ADAPTATION FUND

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

# 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 Timbuktu |
| TYPE OF IMPLEMENTING ENTITY | Multilateral Implementing Entity (MIE) |
| IMPLEMENTING ENTITY: | United Nations Development Programme (UNDP) |
| LEAD EXECUTING ENTITY: | Ministry of Environment and Sanitation (MES)<br>Ministry of Agriculture (MA)<br>Ministry of Territorial Administration and Local Collectivities (MTALC) |
| AMOUNT OF FINANCING REQUESTED: | US$8,533,348 |

### 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**

Located in the Sahel of West Africa, Mali has a dry climate with 65 % of its territory under semi-desert and desert conditions. The country 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) (Figure 1).

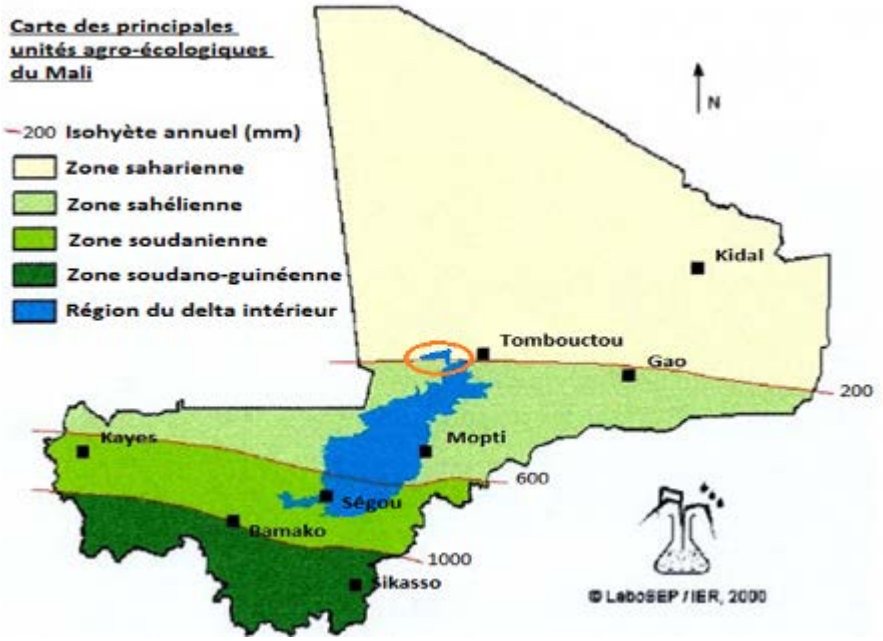



**Figure 1: Rainfall zones in Mali (Mali NAPA)**

Mali's climate exhibits inter-annual variability, particularly with regard to rainfall. Temperatures can reach maximums of up to 45° C, with little inter-annual and only small seasonal variations.

Data from the national meteorological services demonstrate 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 period 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 authorities 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]

## Climate change Projections and Scenarios

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, 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.

[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] Ministère 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 casts doubt on projections for precipitation.

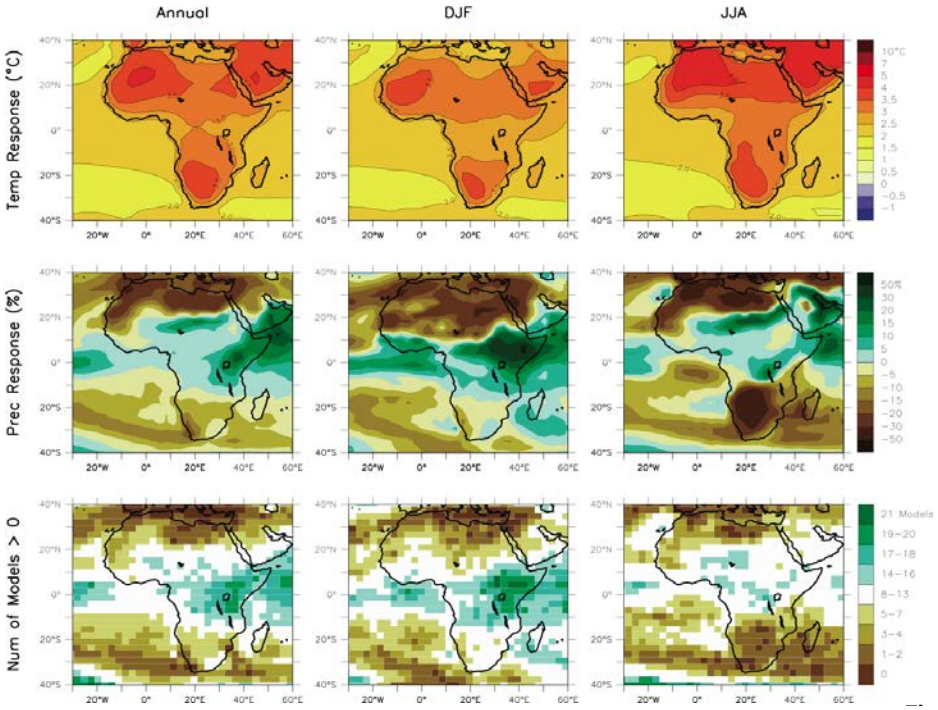



**Figure 2: Climate change projections for Africa (IPCC AR4, 2007)**

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°C to +4.7°C for the period 2081-2100 (with a median of +3.3°C). Temperature increases are likely to be greater in the Northern half of Mali than in the South.[4] It is clear, 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 an increase in intra-seasonal variability, for example an increase in the number of dry spells during the rainy season.[5]

## Climate Change and Livelihood Vulnerability in Mali

Mali is ranked 175 in the Human Development Index out of 187 countries and categorized in the group of countries considered of low human development with a great share of the multidimensional poor suffering deprivations in environmental services. Currently, 43% of the population is living below the income poverty line (in purchasing power parity terms (PPP) of $1.25 a day).[6]

The Human Development Report 2011 further highlights that 59.5% of the population is living on degraded land and only 29.2% have satisfactory water quality. The current population of 15.8 million in 2011 is projected to increase to 26.8 million by 2030, severely affecting the carrying capacity of the natural resource base, as well as increasing the ecological footprint which is currently 1.9 hectare per capita. The ecological footprint represents the amount of biologically productive land and sea area that a country requires to produce the resources it consumes and to absorb the waste it generates. Although there is no record of the extent of

[4] Christensen et al. (2007). Regional Climate ions. 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 casts doubt on ions for precipitation

[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] UNDP (2011). Human Development Report 2011 Sustainability and Equity: A Better Future for All

natural resource depletion, forest cover is only 10.4 % of the total land area with an annual rate of deforestation of 100.000 hectares. All these demonstrate the depletion of natural safety nets for livelihood security resulting in severe risks of vulnerability among the local communities.

