the importance of water control and development of small irrigated plots. Such investments can be expected to increase yields by up to 5.5 tons per hectare.[29] In the last three years, the Office for the Development of the Faguibine System (OMVF) has achieved impressive yield increases through soil levelling, reforestation, dune and river bank stabilisation and other interventions aimed at improving water control. These activities have contributed to the expansion of flooded areas around the lakes. They have also improved access to drinking water for local communities. Cereal and fish production have risen. And some families that fled the area are returning.

However, investments need to be complemented by a more integrated approach which focuses at the community level on the most vulnerable groups, and includes not just large physical infrastructure but smaller physical works and community adaptation planning and training in agro-ecological practices, storage and market management, and improved nutritional practices. The targeting of women is especially important and is a key part of the proposed project. Although women are involved in farming and are the main providers for the household, they are presently not prominent in farmer associations and they lack the technical skills to make the adjustments – on farm, and through the local economy – to address a changing climate.

Barriers to addressing the Climate Change-induced Problems

In Mali like many other African countries in the Sahel, the limited natural resources have not been properly managed. There is no appropriate mechanism at present for

[27] Report on Sentinel Site Survey Post-Harvest 2008 – 2009; Commissioner for Food Security, Early Warning system, 2009, p. 33 tables 17 and 18;
[28] See Aune, J.B. (2008). Adapting Dryland Agriculture in Mali to Climate Change. Norwegian University of Life Sciences, Department of International Environment and Development Studies
[29] Ministry of Agriculture, based on the results of current water management projects

sustainable management of these resources. Freshwater and forest resources for example, undoubtedly are scarce resources which require planned and regulated management. Mali is a least-developed, low-income, food deficit country with majority of its population directly dependent on subsistence farming and herding for their livelihoods. Following the precarious nature of climate change impacts in Mali, urgent actions are required in building both institutional capacity and the capacity of society in implementing lasting solutions for adaptation to climate change. The preferred solutions will include that technical capacity and regulatory policy framework are put in place to better manage and secure water for community's food systems, livelihood resources development under conditions of climate change including variability. In achieving adaptive food systems, integrated natural resource management in Mali, the following barriers seem apparent:

1) *Public financing challenges with integrated, climate-resilient food security and water management systems*

The Republic of Mali is one of the poorest and most vulnerable countries in terms of food security and ranking 160th out of 169 countries in the Human Development Index (HDI 2010). Mali's population in 1998 was estimated to be 9,810,910 with a growth rate estimated to be 2.2% per year. About 47 per cent of the population, most of them women, live 1 dollar a day. Some 80 per cent of its populations live in rural areas[30] despite a high degree of rural exodus. Although farm land represents only 14% of the total land area, agriculture remains the main activity in Mali. Besides the importance of the agricultural sector[31] to the economy, the country is under food insecurity and malnutrition. According to the World Famine Index, 10 per cent of the Malian populations suffer from malnutrition[32]. The Government of Mali has undertaken substantial efforts to improve food security and freshwater security in a number of regions, using different financial mechanisms.

2) *Lack of awareness about the impact of climate change on agricultural and natural resource systems that support household livelihoods*

Besides general aspects of environmental awareness (e.g. the impact of drought on ecosystem services, the economy and society as a whole), there is limited awareness in most communities about how climate change is affecting the food systems and the reliability and quality of freshwater supply. Awareness raising activities across Mali would require widespread understanding of the interdependence between human activity and fragile ecological and natural resources. In order to advance climate change adaptation objectives, awareness programmes need to propagate

Key reasons why the level of awareness is low include weak political coherence for the message of integrated adaptation planning; lack of trained resource people available at all levels to guide inclusive participatory processes on natural resource management issues; lack of local NGOs/CBOs with experience on integrated natural resource management; and lack of adequate resource materials that address natural

30 Baseline Situation I166.Republic of Mali. Final Report 2009

31 National Action Plan of Adaptation to Climate Change. Ministry of Equipment and Transport in collaboration with National Department of Meteorology 2007

32 International food policy research institute, http://www.ifpri.org/publication/2009-global-hunger-index

resource management questions at the interface with climate change and environmental protection.

3) Current practices food systems and freshwater management undermine the resilience of natural freshwater storage against climate change

Water shortages during dry spells are common across the country. As dry spells are becoming more pronounced with global warming, there is need for measures for rehabilitation and restoration of inland water systems that has the potential of enhancing the productivity of food systems. The depletion of water resources poses a pressing challenge to irrigated agriculture which is an important water consumer and the source of livelihoods for the overwhelming majority of the population: 75 to 80 percent of the farming population consists of traditional smallholders, producing mainly staple foods for household consumption and with relatively marginal connections to market. Among other impacts includes: lower yields, disappearance of some crop species, biomass reduction, recurrent droughts resulting in food crises, etc. Cereal production is heavily affected by the erratic rains; cyclical droughts and locust infestations.

4) Institutional Capacity Barriers

Generally, there is little knowledge available about the possible range of locally appropriate adaptation options for natural resources planning, including the costs and benefits of different high-tech and low-tech options and how to combine them. These capacity gaps in climate risk planning are even more apparent with authorities at the commune levels, as historically all development planning has been 'top-down' from the national level. Such capacity is increasingly critical, given that many national planning and decision-making functions will be devolved to the commune through a decentralization programme.

5) Insufficient Policy Implementation and Enforcement

The country needs a comprehensive approach for the implementation of national rehabilitation programmes in a highly decentralized way driven by local communities. This is crucial in giving proper consideration to good practices of climate-resilient natural resource governance that is suitable and appropriate for the regions.

Adaptation actions can be expected to have a significant effect on agricultural yields and livelihoods, and counteracting the effects of reduced water availability.[33] This calls for Government leadership in the formulation of overall policies and programmes, providing the framework for a host of adaptive actions promoted by various partners. As expressed in the national environmental and agricultural policies, the Government of Mali has emphasized the importance of water control and development of small irrigated plots. Such investments can be expected to increase yields by up to 5.5 tons per hectare.[34] In the last three years, impressive yield increases through soil levelling, reforestation, dune and river bank stabilisation and other interventions aimed at improving water control. These activities have contributed to the expansion of flooded areas. They have also

[33] See Aune, J.B. (2008). Adapting Dryland Agriculture in Mali to Climate Change. Norwegian University of Life Sciences, Department of International Environment and Development Studies

[34] Ministry of Agriculture, based on the results of current water management projects

improved access to drinking water for local communities. Cereal and fish production have risen. And some families that fled the area are returning.

However, OMVF's investments need to be complemented by a more integrated approach which focuses at the community level on the most vulnerable groups, and includes not just large physical infrastructure but smaller physical works and community adaptation planning and training in agro-ecological practices, storage and market management, and improved nutritional practices. The targeting of women is especially important and is a key part of the proposed project. Although women are involved in farming and are the main providers for the household, they are presently not prominent in farmer associations and they lack the technical skills to make the adjustments – on farm, and through the local economy – to address a changing climate.

PROJECT / PROGRAMME OBJECTIVES:

In line with the National Development Plan of Mali, and the National Adaptation Programme of Action (NAPA, 2007) the proposed programme is responsive to national priorities spelled out by the Government.

Programme Objective

The main objective of the programme is to increase the resilience of vulnerable communities and the adaptive capacity to climate change in the regions of Mopti and Timbouctou and particularly those living in the Faguibine system. The programme has three components with the following specific objectives:

Specific Outcomes

Component 1: Enhance measures for water control in vulnerable water buffer zones

Outcome: Increased resilience of local water systems to climate change in the Mopti and Tumbouchtou regions

Component 2: Resilience in subsistence livelihoods of vulnerable communities

Outcome: Enhanced productivity of agricultural, pastoral and forest systems under climate change

Component 3: Capacity-building and knowledge generation for adaptation

Outcome: Enhanced capacity of communities and local expertise to better adapt to climate change.

The proposed programme is completely aligned with the priorities and programmes of Mali and also having synergies with the LDCF project on 'Enhancing adaptive capacity and resilience to climate change in the agriculture sector in Mali'. According to the National Adaptation Programme of Action (NAPA) of Mali, the proposed programme is supporting the realization of 7 out of the 19 NAPA priorities:

1. Priority 1: Agricultural extension of improved food varieties adapted to climate change
2. Priority 2: Agricultural, extension of animal and plant species with the highest adaptation potentials to climate change

3. Priority 3: Promotion of income-generating activities and development of mutual assistance
4. Priority 5: Promoting cereal stocks
5. Priority 7: Low land improvement
6. Priority 11: Implementation of a runoff water harvesting systems and restoration of water points (backwater, ponds and lakes)
7. Priority 12: Sensitization and organization of the population for the preservation of natural resources (elaboration of local conventions on reforestation and agroforestry

The project is also fully embedded in Mali's key national priorities as outlined in the Poverty Reduction Strategy Paper (PRSP) and the national Agricultural Policy Law:

- The PRSP defines the development of the agriculture sector as priority intervention point to generate pro-poor economic growth and improve living conditions of the populations in the context of sustainable development.
- The Agricultural Policy Law intends to ensure food security, restoration and maintenance of soil fertility, development of agricultural production, as well as preservation of ecosystems functions and services.

By supporting the integration of climate risks into national development frameworks, plans and strategies, the proposed intervention will complement the above policies and help Mali make its agricultural and socio-economic development efforts more resilient to climate change. It will thus contribute to secure achievement of the MDGs and other development benefits that might otherwise be undermined by climatic changes.

PROJECT / PROGRAMME COMPONENTS AND FINANCING:

The following table has been prepared in alignment with the Adaptation Fund Strategic Results Framework. For details of Outputs and corresponding activities, please refer to Part II, Section A of this concept.

Table 2 Programme components and Financing

PROGRAMME COMPONENTS	EXPECTED OUTCOMES	EXPECTED CONCRETE OUTPUTS	AMOUNT (US$)
1. Enhance measures for water control in vulnerable water buffer zones	**OUTCOME 1:** Increased resilience of local water systems to climate change in the Mopti and Tumbouchtou regions	**Output 1.1:** Water infiltration, storage and flow in the Faguibine System are improved by the rehabilitation of water canals and opening up silted channels and obstructed ponds **Output 1.2:** Increased water access by vulnerable communities to permit the improvement of subsistence activities	**$1, 518,500** **$1, 631,000** **Total Outcome 1 = US$ 3,149,500**
2. Resilience of the means of subsistence of vulnerable	**OUTCOME 2:** Enhanced productivity of	**Output 2.1:** A range of agro pastoral practices and technologies developed and	**$830,840**

communities	agricultural, pastoral and forest systems under climate change	transferred e.g. drought- and disease-resistant varieties, integrated crop-livestock production systems etc. to the communities to reduce their risks of climate change. **Output 2.2**: Sustainable harvesting, conservation and restoration practices introduced e.g. conservation agriculture, agroforestry etc. to enhance resilience of the forest ecosystems to climate change **Output 2.3:** Food and income diversification activities developed for enhanced socio economic resilience of vulnerable communities	**$698,000** **$ 900,000** **Total Outcome 2 = $2,428,840**
3. Capacity-building and knowledge generation for adaptation	**OUTCOME 3:** Enhanced capacity of communities and local expertise to better adapt to climate change.	**Output 3.1.** Climate change risk management improved for community use in economic, social and cultural development plans (CESCDP) **Output 3.2:** Knowledge and capacity of community actors increased to handle climate change hazards	**$482,000** **$1,122,160** **Total Outcome 3 = US$1,604,160**
7. Programme Implementation – Total Costs			7,182,500.000
8. Programme/Programme Execution cost[35]			682,337.500
9. Total Programme/Programme Cost			**7,864,,837.500**
10. Programme Cycle Management Fee charged by the Implementing Entity (8.5%) * Note			668,511.188
Amount of Financing Requested			**US $8, 533,348.688**

PROJECTED CALENDAR:

Indicate the dates of the following milestones for the proposed project/programme

Table 3. Milestones and timelines

MILESTONES	EXPECTED DATES
Submission of Concept to AF Board	September 2010
Approval of the Concept by the AF Board	November 2010

[35] This total includes the costs over the five years of the project for the Project Coordinating Unit of $367,000 plus the M&E costs of $220,000

Development of a Full Programme Proposal	Jan – March 2011
Submission to AF of a Full Programme Proposal	April 2011
Approval of Full Programme Proposal	June 2011
Start of Project/Programme Implementation	November 2011
Mid-term Review (if planned)	May 2014
Terminal Evaluation	June 2017
Project Close	October 2017

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

The Programme Objective is to increase the resilience of vulnerable communities and the adaptive capacity to climate change in the regions of Mopti and Tumbouctou and particularly those living in the Faguibine system. In synergy with the Mali LDCF project, the programme is aligned to increase community resilience and adaptive capacity to climate change. Further detail of the programme activities and how these combine to form an integrated intervention is now provided, structured according to the three outcomes and their constituent outputs, i.e. the tangible products and services that the programme will deliver. The details of the activities for the realisation of the outputs will be provided in the full proposal.

COMPONENT 1: Enhance measures for water control in vulnerable water buffer zones

The enhancement of water resources is already a major priority as identified in various environmental and agricultural policies such as the Rural Development Strategy (RDS), the Agricultural Orientation Law (LOA), the Programme of Action for Integrated Water Resources Water (PAGIRE), the Programme for Sustainable Land Management and Water (GDTE), NAPA, recent Policy, Strategy and Plan of Action on climate change and so on.