With a GDP per capita of US$1,185 (2009), Mali is one of the poorest countries in Sub Saharan Africa. Poverty is more prevalent among the rural majority of the population (66.7% in 2010) where the majority of the people continue to derive their livelihoods from agriculture and pastoral activities. Gender inequality is extremely high with a global ranking of 143 in 2011. Although females constitute 50.6% of the total population, they represent only 38.4% of the economically active population[10]. Women constitute the majority of the agricultural share of the economically active population with 74.9% yet represent only 3.1% of the total agricultural landholders in Mali. This emphasizes the fact that women will bear a disproportionate share of the burden of climate change impacts on agriculture, and lack access to resources e.g. land rights and the capacity to cope.

Mali has made some progress towards the target of the Millennium Development Goal in reducing the number of under-nourished people by 38.1% and the proportion of undernourished in total population by 56%[9]. These gains made could however be overturned by climate change impacts. The country is however still characterized by chronic food and nutritional insecurity, linked to endemic poverty and climate change. Malnutrition is also severe in Mali, being directly or indirectly responsible for more than 50 percent of the death of children under the age of five.

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.[7] 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.[8]

Mali is highly dependent primarily on the agricultural sector which employs 83 percent of the population, and contributes 50 percent of the GDP[9]. Following the high dependency on rain-fed agriculture, the country is particularly vulnerable to climate change impacts that affect food security. The Millet/Sorghum farming system in the Sahel is one of the most vulnerable farming systems to drought in the world.[10] 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.[11] The most vulnerable

[7]Ebi, K., Smith, J. (2006). Mali Pilot Study: Climate Change and Agriculture In Zignasso. Final Report. Washington DC: U.S. Agency for International Development.

[8] Danida (2008) Appréciation des impacts des changements climatiques sur les programmes de développement de la coopération Danoise au Mali. An additional factor leading to this expectation is the expected increased demand due to continued population and economic growth.

[9] Ministère de l'Equipement et des Transports, NAPA (2007)

9 FAO 2011. The State of Food Insecurity in the World.

10 FAO 2011. The State of Food and Agriculture 2010-11.

[10] 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

[11] Butt et all. 2003 and World Conference on Disaster Reduction. 1994

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 loss of 9 percent of GDP.[12] 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.[13]

## Problem Statement: The Climate Change-induced Problem

The recently developed National Policy, Strategy and Action Plan on Climate Change for Mali (AEDD 2011) clearly states government recognition of the problem of climate change by this problem statement:

'*In Mali, climate change threatens key sectors of the economy: Agriculture, Livestock, Fisheries, Forestry, Energy, Health, and Infrastructure. Without an organized response and anticipated level of governance of these sectors to address these challenges, climate change could be very threatening on the development of Mali.'* The document further recognizes the fact that *'up to date the level of anticipation of the risk of climate change in sectoral policies is not the same across all the sectors. Even the actions and initiatives at the sectoral level to make up for it and to integrate climate change risks and opportunities are limited and deserve more interest and human and financial resources of a higher dimension. This applies to both adaptation to climate change and mitigating emissions and the use of a clean and sustainable development projects.*'

Mali experiences severe recurrent shocks particularly droughts, locust infestation and irregular rainfalls causing reduction in agricultural yields and water resources severely affecting the livelihoods of the people and national development. There are also extreme climate events such as flooding. The NAPA assessment, for example, concluded that climate change is likely to cause significant losses in crop production (like millet, sorghum, maize and rice) by 2025 and 2050. This demonstrate that farming systems in Mali are extremely vulnerable to climate change and climate variability.

The root causes of vulnerability include significant reliance on rain-fed production systems, ongoing practices of crop and livestock selections, water resource management, rangeland management, drought illpreparedness, and household income generation that are not compatible with increasing impacts of climate change. Other drivers of vulnerability include: (i) increasing demographic trends e.g. 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 instruments 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 production systems (agriculture, fisheries, livestock, forestry etc.) and the capacity to adapt are limited.

The fragile ecosystems of the country are very vulnerable to extreme climate events weakening the socio-economic situation and the ability of communities to adapt.

[12] World Conference on Disaster Reduction, 1994
12 UNDP 2011. Human Development Report 2011 Sustainability and Equity: A Better Future for All
[13] Butt et al. 2003

Unfortunately, current adaptive capacity is low in the country, nursing one of the highest levels of food insecurity and malnutrition.

According to the outcomes of various climate models, the climate trends of future scenarios without improved planning and management, particularly improved water and natural resource management plans, implies that climate change will negatively impact the major sectors in Mali[14], namely agriculture, fisheries, livestock and forestry which directly impact food security and poverty. The consequences will be severe for the poor and vulnerable majority of populations, mainly because of their strong dependence on natural resources and their limited capacity to address climate change especially extreme climate events such as droughts. There are also climate change-induced problems affecting the major sectors and their performances in supporting national development programmes that need conscientious efforts to address them.

## Sector Vulnerability to Climate risks

### Water Resources

Water resources and water supply systems in Mali are extremely vulnerable to current climate patterns. The trends in rainfall decrease and variability, and the increase in temperature will lead to a high evaporation-transpiration which could worsen water shortages in the region and their use in production systems. Diminishing access to water would likely result in increasing competition for water with risks of conflicts. All this places water resources as critical priorities in the NAPA of Mali. Priority four of the NAPA is on '*the rehabilitation of aquaculture sites*' to enhance fishery activities in support of food security, while priority 11 is on the '*implementation of runoff water harvesting system and restoration of water points (backwater, ponds and lakes)*' to improve water availability and access to communities.