This Component focuses on the physical restoration of the Faguibine system (clearing and securing of the canals) and other water harvesting schemes using manual labor to re-establish the currently blocked and silted channel, to allow for deep infiltration of water, as well as the promotion of more efficient water management systems, including irrigation. Such an effort will lead to the optimization of total storage capacity to meet supply needs in dry periods; interconnection of isolated units to ensure equitable water supply in dry periods; improvement of the structural integrity and storage systems against extreme weather events; integration of filter elements to improve safety of freshwater supply. Through Component 1, the programme outcome will be increased resilience of local water systems to climate change in the Mopti and Tumbouctou region. The programme will boost water supply needs to trigger economic activities and support food security measures. The capacities of water infiltration, storage and flow under climate change will be restored

through the rehabilitation of water canals and channels/silted and obstructed ponds. Similarly, sustainable water management systems will be promoted to improve water access to vulnerable communities to climate change and permit the development of subsistence activities. The programmes will thus, help with the implementation of the necessary actions to ensure the achievements of this priority as reflected in the various evaluation frameworks for the government. At the local level, the review of the CESCDP will be conducted on the basis of the vulnerability of water resources in the face of climate change which will enable to identify future risks and capacity needs.

COMPONENT 2: Resilience in subsistence livelihoods of vulnerable communities

The long-term goal of the programme is to contribute in improving the modes and means of existence of the populations in the targeted communes by developing productive assets under a community management of village land resources, and a communal management of communal territories in order to reduce poverty. The socio-economic activities of the population include transhumant cattle-breeders (Peulhs, Rimaibés, Bellas), farmers (Bambaras, Sonrhais, Rimaibés, Soninkés) and fishermen (Bozos, Somonos et Sorkos), who depend on the natural resources of the delta ecosystem. These activities constitute baselines to track changes in livelihood enhancement following the implementation of the programme following the safety net provided by the rehabilitation of the Faguibine system that provides emerging opportunities for commercial activities with economic benefits Currently, the target regions of Mopti and Tombouctou have a total population of over 2,719,021 people two third of whom live along the Niger delta because of the economic opportunities it offers. Changes resulting from the programme implementation in the Faguibline System following emerging opportunities will easily have the following measurable beneficiaries in economic, social and environmental terms; (1) vulnerable households, (2) communities, (3) communes and (4) the national government and decentralized structures. When developing the full programme document a participatory approach will be used to ensure that the project meets the needs of communities while creating conditions for sustainable socioeconomic development with impacts on living conditions (poverty reduction).
The programme is also aiming to develop capacity at government and commune level to increase community participation in the planning, monitoring and maintenance of climate resilient management of agricultural and natural resource systems. In this context, it is important to note that the programme will not establish new decision-making structures. Instead, it will draw on the local governance structures in place at the commune level. Along these lines, Component 2 of the programme will introduce a range of options, including extension services for communal stakeholders to enhance the resilience of their agricultural, pastoral and forestry systems of production, to climate impacts. Agro pastoral practices and technologies will be developed e.g. integrated crop-livestock rotational system, agroforestry, fodder harvesting etc. to reduce the risks of climate changes in these vulnerable zones. These will involve using extension services as well as introducing drought-resistant seeds among pilot farmers for their yields in rural areas and ascertain for their adaptability to the Mopti and Tumbouctou region. Village grain and seed storehouses for stocking of agricultural products will be established and equipped in addressing period of shortages as well as planting stocks for next season cropping. Sustainable harvesting, conservation and restoration practices will

be used to enhance the resilience of forest ecosystems to climate change. Agro-forestry activities will be carried out in fields to increase soil and forest resilience as well as efforts to restore natural grazing routes, reduce sand erosion, and protect areas with plant species threatened by climate change. Supporting food and income diversification to enhance socio economic resilience of vulnerable communities will be undertaken through promoting income-generating activities and building the commercial capacity of vulnerable communities as well as supporting groups engaged in IGAs to enable them establish micro-enterprises.

COMPONENT 3: Capacity-building and knowledge generation for adaptation

Component 3 is expected to result in enhanced capacity of communities and local expertise to better adapt to climate change by improving their competence to understand the opportunities and threats associated with climate change and the impacts of climate variability in order to better update communal development plans (PDSEC) and include the implementation of local adaptation efforts. The preparation of local adaptation plans on the basis of a thorough assessment of the vulnerability and local capacities to adapt to climate shocks will be conducted through a participatory approach and based on traditional knowledge and ongoing mechanisms to address climate change. This will involve mainstreaming climate change risk management into community economic, social and cultural plans (CESCDP).The training of community groups in the management and maintenance of waterways and irrigation systems as well as in the methods of water conservation for sustainability and better management of the infrastructures will be an important activity for the realization of component 3. Furthermore, the knowledge and capacity of community actors to handle climate change hazards will be increased through training of farmers in integrating climate change in sustainable land management and grass-root community organizations in valuing forest products. Youth training in the construction, use and maintenance of improved cooking ovens will be undertaken. Putting in place systems enabling producers and technical support services to access and utilize climate information needed for the planning and follow-up of agricultural and pastoral activities will greatly enhance the capacity of the community to adapt.
Supporting local media in information sharing on experiences and lessons learnt from the programme in order to meet local concerns specifically as they relate to adaptation to climate change will boost dissemination and capacity building of the communities.
For the sharing and management of knowledge, the programme will build on local and digital media. Moreover, the programme will utilize the existing official frameworks for knowledge sharing and build-on experiments and the main results achieved by the programme.

- *Regularly exchange information and experience of pilot sites*: to ensure that lesson learning are shared amongst the pilot villages, to accelerate demonstration activities and catalytic innovations. In practice, this will mean regular meetings (once or twice per year) between key stakeholders of the villages, to share ideas, plans and information. In each village, women and youth groups will visit the new technology sites as part of a training programme.
- *Collection and storing all the lessons emanating from project*: it will establish the mechanism for gathering and capturing lessons learnt. The project will support preparation of a series of media supports, for example: reports, DVD, films,

participatory video, regular community radio spots documentaries, briefing papers, workshop reports and pamphlets. These media supports are to be developed by stakeholders qualified in the communications sector.

- The lessons learnt under the project will be systematically shared with local partners and international agencies (including scientific community). The project will actively disseminate lessons and experience. Dissemination will be both general and targeted, and will be based on the communications strategy. Activities may include:
- In and near the project sites, the project will support community theatre and story-telling, video and photo stories, generation based discussion to disseminate results;
- Nationally, the project will send reports to concerned stakeholders, send newssheets to the climate change community, organize round tables and seminars to communicate and exchange information. DVD, radio shows, policy, technical briefing papers, fast facts and pamphlets will also play a role;

Nationally and internationally, the project website will play a key role in lesson dissemination. It will include a database of all reports, video, photo stories, newssheets, fast facts, etc.; The project will also regularly prepare and submit technical reports and documents on lessons learned to UNDP's ALM (lessons learned templates from the ALM will be used for this purpose).