As the major supply of freshwater over several decades, the Niger Inner Delta which mainly covers the regions of Mopti and Timbuktu has been experiencing a decrease in water flows. The average flow of the river Niger at Koulikoro, one of the conventional Niger River Basin Authority (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 in its water flow, but also by the continuous shrinking of the annually flooded area, which has since decreased from 30,000 sq.km in the fifties and sixties to less than 10,000 sq.km today. The decrease in water flow in combination with erosion and siltation are blocking the channeling of water into the best parts of the Delta, thus jeopardizing fishing, agricultural and pastoral activities. There is a need for action to rehabilitate the systems in order to ensure sustainable productivity of the agro-pastoral lands and restoration of aquaculture activities of the region.

Same observations can be made for the Faguibine system. This system is particularly sensitive to climate change impacts. The Faguibine system is located 80 km west of Timbuktu. Its land area of 3360 km² 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 agriculture (180 to 350 km² of arable land), fisheries and dry season cropping and grazing. The Faguibine system also accommodates large numbers of water birds, mainly wintering flocks from Europe.

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

Besides climate impacts, there are anthropogenic drivers under human activities affecting the Faguibine system which amplifies the depleting water resources of the system. Siltation under human-induced land use changes and unsuitable agricultural practices resulting in soil erosion, increases the amount of sedimentation occurring. Siltation coupled with rainfall fluctuations in Guinea (the main source of the river Niger feeding the Faguibine system, and particularly Lake Faguibine) has been gradually decreasing the water level of the lake since the mid-seventies, as illustrated by the satellite images in Figure 3. Many of the canals linking the Faguibine system are silted and blocked thereby increasing loss of water. Unsuitable land use practices such as expansion farming land encroaching into the floodplain areas and riverbeds has reduced the natural storage capacity of the floodplain thus exacerbating the risk of flooding in other locations as well. This has severely destroyed the system's ability to act as a buffer in retaining water as rainfall becomes more unpredictable.


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

## Agriculture

Agriculture is the main economic activity in the basin and accounts for employment of the majority of the population of Mali. The numerous effects of climate change and variability such as irregular rainfall pattern, high temperature, long dry period, flash floods and droughts have made agricultural production increasingly challenging. Crop productions in the Mopti and Timbuktu regions are particularly vulnerable to climate change following the irregularity in rainfall affecting productivity and the lack of sufficient water for supplemental irrigation. Climatic changes have meant greater incidence of pests and pestilence, which means a loss of quality and quantity in production. Models predict between 20 to 34% decrease in the yield of millet and sorghum by 2020 and 30 to 40% by 2050[15]. It is estimated that the risks of chronic hunger, taking into account future climate change, might more than double. Communities in these regions are under increasing pressure to grow staple crops on

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

degraded land which only puts more pressure on the resources of the region exacerbating vulnerability of communities. That makes the income of communities in the regions of Mopti and Timbuktu, highly sensitive to climate change (Figure 4) compared to other regions of the country. Unstable and inconsistent food production caused by climate change has affected the capacity of farmers for self-sufficiency and their ability to generate income from their crops.

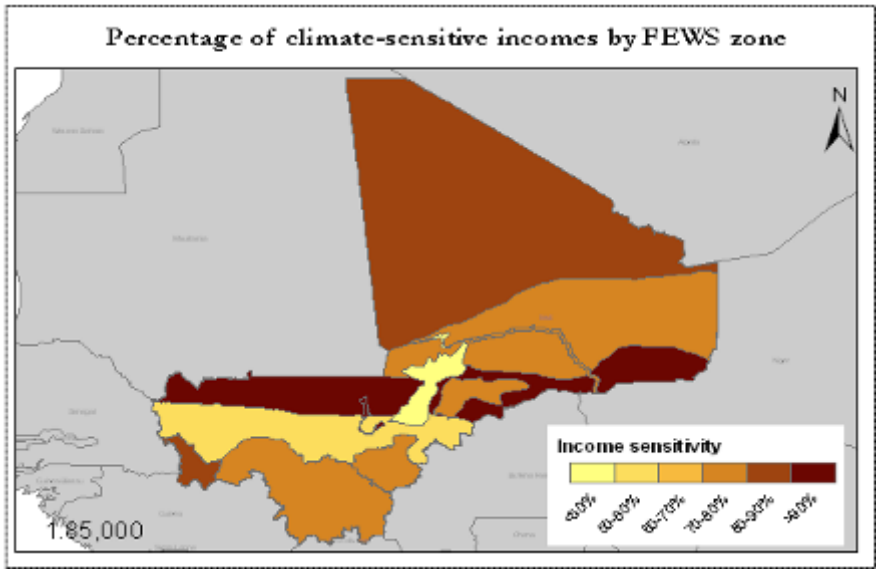



**Figure 4: Percentage of climate-sensitive incomes (WFP 2005)**

## Livestock

The rearing of cattle, goats and sheep is a major income earning activity in the regions of Mopti and Timbuktu. 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 are 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 to 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 impacts and human activities. This also have direct consequences on biodiversity and the inter-related services to other sectors such as agriculture, tourism, fisheries, livestock, health and water. Between 1990 and 2010, Mali experienced a rate of loss of its forest cover by 0.56% a year representing a loss of 100,000 ha of its forest cover. 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

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

firewood) are the main causes of this phenomenon. The harvesting of forests in Mali is ten times higher that their regeneration potentials. The loss of vital habitats will affect the capacity of other species to adapt to the impacts of climate change.
The national policy, strategy and action plan on climate change in Mali requires that the following cross-cutting actions be put in place:

- Ensure a systematic consideration of the challenges and opportunities of climate change in policies and key strategic directions of the country especially in the Growth and Poverty Reduction Strategic Paper (CSCRP);
- Integrate climate change aspects in different sectoral policies and programmes;
- Strengthen (and possibly legislate) the anticipation of risks and opportunities of climate change in Environmental Social Impact Studies and especially at the level of strategic environmental assessment of policies and programmes.