B. Describe how the project provides economic, social and environmental benefits, with particular reference to the most vulnerable communities.

The present situation and the potential impacts of climate change in Mali in general and the central/Sahelian and Faguibine areas in particular are outlined in Part I. Specific vulnerabilities to unpredictable water and food availability have been detailed, including the vulnerability of the poorest households to highly volatile food prices. The risks of desertification, loss of biodiversity, malnutrition, food insecurity and ultimately migration have also been highlighted.

Against this background, the table below identifies the expected economic, social and environmental benefits of the proposed programme for the most vulnerable households and communities at large in the Fagubine region. The listed benefits are not exhaustive, and additional benefits will be identified in the full programme document.

Table 4. Economic, social and environmental benefits

	Economic benefits	Social benefits	Environmental benefits

Vulnerable households	- Job opportunities through the programme activities (including « food or cash for work »), on one hand, and IGA and other activities with side effects - Increase in incomes through increased agricultural productivity and commercialization of woody and non-woody products - Stabilization of food prices through increased and regular flow of water for food production	- Better prevention of malnutrition leading to better health conditions - Increase solidarity through the creation and enhancement of various women groups - Greater mutual trust among populations and the communities in the framework of climate change	- A better conservation of natural resources (waters, land and forests) which deliver various environmental services (water purification, transportation, non-woody produce, less degraded lands for...)
Communities	- Increase in agricultural productivity (yield/ha) Increase in market access	- Improvement in nutrition, resulting in more vitality - Reduction of risks of conflicts among communities - Enhancement of social cohesion and autonomy for management committees and community radio station - Greater mutual trust among the communities and authorities in the framework of climate change	- Increased regularity of water availability - Increased protection against desertification and land degradation
Communes Not clear different from in this context	Increase and regular in production resulting in increased food security Decrease in poverty rate A concerted planning on climate change, leading to investments selected in optimal and perennial ways	Low risks of conflicts (local conventions…) Reduction in migration, especially for young people in search of new prospects and means of subsistence Greater mutual trust among the communities and communes in the framework of climate change	Increase in forest cover Decrease in desertification A better conservation of natural resources resulting in a better resilience

National government	- Reduction in food importation and greater independence from international prices	- A knowledge base is set up to enable best practices be identified and replicated - A multi-partner cooperation framework is supported and tested - Decentralized departments (Environment and Agriculture) get involved, their role is identified and reinforced	- A better understanding of the interaction between climate, environment and human factors which impact the sustainable use of natural resources

A key aim of the programme is to develop capacity at local level to ensure ownership and sustainability of the proposed interventions. In this regard, a participatory process will be used to engage all potential beneficiaries. The involvement of local actors shall result in the participation of the local populations in identifying the priorities for adaptation to climate change. Such engagement in identifying the priorities could result in, more autonomy for the local actors and more adaptation initiatives. Increased social cohesion and community empowerment is a benefit of particular importance that merits further explanation. Community engagement will ensure that it is the local population itself that identifies and addresses its needs and priorities for climate change adaptation. The communities participating in the programme will form the institutional basis for decision making and management in a number of ways, in particular through a number of committees and groups, including:

- A community or management committee, deciding on the prioritisation of works, the selection of vulnerable households to participate in food or cash for work activities, the harmonized use of land, water and other natural resources by various livelihood groups, and the management of potential conflicts among them.

- Specific women's committees for women to discuss their situation, specific needs and priorities among themselves, with a view to presenting their consolidated conclusions to the community management committees;

- Women's groups for production of diverse, nutritious food, food fortification, prevention of malnutrition, and income-generating activities;

- Village associations for village cereal banks;

- Community associations for a community radio; and

- Savings groups in the context of micro-credit.

If found feasible by the planned study, it is expected that community-owned and run radio station will produce multiple additional empowerment benefits. [36] Evidence from many countries demonstrates benefits such as increased capacity to find and retrieve relevant information and to discuss different views and interests including many different groups, including the illiterate and those that exclusively speak their local language; increased visibility of activities and developments, including the use of funds; and in consequence, improved accountability of community leaders and local government.

C. DESCRIBE OR PROVIDE AN ANALYSIS OF THE COST-EFFECTIVENESS OF THE PROPOSED PROJECT

The programme will emphasize cost effectiveness of the outcomes. A number of alternative options have been assessed during programme design, in order to identify the most cost-effective options. For example, a number of different options to promote water infiltration, storage and flow for increased water availability for improved productivity were weighed for cost-effectiveness and sustainability, before the current programme components were selected and elaborated. During the formulation of the full programme document, a more detailed cost effectiveness analysis will be made, comparing measurable outcomes to other possible options, in order to ensure that least cost options are selected during programme design and implementation.

At present, preliminary consultations indicate that the programme shall directly benefit 140 000 people in the two 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 400,000 direct beneficiaries. Beside the direct beneficiaries, indirect beneficiaries include the large majority of the populations in the targeted communities.

The programme is aimed at adaptation and enhancing food security and poverty reduction measures. It is consequently oriented toward increasing agricultural, pastoral and forestry productivity through adaptation to climate change. The various activities planned (trainings, inputs and water management) shall help reduce climate hazards, water losses and increase productivity per hectare. This will induce greater agricultural efficiency. By complementing rainfall agriculture with irrigated agriculture in the zone should result in a yield increase of 1.5 to 5.5 tons per hectare.

The participatory approach shall also involve local populations in the management of natural resources in sustainably meeting their social needs (up-keeping local culture, increasing income generating potentials, and improving food security and well-being). The emphasis on participatory decision making and an integrated approach will enhance the cost effectiveness of the programme. The participatory approach involves local people in managing natural resources, meeting social needs (maintaining local culture, increasing opportunities for income generation, and improving food security and well-being), and sustaining outcomes over time. Implementing concrete adaptation activities with community groups can be cost effective when well executed.

[36] Which is expected, given Mali's good record concerning press freedom, strong tradition of civil society and associations and about 100 community radios in the country.

The programme approach specifically aims to reduce fragmentation by targeting key water channels, canal banks, areas with potential for irrigation, and contiguous communities. The approach recognizes that small, ad- hoc activities lead to externalities and are hard to bring to scale. The proposed programme aims to achieve a large scale impact and avoid externalities as actions will be the priority of affected communities. The integrated, community-based approach will lead to a package of measures that will build lasting knowledge, awareness, tools and local capacities to address climate change threats.

Other key elements of cost-effectiveness include the following:

- The transformation from submersion to irrigated agriculture has in comparable settings produced a yield increase from 1.5 to 5.5 tons of output per ha. It is expected that such increased yields will enable the Government and communities to replicate projects in other areas without further food or cash support.

- Physical works will be carried out through food for work or, wherever feasible, cash for work by communities. These works will complement the work carried out by heavy machinery through other project interventions in the area. Where cash for work is not found feasible, the food provided will be procured locally / regionally to provide stimulus to local production.