Addressing the effects of climate change on the livelihood of the populations in rural areas will be difficult without well targeted technical and financial assistance under well-coordinated local institutions and enhanced capacity for a holistic approach for adaptation. Although the Government of Mali has developed a wide range of publicly-funded risk management and safety net programmes, it fails to provide enough options for vulnerable groups. A review of Social Safety Net programmes in Mali shows that the scope and coverage of the social safety net is very small (0.5 percent of GDP in 2009) compared to the most urgent needs (about 27 percent of the Malian population is food insecure). The study suggests an expansion of the social safety nets programmes based on a set of cost effective existing and new programmes. Given the limited fiscal space available for safety net programmes, it is important that the Government allocates its scarce resources to programmes that are well targeted and cost-efficient.

Under the ongoing national decentralization and devolution of administrative authorities to local/regional institutions, their capacity to integrate climate change adaptation into their planning and decision-making process will be very crucial in addressing vulnerability of local communities within the national framework for climate change. This is in line with the implementation of the Strategic Focus V11 of the National Policy, Strategy and Action Plan on climate change in Mali that requires '*taking into consideration climate change at the territorial level'* and which stated that '*considerations of the risks/opportunities of climate change are important at the territorial level, where climate change is experienced and where this policy needs to be validated and appropriated by the relevant actors in the territories and regions'*.

It is in this context that this proposal 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 programme will address the inter-related NAPA follow-up priority measures in a coherent and programmatic way, through one integrated programme in one of the critical regions vulnerable to climate change. The programme will generate clear 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 programme 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 programme brings together the crucial elements needed for demonstrating

climate-proofing and fostering a paradigm shift in providing hollistic adaptation beyond a merely sectoral approach in Mali.

## Programme Target Area

Following the rainfall zoning of Mali as presented by the NAPA, some regions of the country have a high degree of exposure to climate variability and change such as the Sahara and Sahelian zones, which, when coupled with low socio-economic development increases the vulnerability of the local communities of the regions compared to other parts of the country.

The AF programme target area falls within a rainfall zone of less than 600mm per annum. This same zone also harbors a delta in the interior of the country constituting a critical water source for the two northern rainfall zones with very low rainfall amount, to enhance productivity and potable water for household needs.

The selection of Mopti and Timbuktu is a national decision primarily based on the national importance of the two regions including the Faguibine System, in addressing food productivity and livelihood security in the northern part of Mali. Furthermore, the analysis of observed climate impacts and long term projections, which indicate an increase in the vulnerability of the local communities in the regions, makes the regions of high priority with urgent needs for adaptation. The regions of Mopti and Timbuktu are indeed characterized by fragile and extremely vulnerable ecosystems.[17] These regions are also isolated and have very minimal support, and have been the target of disaster relief programmes in the past years due to food shortages.

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 the rivers Niger, Bani and Sourou (Figure 5). Arid zones are highly dependent on the availability of water resources.

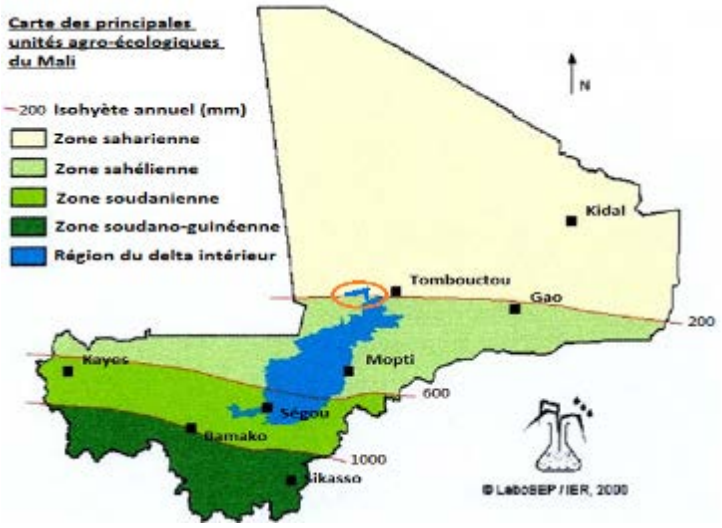



**Figure 5: Agro-ecological Units in Mali**

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.

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 Timbuktu MACTL/DNCT. 2004

The two regions (Mopti and Timbuktu) 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 Baseline Situation Report[19] of Mali shows 79% poverty in the region of Mopti and 55% in the region of Timbuktu, as against 43% for the rest of the country.

The food insecurity rates are higher in the regions of Mopti and of Timbuktu, as shown in figure 6. The region of Timbuktu 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.[20]

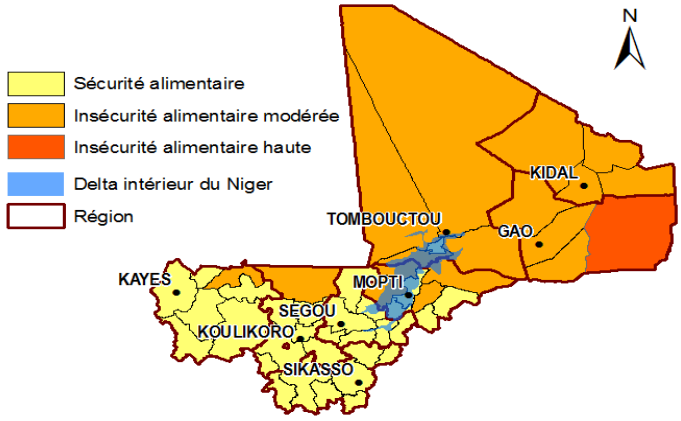



**Figure 6: Estimated food security conditions, March 2010**

## Identification of Pilot Sites for the Programme

Building on several other initiatives, the AF programme will be seeking to implement priorities that have emerged from a series of consultations that have taken place in Mali over the last two to three years. For example, the fast track initiative for the realization of the Millennium Development Goals conducted several consultations with both the local authorities and the communities in 166 most vulnerable municipalities under the National Food Security Programme (NPFS) aimed at building the capacity of local actors for local government planning. The strategic approach of the project was based on a multi-sectoral approach in fighting poverty through the implementation of the Strategic Framework for Growth and Poverty Reduction (CSCRP – 2007-2011), the National Food Security Programme and the Millennium Villages Project (MVP), as well as the goals of the Economic and Social Development (PDES). All these were inspired by the ongoing decentralization process through the Framework Document of the National Decentralization Policy (2005-2014). As identified by the Early Warning System (SAP), the 166 most vulnerable municipalities of the National Food Security Programme are located in the regions of Kidal, Gao, Timbuktu, Mopti, Segou, Koulikoro and Kayes. These 166 local municipalities constitute more than 3,000 villages with a population of nearly 2.5 million. Timbuktu and Mopti targeted in the proposed AF Programme are among the regions identified with the most vulnerable municipalities.