- The programme will focus on applying appropriate, low-cost technologies for water management. Where the installation of pumps for water management is recommended by an initial technical study in a range of pumps will be installed to gain experience on life-time cost efficiency and appropriateness in the area for future replication.

- The programme will to the full extent build on the experience and expertise already available in areas such as the selection of appropriate, nutritious food crops, drought-adapted food crops and plants for sand and bank fixation as well as fuel wood production. There will be close collaboration with the Institute for Rural Economy (IER) under the Ministry of Agriculture and the National Research Institute for Public Health (INRSP) under the Ministry of Health.

- The mobilization and support of the various community committees, groups and associations described above will be cost-intensive against tangible outputs in the start- up phase of the programme. However, experience has 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. Work methodologies for community involvement are a landmark expertise of WFP. Malnutrition – often going unnoticed by parents – has high costs for child development and health. Investing in the prevention of malnutrition is not only far more cost-efficient than addressing malnutrition once it occurs, it also better empowers parents to secure healthy nutrition to their children and is far more sustainable than curative interventions that often need to be repeated if the root causes for malnutrition are not addressed.

- Village cereal banks (BCV) have been shown in other countries (e.g. Senegal), to produce large benefits in return for comparatively modest investments. In particular, the most vulnerable groups profit from secured food availability and reduced volatility of prices (see table on benefits in section II.B above). Furthermore, the entire community benefits from the availability of an adequate quantity and quality of seeds at reasonable prices when they are needed. BCV can in principle run their business on a sustainable basis after only one year of support (with mobilization and training, one-off food support, and infrastructure and equipment).

Community radio can provide huge benefits for the community in terms of social cohesion and empowerment, analysis and pursuance of priorities, access to information, voicing of concerns, and accountability. It can also play an important role in conflict management. If found feasible and recommended by the planned study, the technology chosen will be similar to that of other, comparable stations in the country to ensure availability of experience and service. A community radio, provided it

is fully owned and appropriated by the community and has prepared a strategic plan, technical sustainability strategy and a realistic partnership strategy, can be financially sustainable after only a few years of support. To assist with sustainability, low running and maintenance costs will be prioritised from the start (e.g., low cost technology, voluntary work arrangements, etc.).

In the framework of the enhancement of the communes and their autonomy, the programme aims at using and developing the Economic, Social and Cultural Development Programmes (ESCDP) of communes as reference documents in targeting activities of adaptation to climate change, and at building on the best practices of the National Collectivities Investment Agency (NTCIA) to ensure that interventions fully meet the technical and budgetary standards applied by this agency at the national level.

D. DESCRIBE HOW THE PROJECT IS CONSISTENT WITH NATIONAL OR SUB-NATIONAL SUSTAINABLE DEVELOPMENT STRATEGIES, INCLUDING, WHERE APPROPRIATE, NATIONAL OR SUB-NATIONAL DEVELOPMENT PLANS, POVERTY REDUCTION STRATEGIES, NATIONAL COMMUNICATIONS, OR NATIONAL ADAPTATION PROGRAMMES OF ACTION, OR OTHER RELEVANT INSTRUMENTS, WHERE THEY EXIST.

Mali's priorities in terms of development and global strategies are outlined in the Strategic Framework for Growth and Poverty Reduction (SFGPR) which focuses on 13 pillars. Among those pillars: 1) Pillar 1 deals with food security and rural development, and stipulates the increase, protection and diversification of food production through better water management and intensified agricultural techniques. 2) Pillar 3 deals with the management of natural resources and underscores the importance of a decentralized and participatory management of renewable natural resources.

The programme is therefore in direct line with the priorities of the above SFGPR and it also tallies with the various laws, programmes and national strategies in response to climate change and food security.

The programme is inspired by the National Adaptation Plan of Action on Climate Change (NAPA) which was drafted under the guidance of the National Department of Meteorology (NDM). NAPA gives an overview on the national priority activities to be undertaken in order to meet urgent and immediate needs and concerns in order to adapt to the harmful effects of climate change in Mali. The programme provides, among other things, for activities for water control, dissemination of seeds adapted to drought conditions, income generating activities, management of natural resources and promotion of renewable energy. All these activities are deemed priority actions by the NAPA.

The proposal also supports the Agricultural Policy Law (APL) which is aimed at promoting a sustainable, modern and competitive agriculture, mainly based on family sustainable enterprises and on the National Investment Programme in the Agricultural Sector (NIPAS) aiming at increasing agricultural productivity through investments and the objectives of which are pursued by the proposed programme

The recent National Irrigation Strategy upholds the increased use of capacities and to maintain irrigation agriculture as a means of increasing agricultural productivity and reducing dependence on rainfall. The objectives of the strategy are promoted through Component 1 of this programme. This also tallies with the Grain Market Restructuring

Programme (GMRP) which aims at improving market conditions in order to stimulate local production and improve the incomes of local farmers. The proposed programme promotes such objectives by helping increase agricultural production and productivity, and securing market access to small producers.

The programme also follows suite to national priorities in terms of zones of intervention indicated by the Early Warning System (EWS) in the framework of Initiative 166 of the National Food Security Programme (NFSP). The initiative indicated that more than half of the communes most vulnerable to climate change and food crisis are located only in the regions of Mopti and Tombouctou (94/166).

The objectives of the programme are in direct line with the Ten-year Plan of the Millenium Development Goals (2006-2015).

E. DESCRIBE HOW THE PROJECT / PROGRAMME MEET RELEVANT NATIONAL TECHNICAL STANDARDS, WHERE APPLICABLE.

The specific programme outcomes and outputs proposed will ensure that all activities follow the standards established by Government, in particular the Ministry of Environment and Sanitation (MES) and of the Ministry of Agriculture (MA) especially with respect to water harvesting and control structures, irrigation, and the use and management of natural resources. It is in this framework that the programme shall also ensure that, all activities shall meet the standards established by the government.

The programme shall also build on the expertise and recommendations of local research centers and government agencies as well as those of UN when considering specific measures such as the choice of tree species to curb sand dunes and the choice of cultivars selected for farming. The programme shall put an emphasis on local and traditional species capable to adapt and having a good nutritional value.

F. PROGRAMME DUPLICATION WITH OTHER FUNDING SOURCES

The government strongly emphasizes the re-establishment and maintenance of water harvesting schemes in the regions of Mopti and Tumbouctou in adaptation to climate change. Hence the creation in 2006 of the Faguibine System Development Authority (FSDA) whose mission includes: (1) the maintenance of the waterways feeding the system ; (2) the development of crops and animal production ; (3) the implementation of all activities likely to increase agricultural production and productivity as well as incomes for the rural populations; (4) environmental protection in the region.

The FSDA has very limited technical and financial resources to implement the operations needed to fulfill its mandate. FSDA therefore works in close collaboration with partners each contributing resources, technical and support capacity.