18 National Plan of Action for Adaptation to Climate Change. Ministry of Equipment and transports in collaboration with the National Department of Meteorology. 2007
19 Baseline Situation I166.Republic of Mali. Final Report 2009
20 Report on Sentinel Site Survey Post-Harvest 2008 – 2009; Commissioner for Food Security, Early Warning system, 2009,

This fast track initiative for the realization of the MDGs also provided important criteria for the selection of the two regions of Timbuktu and Mopti targeted in the proposed AF programme. The detailed and rigorous consultations that took place between 2009-2011 in Mopti and Timbuktu in supporting local governments with their decentralization process and establishing baselines of capacity of local institutions and community vulnerability based on poverty and food security, constitutes a key platform for the proposed AF programme. In particular, under the project for strengthening the capacity of local actors in planning for the acceleration of the MDGs in 166 most vulnerable rural municipalities, 98 were in the two regions of Mopti and Timbuktu (61 Mopti, and 37 in Timbuktu). Furthermore, under the National Food Security Programme (NPFS) and the national goals for the Economic and Social Development Programme (PDES), 40 communes out of the 130 communes involved in the engagement and consultation process in Mopti and Timbuktu were ranked as extremely poor and highly vulnerable in the terms of food security. Using three main criteria (1. weak local institutional capacity; 2) Inability to integrate MDGs in local planning; 3) high poverty level with extreme vulnerability to food insecurity) and interpolating them, it was possible to identify communes gravely in need and as priority interventions in the AF programme. Using this approach, communes were identified as potential pilot sites (Table 1). This has subsequently been followed up with a series of more focused group and community-based consultations in the formulation of the outcomes proposed in this project proposal.

**Table 1:** Potential communes as pilots following their weak institutional and poverty and vulnerability to food insecurity rankings, and inability to integrate MDGs in local planning

| **Commune** | **Population (2009)** | **Region** | **Delta** | **Weak Institutional ranking** | **Poverty & food insecurity ranking** |
|---|---|---|---|---|---|
| 1. Pelou | 4,348 | Mopti | | 3 | 1 |
| 2. Dangolo-Bore | 27,165 | Mopti | | 18 | 4 |
| 3. Kende | 7,372 | Mopti | | 2 | 7 |
| 4. Togoro | 13,687 | Mopti | x | 19 | 11 |
| 5. Koubewel Koundia | 13,529 | Mopti | | 16 | 13 |
| 6. Gandamia | 7,215 | Mopti | | 11 | 19 |
| 7. Pondori | 4,315 | Mopti | x | 26 | 25 |
| 8. Bamba | 13,610 | Mopti | | 25 | 31 |
| 9. Tedie | 9,681 | Mopti | | 9 | 36 |
| 10. Tindirma | 4,970 | Timbuktu | | 5 | 2 |
| 11. Arham | 3,147 | Timbuktu | x | 3 | 8 |
| 12. Kondi | 6,110 | Timbuktu | | 8 | 10 |
| 13. Hamzakoma | 7,929 | Timbuktu | | 2 | 14 |
| 14. Haribomo | 7,389 | Timbuktu | | 6 | 18 |
| 15. Binga | 3,021 | Timbuktu | x | 7 | 22 |
| 16. Bintagoungou | | Faguibine | | | Sedentary zone |
| 17. Goundam | | Faguibine | | | |
| 18. Lafia | | Faguibine | | | |
| 19. Gargando | | Faguibine | | | Nomadic zone |
| 20. Esakhane | | Fabuibine | | | |

The 20 potential pilot communes are also characterized by nomadic and sedentary lifestyle of the local communities which emphasizes agricultural and livestock activities. Some of the communes fall within the Niger Delta Basin which also draws in fishery activities. Furthermore, the high in soil moisture levels in the delta constitutes an upper limit in a moisture gradient that decreases in communes at the margins of the Sahara frequently under low moisture stress. These thus, provide the opportunity to address a wide range of climate-

induced stresses and their impacts on the diverse livelihoods of the local communities. The weak local institutional capacity that prevails across all the pilot sites that seems to be contributing to the weak response capacity constitutes an important baseline for measuring programme impacts and progress in strengthening local institutional capacity in dealing with the challenges. These were crucial in linking local institutional weaknesses to community poverty and vulnerability to food security as the expected in the proposed AF programme.

## 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 the agriculture and/or livestock sector, and are therefore the most vulnerable to climate change. This programme focuses on the region of Mopti and Timbuktu including 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[21]:

- 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

The analysis of the Comprehensive Food Security and Vulnerability Analysis (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 neighboring 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.[22] However, livestock breeding is an important livelihood activity in the region of Mopti and Timbuktu. 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 through the improvement in grazing land from increasing rainfall. The main harvest period is between

[21] Analysis of Livelihood Sensitivities to Climate in Mali, WFP, March, 2011 (Draft)

[22] 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.

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 2: 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 2 shows the characteristics of the different wealth groups (defined by their available livelihood assets) in the zone comprising Lake Faguibine. Half the population is characterized as very poor or poor. In terms of food consumption patterns, there are significant differences between wealth groups (Figure 6). 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-governmental Panel on Climate Change (IPCC) 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 the area of the programme 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.[23]

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.[24,25] In the framework of this programme, the most vulnerable sectors identified through such in-country processes were retained (agriculture, livestock, fisheries and forestry) given that they are deemed to be the pillars of food security in the programme area. Beside these sectors, it is essential to add water resources (underground and surface

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

24 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 Adaptation Plan of Action (NAPA, 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.

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

waters) whose availability is indispensable for the populations as well as for the key sectoral activities.

## Climate Change Impacts in the Programme Area

Climate change has led to the degradation of the regions of Mopti and Timbuktu, 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 programme area highly vulnerable to changes in rainfall and climate change projections of an increasing unpredictability 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 already led to unsustainable coping strategies including the lowering of quality and quantity of meals. The region of Timbuktu 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).[26]

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. Without adaptation action, this degradation is expected to continue. It is estimated that since the degradation in the target areas, and in particular the Faguibine System, up to 200,000 people have migrated out of the region.

## Preferred Solution for Climate Change Adaptation

Normally, adaptation actions that improve water access and availability are expected to have a significant effect on the productivity of other sectors such as agriculture, livestock, fisheries and forestry supporting livelihoods in the targeted region. Therefore preferred adaptation solution for the programme will include counteracting the effects of reduced water availability[27]by improving water infiltration, storage and flow in the Faguibine system through measures that opens up silted channels and obstructed ponds. Increasing water access to vulnerable communities for multiple uses is enhanced by the rehabilitation water canals and distribution plans as well as tapping on other sources of water such as wells, building rainwater collection and storage facilities. This will require restoration of riparian habitats and the unblocking the water channels following siltation to improve water flow.

Communities and local institutions have the capacity to integrate climate risk management into economic, social and cultural development plans and decision making processes. They are supported through enhanced coordination with the national and regional levels linking effectively the local institutions and community stakeholders.
Local institutions have increased awareness of climate impacts and have the capacity of governance and budgeting climate change actions.

[26] Report on Sentinel Site Survey Post-Harvest 2008 – 2009; Commissioner for Food Security, Early Warning system, 2009, p. 33 tables 17 and 18;
[27] 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

Government shows leadership in the formulation of overall policies and programmes, providing the frameworks, instruments, budgets and infrastructures for a host of adaptive actions in the different sectors (agriculture, livestock, fisheries, forestry) and strengthen their resilience to climate risks. 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 up to 5.5 tons per hectare.[28]

The experiences and lessons learnt generated in different sectors are systematically captured, analyzed and disseminated using different communication and media channels suited to the technical capacity and needs of different user groups (e.g. government officials, extension officers, community leaders, local councilors, farmers etc.)

In the last three years, the Office for the Development of the Faguibine System (OMVF) has achieved some impressive yield increases through pilot activities related to soil leveling, reforestation, dune and river bank stabilisation and other interventions aimed at improving water control in some pilot areas. These activities have contributed to some initial 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 programme. 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 achieving preferred solution*

There many project activities on adaptation (See Table 5), however implementation throughout the country is severely constricted by the pursuit of defined project objectives as opposed to being guided by an integrated national strategy for achieving preferred national solutions. The recently developed National Policy, Strategy and Action Plan on Climate Change (PNCC) in Mali, identified 18 barriers capable of potentially limiting the achievement of the specific objectives of the PNCC for nationwide adaptation. The identified barriers broadly fall within four major areas: governance; arwareness; information, knowledge and capacity; and financing for climate change. To be more focalised, the national strategy made a prioritisation of the 18 barriers identified in the PNCC, resulting in 8 barriers considered of utmost importance and to be addressed as a matter of priority by this programme in order to achieve the preferred solutions. These are:

- Inadequate consideration of climate change in national policies, programmes and projects;
- Inadequate information and awareness of climate change by policymakers and communities for the implementation of adaptation;
- Inadequate national capacity in climate change, and of research in the areas of technology transfer, and knowledge of ecological systems;
- Inadequate access to climate change financing;

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

- Inadequate level of institutional framework for the governance of Climate Change and its operationalization;
- Inadequate level of private sector involvement in the planning and implementation of the fight against Climate Change;
- Inadequate level of knowledge of the climate of Mali and its perspectives in relation to Climate Change;
- Inadequate level of consideration of climate change in policies and territorial actions.

There are identified barriers to overcome in order to achieve the preferred solution for adaptation by the programme.

1. *Securing financing for adaptation to climate change.*

   There are currently no national financing instruments or budgetary allocation for adaptation to climate change in Mali especially for actions at the local, decentralized level. Other national development challenges currently overwhelm government spending and financial allocations such as healthcare, education etc. This limits the ability to implement adaptation measures that address the climate change challenges in the northern regions of Mopti and Timbuktu including the Faguibine System which requires technological interventions and the use of heavy equipment to unblock the river channels. The implementation of preferred solutions for adaptation such addressing of siltation of the river channels, rehabilitation of the riverine areas etc. require funding for any concrete and substantial adaptation action to be undertaken. With AF financing these solutions can be achieved.

2. *There is lack of integration of climate-resilient activities into local development planning and community actions*

   There is currently no systematic and coherent understanding of the slow-manifesting but longer-term changes in climate and their likely implications on the diverse livelihood activities of local communities. The absence of coherence in perceptions of change and what needs to be done to manage uncertainties is a recipe for undermining resilience to climate change and adaptive capacity and therefore national efforts on human development. Building both institutional capacity and the capacity of communities in implementing preferred solutions for adaptation to climate change is crucial. Using AF finance the technical capacity and regulatory policy framework of local institutions will be improved to better manage and secure water, food systems, and natural resources for communities under climate change in the northern region by this programme. In support of the national decentralization process and long term sustainability of the interventions, developing the capacity of local institutions and authorities to integrate climate change adaptation into local planning and implementation processes will be carried out by the AF financed programme. This will also enhance the achievement of coherence, and coordination of the activities of local communities and their integration into national planning and strategy for adaptation.

3. *Local institutional awareness of climate change impacts and of response options are limited.*

   The project-based instead of programme-based approach that currently dominates adaptation activities in the country, limits the knowledge about the range of adaptation techniques and options available for widespread utilization beyond the project sites. Systematic efforts to inform and prepare the public and institutions to adapt and manage expected changes to climate change have not been undertaken as yet. Understanding of the range of possible future changes, including associated uncertainties, is critical for planning and adjusting local practices, processes, systems and infrastructure. Key reasons why the level of awareness is low include weak coherence of the message and

actions for the integration of adaptation into local government planning; lack of training on adaptation at all levels to guide inclusive participatory processes. Furthermore, there is a lack of expertise and institutional mechanisms for converting national strategies into local strategies and action plans. This commonly results in the lack of integration of the adaptation response(s) into local development planning. A main barrier is that resources for implementing comprehensive programmes of support have not been available through existing sources due to competing needs for scarce public resources. Using AF financing, this programme will provide training on adaptation that is desperately needed at all levels in the community for a sustained impact beyond the duration of the programme.