This programme builds on the achievements and experience of the Territorial Collectivities and Local Development (TC-LD) Project, a joint UNDP and UNCDF

projects in the regions of Mopti and Timbouctou. The TC-LD project aimed to build communities' capacities in the area of micro-projects and structuring investments. Thanks to the support granted, 134 communes out of the 159 in the two regions increased their capacities to organize, plan and implement development programmes, mainly programmes to fight poverty, improve access to basic social services, and capacity building in rational natural resources management. This programme will deepen the approach, and strengthen communal adaptation capacity in 40 of the poorest communes of the Mopti and Tumbouctou regions.

In June 2008, the Government called on the UN system for support to its Faguibine Rehabilitation Project. UNEP has developed and is presently carrying out a first phase of support financed by Norway which includes the following technical and normative activities:

- supporting and strengthening OMVF efforts concerning the rehabilitation of the hydraulic network of the Faguibine;
- quantifying the potential of ecosystem services rendered by the Fagubine;
- strengthening the institutional, organizational and technical capacities of OMVF;
- supporting a national dialogue concerning water policies with a view to the effects of climate change and human interventions on the potential services rendered by the ecosystems of the Niger river (including the Faguibine).

Altogether, this 18-month project is meant to create the scientific and knowledge base for the development of the comprehensive programme for the rehabilitation of the Faguibine system.

1. Norway finances the Project for the Rehabilitation of the Faguibine (PARF), partly directly to OMVF, and partly through UNDP. This 12-month project, launched in February 2011, aims to contribute to food security and improve living conditions in the zone covered by OMVF. More specifically, it aims to

   - ensure the optimal and sustainable feeding of water into the lakes by rehabilitating and optimising the hydraulic system of the Faguibine;

   - increase production, productivity and income of producers; and

   - improve food security and the living conditions of the beneficiaries.

   Project activities will be carried out through the following components:

   - Deepening and clearing of water channels feeding the system, enabling water to fill the system and aiming at re-stimulating animal husbandry, agriculture, fishery and forestry;

   - Agricultural development, by increasing exploitable and harvestable areas aiming at increased revenues of beneficiaries;

   - Environmental protection, through dune and bank stabilisation

   - Capacity strengthening of OMVF through provision of equipment (heavy machinery, etc.) and strengthening the capacity of OMVF staff.

- Studies in the areas of capacity strengthening, institutional strengthening, hydrology and technical feasibility; and environmental impact.

This programme complements the UNEP project by creating the physical basis for future operations. The programme will develop synergies and complementarities with ongoing programmes for more efficiency and effectiveness. A few examples of complementarities with existing projects include:

The **UNEP** project already has a good knowledge base on the evolution and functioning of the Faguibine system. Actions were conducted to stabilize the banks and equipments were provided to remove silt from the waterways. Taking into consideration the already achieved experience by UNEP, the lessons learnt will be utilized in developing the programme in similar areas of activities and using the existing database in reviewing policies or calibrating the waterways to be rehabilitated.

UNDP: responsible for the financial management of the programme, will develop partnerships to avoid duplications and identify the priority zones of intervention with the help of UNEP.

LDCF FAO Project: will start soon and UNDP will work with FAO to avoid duplications. Besides, taking into consideration that FAO has a sound experience in the agricultural sector resilience, the programme will work in collaboration in identifying the community adaptation options and it will utilize the tools already developed.

LDCF-UNDP Project: This programme is carried out by the Ministry of Agriculture which is already a stakeholder in this project. UNDP and the Ministry of Agriculture will make sure, in the course of the development of the project, there will be no duplications and they will collaborate in sharing experience and tools.

The WFP set up a project funded by Japan « Lowlands », mainly focusing on « cash for work » in order to increase agricultural production. This project had one of the main objectives as the re-adaptation in the Faguibine and it led to an excellent cooperation between the WFP and FSDA. It also gave a sound experience for (1) the mobilization of communities, (2) the use of highly intensive labor, especially in the zones where heavy machinery cannot be used, and (3) the use of improved agricultural techniques. This experience is fully integrated in this proposal.

Each of the projects has its own focus, guided by the comparative advantage and the mandate of the execution agencies. The activities of this proposed programme are designed to promote the success of the programme as a whole. The value-added of this proposal was ascertained by the government and the partners who feel that the present emphasis on large scale investments must be urgently complemented with works which can hardly be accessed by machinery and, in particular, with community participation and communal management in order to ensure sustainability of the interventions.

G. IF APPLICABLE, DESCRIBE THE LEARNING AND KNOWLEDGE MANAGEMENT COMPONENT TO CAPTURE AND DISSEMINATE LESSONS LEARNED.

Building on experiences achieved together with the communes will be important for the programme since it is pioneering. Experiences shall serve in defining, at both local and national levels, the various future approaches in the field of adaptation to climate change. Indeed, a particular emphasis is put on effectively building on them

as this may help in the replication of successful experiences, on one hand, and in the successful implementation of the national strategy on adaptation to climate change, on the other hand.

Furthermore, under the national early warning system (EWS), the government and the WFP have, over the past few years, developed and executed a system of bi-annual survey of sites which provide representative and precise information on the composition of households, means of subsistence, food consumption and nutrition, etc. This system might be adapted and applied to the programme zone and thus regularly provide updated information on the situation of households and communities, and on how climate change does affect them. Decisions and details on this issue shall be provided in the finalized programme document.

Finally, through building on and disseminating the experience of UNDP, it is envisaged to support the National Environment and Sustainable Development Agency (NESDA) for its accreditation as the national execution entity (NEE) for the Adaptation Fund.

H. DESCRIBE THE CONSULTATIVE PROCESS, INCLUDING THE LIST OF STAKEHOLDERS CONSULTED, UNDERTAKEN DURING PROJECT PREPARATION.

Preparing the programme requires broad consultation with major stakeholders: ministries involved, communes, technical and financial partners, resource persons, etc.

Initial consultations were conducted with stakeholders in food security, especially with the Ministry of Agriculture. The Ministry of meteorology, which is in charge of climate change related issues, was also in consultation with UNDP at the very early stages of the preparation of the concept note.

Several consultations were conducted with the National Environment and Sustainable Development Agency (NESDA) which is the designated National Authority in order to have a clear picture of their expectations in relation with the Programme. This guided the formulation of the document to support the national objectives. The draft version of the concept note was submitted to the National Environment and Sustainable Development Agency which held nationwide consultations through the National Committee on Climate Change; one of the bodies of the institutional framework.

In parallel, consultations were held with the regional offices of UNDP, UNCDF and WFP in order to seek and secure their comments and suggestions on the programme.

It is, among other things, the earlier experiences of the 2 partner agencies: WFP (Lowlands Project) and UNCDF (TC-LD project) in the zone which provided the bases for this proposal. More detailed consultations shall involve all stakeholders in the course of the formulation of the programme. Namely, local elected officials, civil society actors and communities shall be called upon to play a decisive role in the implementation of the programme depending on their comparative advantages of being close to the beneficiary populations.