*4. Local institutional capacity for the governance of climate change adaptation is weak.*

The limitations in technical capacities, and absence of appropriate policy instruments to effect climate resilient adjustments in key policies remains a critical barrier for the governance of adaptation. A clear recognition of climate risks and the need for adaptation in local government planning is absent and no policy instruments and mechanisms exist to support, facilitate and incentivize climate change risk management at the community level. The implementation of the national climate change policy, strategy and action plan in addressing the vulnerability of local communities require local institutional coordination and mobilization of communities. Following community-based lessons from around the country, there are indications that local populations can successfully and equitably manage their natural resources provided there is institutional support and coordination. For example, there are demonstrations that local communities have the capacity to protect forests using local participative processes that can result in the protection and management of the resources. It has also been demonstrated that local resource management can generate revenues for local governments for public activities.

The central government has delegated some of its power to the elected local governments. This reform is one of the best ways of increasing both efficiency and equity in local resources management and also a way of leveraging the development of local decisions. Through the national reporting line that exists between local governments and the central government, the application of locally implemented actions in support of and in line with the national strategy will be enhanced, through the development of local institutional capacity. There is little knowledge of the possible range of locally appropriate adaptation options for natural resources planning, including the costs and benefits of different options and how to integrate them into other local development planning. As locally elected authorities are designated to implement national strategies and development agendas, there is a need to improve their capacity to identify and finance local adaptation initiatives.

*5. Insufficient policy implementation and enforcement*

The country needs a comprehensive approach for the implementation of national rehabilitation programmes in a highly decentralized way where local governments play a key role in driving the activities of their local communities. In addition, decision making for adaptation implementation needs to be systematic and transparent, and grounded on robust socio-cultural, ecological and economic assessments of vulnerability and coping capacity. Furthermore, cost-effective and culturally appropriate technologies can enhance communities‟ resilience to climate related risks. This is crucial in giving proper consideration to good practices using AF financing, of climate-resilient natural resource governance that is suitable and appropriate for the targeted regions. Furthermore, this will be building on the local knowledge-base of the communities and the native plant species of the region.

*6. Incoherence in current adaptation interventions*

The newly developed national policy, strategy and action plan for climate change emphasizes the need for coherence and complementarity for the implementation of all actions, as this is currently not the case. This is particularly serious in the case of the Faguibine System. In spite of several interventions in addressing sand encroachment that block the water ways and channels, there is continuing siltation of the channels following ad-hoc, limited actions over the last years. This requires a more comprehensive and holistic approach in addressing the inter-related problems of the Faguibine system and the surrounding areas. The activities and investments of the Office de Mise-en-Valeur du Faguibine (Office for the Development of the Faguibine System, OMVF) need to be complemented with a more integrated approach that focuses on the most vulnerable groups in the community, and should include not just large physical infrastructures but also smaller physical works and community-based adaptation planning and training in agro-ecological practices, storage and market management, and in improved nutritional practices.

In summary therefore, all the key barriers considered for intervention within the scope of the proposed programme are fully aligned with nationally prioritized barriers currently limiting the implementation of Mali's national policy, strategy and action plan for climate change.

## PROJECT / PROGRAMME OBJECTIVES:

In line with the National Development Plan of Mali, and the National Adaptation Programme of Action (NAPA, 2007), and the recently developed National Climate Change Policy, Strategy and Action Plan (Mali Government, 2011) the proposed programme is responsive to those national priorities spelled out by the Government.

### *Programme Objective*

The main objective of the programme is to increase the resilience of vulnerable communities and their adaptive capacity to climate change in the regions of Mopti and Timbuktu including the Faguibine system zone. The programme has three components with the following specific objectives:

### Specific Outcomes

*Component 1*: Enhanced water control measures in vulnerable water buffer zones

***Outcome:*** Increased climate change resilience of local water systems in Mopti and Timbuktu regions

*Component 2*: Resilience in subsistence livelihoods of vulnerable communities

***Outcome:*** The production of local livelihood systems such as agriculture, fisheries, livestock, and forest enhanced under climate change

*Component 3*: Capacity-building and knowledge generation for adaptation

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

A mapping of past and ongoing environment-based projects especially those linked to climate change adaptation and implemented in the proposed programme sites was conducted (see Annex 1) to identify potential areas for synergies and complementarities as well as to capitalize on the lessons learnt. It is also ensured that there is additionality of the proposed programme activities and full alignment of the programme with national priorities and programmes. With reference 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:

| | |
|---|---|
| Priority 1: | Agricultural extension of improved food varieties adapted to climate change |
| Priority 2: | Agricultural, extension of animal and plant species with the highest adaptation potentials to climate change |
| Priority 3: | Promotion of income-generating activities Priority 5: Promoting cereal stocks |
| Priority 7: | Low land improvement |
| Priority 11: | Implementation of a runoff water harvesting systems and restoration of water points (backwater, ponds and lakes) |
| Priority 12: | Sensitization and organization of the population for the preservation of natural resources (elaboration of local conventions on reforestation and agro forestry) |

The programme 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 through, restoration and maintenance of soil fertility, development of agricultural production and productivity, as well as preservation of ecosystems functions and services.

Following the National Policy, Strategy and Action Plan on Climate Change in Mali, the overall goal of the National Policy on Climate Change in Mali is to address the challenge of climate change and sustainable development of the country. Out of the five specific objectives, the proposed programme addresses the second specific objective which is to '*Increase the resilience of ecological systems, production systems and social systems to the effects of climate change through the integration of adaptation measures in priority sectors most vulnerable*' as well as the fourth objective '*to strengthen national capacity on climate change'*.

As one of first large-scale implementation, and taking place in two of the most vulnerable regions of Mali, the proposed programme will serve and support the operationalization of the National Climate Change Policy (PNCC) whose objectives are:

- Establishment of a proactive governance system to address climate change;
- Promoting actions for adaptation to climate change impacts;
- Reducing and managing risk and natural disasters;
- Promoting actions to mitigate greenhouse gas emissions;
- Promoting research for development, extension and transfer of appropriate technologies;
- Capacity building in climate change
- Promoting of development planning sensitive to climate change;
- Promoting of International Cooperation.