I. FUNDING JUSTIFICATION

Baseline (without AF Resources)

The Government of Mali is acutely aware of the key role which communities must play in the revitalization of the Faguibine system for climate change adaptation.

Present projects are creating a knowledge base for future planning and a physical basis for future operations. However, this support is focused at an administrative and a scientific level, and no work is planned for community mobilization, community participation, and community adaptation planning.

Importantly, while physical works aim to re-establish the macro-water system of the Faguibine, the limited reach of heavy machinery would exclude the full penetration of water into the system, and would not allow the most vulnerable farmers to decisively improve their agricultural techniques and thus productivity and output. Existing projects might lead to some degree of livelihood support, but not to long-term sustainability and resiliency of the poorest and most vulnerable communities. Farmers would still rely on submersion agriculture.

Aside from road building, there are at present few efforts to support small farmers' access to markets. Presently, where access roads exist, greater market participation of smallholder farmers is prevented by a combination of a low level of organization, quality assurance, storage and overall lack of skills in commercialization

The on-going projects for the area are also not focused on income diversification at the community level, not least among the most vulnerable communities.

In addition, there are no plans to create buffers for food at the community level, and in future emergencies, or to develop nutrition planning for climate change impacts. In this regard, WFP would need to respond with repeated emergency aid, and this would by nature be ad hoc and do little to reduce long-term vulnerability and increase self-reliance.

The Government feels strongly that without the proposed programme, not only would the most vulnerable population groups continue to suffer, their lack of engagement would threaten the overall success and sustainability of the rehabilitation of the Lake Faguibine system.

Additionality (with AF resources)

The proposed Adaptation Fund programme would be fully integrated into the overall plan for the area and would ensure a strong adaptation focus of the plan at community level. The most food insecure communities would be able to participate and benefit, and their experience will be codified and made available to the overall planning, learning and replication process through a variety of means that will be outlined in the full proposal. The programme would significantly strengthen the awareness, responsibility. and capacity of communities to analyze their situation against their specific climate change risks and design and manage their own options to build resilience. In particular:

- Community empowerment and strengthened capacity for natural resource and conflict management will reduce the risk of future conflicts between user groups, and between communities and the environment.

- The establishment of community cereal banks will create buffers of food and good quality seeds to complement increased access to water.

- The establishment and capacity to manage and maintain irrigated agriculture will increase productivity and yields, and reduce the vulnerability of the poorest population groups by stabilizing prices and increasing stocks.

- The focus on preventive action to combat malnutrition would ensure a high, locally-borne awareness of the importance of nutrition, and provide communities with the capacity to ensure adequate nutrition in times of fluctuating water and food availability.

- The programme's proposed intervention concerning market access of small producers would provide an indispensible complement to other infrastructure support in the Faguibine, especially road building.

- The programme's focus on diversification of livelihoods and a multiplication of income sources among the most food insecure would equally complement the broader, more macro focus of proposed interventions such as those in the Faguibine.

Finally, the emerging comprehensive plan for the Faguibine will certainly include strong elements that will support and compliment environmental protection and the fight against desertification. These elements will need to rely to a significant extent on manual labor due to the nature of the task and the need to ensure community ownership for future sustainability of physical improvements. The proposed programme will forge an important path in mobilizing communities, on the basis of sound adaptation planning, *informed by science and by the needs of communities*, for an expanded role in protecting and preserving physical assets and ecosystems.

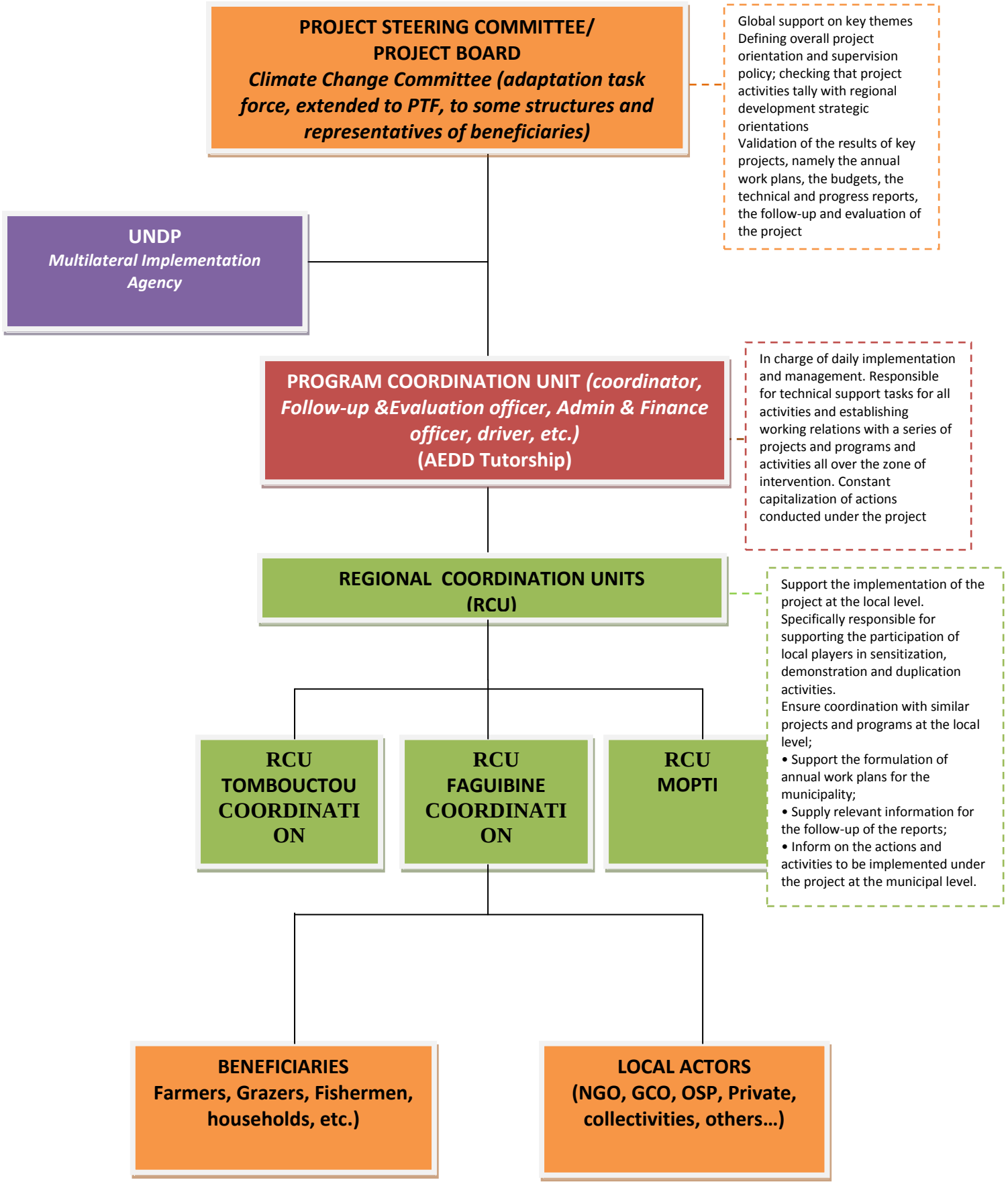
PART III: IMPLEMENTATION ARRANGEMENTS

A. ***DESCRIPTION OF MANAGEMENT/EXECUTION MODALITIES*.**

The activities conducted in the regions of Mopti and Tombouctou shall be executed by the Ministry of Environment and Sanitation (MES), the Ministry of Territorial Administration and Local Collectivities (MTALC) and the Ministry of Agriculture (MA)

Activities around the Faguibine system shall be executed by the Faguibine System Development Authority (FSDA) with the support of the United Nations World Food Programme (WFP) and UNCDF for some communities. The WFP also has a unique experience in community mobilization, permitting the use of community labour to deal with the issue of food security in its multi-facetted aspects (availability, accessibility, variability). UNCDF and WFP are operating in this area and their costs of involvement in this project will not be borne by AF project resources. Details of the involvement of these and other partners will be spelt out in the full proposal.

UNDP, appointed by the Government of Mali as the multilateral implementing entity (MIE), is responsible for mobilizing and managing the funds on behalf of the Government of Mali. UNDP is also providing support to the Environment and Sustainable Development Agency (ESDA) for its future accreditation as a national execution entity (NEE).


PROJECT STEERING COMMITTEE/
PROJECT BOARD
Climate Change Committee (adaptation task force, extended to PTF, to some structures and representatives of beneficiaries)
Global support on key themes
Defining overall project orientation and supervision policy; checking that project activities tally with regional development strategic orientations
Validation of the results of key projects, namely the annual work plans, the budgets, the technical and progress reports, the follow-up and evaluation of the project
UNDP
Multilateral Implementation Agency
PROGRAM COORDINATION UNIT (coordinator, Follow-up &Evaluation officer, Admin & Finance officer, driver, etc.)
(AEDD Tutorship)
In charge of daily implementation and management. Responsible for technical support tasks for all activities and establishing working relations with a series of projects and programs and activities all over the zone of intervention. Constant capitalization of actions conducted under the project
REGIONAL COORDINATION UNITS
(RCU)
Support the implementation of the project at the local level.
Specifically responsible for supporting the participation of local players in sensitization, demonstration and duplication activities.
Ensure coordination with similar projects and programs at the local level;
• Support the formulation of annual work plans for the municipality;
• Supply relevant information for the follow-up of the reports;
• Inform on the actions and activities to be implemented under the project at the municipal level.
RCU TOMBOUCTOU COORDINATION
RCU FAGUIBINE COORDINATION
RCU MOPTI
BENEFICIARIES
Farmers, Grazers, Fishermen, households, etc.)
LOCAL ACTORS
(NGO, GCO, OSP, Private, collectivities, others…)

B. Measures for financial and project / programme risk management.

Key risks underlying the project have been analyzed in connection with the targeted sites of the programme. The experience already acquired in the region has permitted to gather the various elements of the table below. A more detailed analysis of the risks shall be conducted during the preparation of the programme.

Table 5 Programme related risks and mitigation measures

Risks	Likelihood	Impact	Mitigation measures
Insecurity in the area – terrorist attacks or regular banditry – may jeopardize the implementation and follow-up of the programme	**average**	**average**	➢ The programme shall take this into account through various measures ❖ cooperation with local communities and structures ❖ a good cooperation with local organizations for the project implementation ❖ Using UN security alert system ❖ distance follow-up and reporting tool
A poor understanding of the objectives by the programme team	**small**	**Great**	➢ A strong involvement of leaders and players ➢ Support of national experts ➢ Adapted trainings
Low mobilization of the target group caused by a poor understanding of climate change issues	**small**	**Great**	➢ Increased collaboration with the target communes ➢ A participatory approach ➢ Sensitization to the effects of climate change
Non-respect of financial commitments by partners in programme implementation	**small**	**Great**	➢ A continuous dialogue before and after the signing of the programme document will be established among programme partners
Lack of sufficiently qualified partners	**small**	**Great**	➢ Capacity-building ➢ Permanent Screening and evaluation of partners ➢ Collaboration with communes at a decentralized level

C. Monitoring and Evaluation arrangements including a budget of M&E

Programme monitoring and evaluation (M&E) will be in accordance with established UNDP procedures and will carried out by the Project team, verified by the MHE and the UNDP Country Office in Bamako. Dedicated support by the technical adaptation

teams in the UNDP Regional Center and UNDP New York will be provided on a regular basis. A comprehensive Results Framework of the project will define success indicators for project implementation as well as the respective means of verification. A Monitoring and Evaluation (M&E) system for the project will be established, based on these indicators and means of verification. The evaluation information is not available at this stage, but they will be included in the project document. Below is a rough approximation of likely costs, to be confirmed at the time of submission of a full proposal.

Table 6 Monitoring and Evaluation.

Type of activity	Parties in charge	Budget US$	Period
Launching workshop	Environment and Sustainable Development Agency (ESDA)	20.000	December 2011
Workshop Report	Programme Coordination	PM	January 2012
Term progress and follow-up reports	Programme Coordination	PM	Term
Annual reports	Programme Coordination	PM	Annual
Meetings of the programme coordination committee	ESDA	PM	Termly
Technical reports	Programme Coordination	50.000	Regular
Mid-term report and external audit	UNDP/ESDA	15.000	2013
Final external evaluation	UNDP/ESDA	25.000	2014
Final report	Programme Coordination	-	2014
Financial Audit	UNDP	15.00	2014
Estimated total cost		125.000	

D. Project Results Framework Analysis

A detailed Programme Results Framework, including quantified Outcome and Output targets as well as specific, measurable and time-bound indicators will be provided with the full proposal.

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT[37]

Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

Pr Tiemoko Sangare Ministry of Environment and Sanitation, Bamako, Republic of Mali Tel: +223-2029-5168; +223-2029-5172 Fax: +223-2029-5170 Email: cabinet@environment.gov.ml	Date: 23 June 2011

B. IMPLEMENTING ENTITY CERTIFICATION

Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, understands that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this Project/programme.	
 Yannick Glemarec Director, Environmental Finance, UNDP	
Date: August 12, 2011	Tel. and email: +1-212-906-5143 yannick.glemarec@undp.org
Project Contact Person: Johnson Nkem (LECRDS)	
Tel. and Email: +254731666335; Johnson.nkem@undp.org	

6. Each Party shall designate and communicate to the Secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.