By supporting the integration of climate risks into national development frameworks, plans and strategies, the proposed programme interventions will complement the above policies and help Mali make its agricultural, environmental and socio-economic development efforts

more resilient to climate change. Furthermore, these will thus contribute to the achievement of the MDGs and climate-proofing 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 proposal.

**Table 3: Programme components, outcomes, outputs and Financing**

| PROGRAMME COMPONENTS | EXPECTED OUTCOMES | EXPECTED CONCRETE OUTPUTS | AMOUNT (US$) |
|---|---|---|---|
| **1.** Enhanced water control measures in vulnerable water buffer zones | **OUTCOME 1:** Increased climate change resilience of local water systems in Mopti and Timbuktu regions | **Output 1.1:** Water infiltration, storage and flow in the Faguibine System improved through the rehabilitation and opening up to 20 km silted channels and obstructed ponds | **US$1,000,000** |
| | | **Output 1.2:** Water access to 20 vulnerable communities enhanced by the rehabilitation of water canals and distribution plan for multiples users including climate resilient water management systems | **US$1,730,000** |
| **Total Outcome 1** | | | **US$2,730,000** |
| **2.** Resilience of the means of subsistence of vulnerable communities | **OUTCOME 2:** The production of local livelihood systems such as agriculture, fisheries, livestock, and forest enhanced under climate change | **Output 2.1:** Climate-resilient fisheries and agro- pastoral practices and technologies e.g. drought- and disease-resistant varieties introduced and, integrated crop-livestock production systems etc. practiced by 20 local communities | **US$1,100,000** |
| | | **Output 2.2**: Conservation and restoration practices e.g. conservation agriculture, agroforestry etc. introduced in 20 local communities for forest ecosystem resilience to climate change | **US$1,000,000** |
| | | **Output 2.3**: Dry-season gardening activities by women improved for food and income diversification in 20 local communities | **US$1,149,000** |
| **Total Outcome 2** | | | **US$3,249,000** |
| **3.** Capacity-building and knowledge generation for adaptation | **OUTCOME 3:** Enhanced capacity and knowledge of local institutions and of communities to better adapt to climate change. | **Output 3.1.** The knowledge and capacity of community improved to integrate climate risk management in economic, social and cultural development plans (ESCDP) | **US$232,500** |
| | | **Output 3.2: 100** community actors trained to manage climate change hazards and in income-generating activities | **US$500,000** |

| | | | |
|---|---|---|---|
| | | (IGA) | |
| | | **Output 3.3** Local institutional capacity strengthened in 20 communities in establishing micro-credit schemes, cereal banks etc. and in managing different community groups. | **US$471,000** |
| **Total Outcome 3** | | | **US$ 1,203,500** |
| 7. Programme Implementation – Total Costs | | | US$ 7,182,500 |
| 8. Programme/Programme Execution cost[29] | | | US$ 682,337 |
| 9. Total Programme/Programme Cost | | | US$ 7,864,837 |
| 10. Programme Cycle Management Fee charged by the Implementing Entity (8.5%) * Note | | | US$ 668,511 |
| **Amount of Financing Requested** | | | **US $ 8,533,348** |

## PROJECTED CALENDAR:

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

**Table 4: Milestones and timelines**

| MILESTONES | EXPECTED DATES |
|---|---|
| Submission of Proposal to AF Board | April 2013 |
| Approval of the Proposal by the AF Board | June 2013 |
| Start of /Programme Implementation | January 2014 |
| Mid-term Review (if planned) | January 2015 |
| Terminal Evaluation | September 2016 |
| Programme Close | December 2016 |

[29] This total includes the costs over the three years of the Programme Coordinating Units plus the M&E costs

## PART II: PROJECT / PROGRAMME JUSTIFICATION

- ***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.***

This programme is framed around the key national priorities identified by the National Policy, Strategy and Action Plan for Climate Change in Mali. This AF financed programme is designed as a holistic approach to climate change adaptation in the Mopti and Timbuktu regions including the Faguibine System. The programme is focusing on the implementation of on-the ground adaptation measures at the community level, integrated with sustainable development processes and supported through enhanced national institutional and knowledge management capacities.

**COMPONENT 1: Enhanced water control measures in vulnerable water buffer zones**

**Outcome 1:** Increased climate change resilience of local water systems in Mopti and Timbuktu regions

The outcome of this component is 'increased climate change resilience of local water systems in the Mopti and Timbuktu regions'. This outcome will be achieved through the physical restoration of the Faguibine system (e.g. unplugging, clearing and securing the canals), to re-establish the currently blocked and silted channels, to allow for deep infiltration of water to recharge the groundwater aquifer. Other water harvesting schemes such as rainwater harvesting will be implemented in the Mopti and Timbuktu regions to expand the sources of water in the regions. The management of water systems will be improved such as irrigation practices in order to ensure more efficient use of available water supply. Following the cleaning of the water channels and the rehabilitation of the Faguibine system, it is expected that the total storage capacity of the lake will be increased to meet supply needs in dry periods. The improvement of water flow in the water channels with the removal of accumulated silts, will ensure better distribution of water supply during dry periods to to multiple users in at least 20 communities; improvement of the structural integrity of storage systems against extreme weather events; and result in the integration of filter elements to improve safety of freshwater supply.

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

Following the decrease in rainfall and erratic nature of its distributions predicted for these regions of Mali, irrigation-based production is crucial to supplement the predominant rain-fed system that has increasingly become instable. The programme will thus help with the implementation of the necessary actions to ensure the achievements of this priority as reflected in the national Policy, Strategy and Action Plan on Climate Change for Mali. The interventions will be in line with the Agricultural Policy Law intended to ensure food security, restoration and maintenance of soil fertility, development of agricultural production, as well as preservation of ecosystem functions.

The outputs under Outcome 1 are interlinked outputs in that one without the other will not result in a sustainable response. While Output 1.1 focuses on the improvement of water infiltration, storage and flow in the Faguibine System through the rehabilitation of water canals and opening up of silted channels and obstructed ponds, Output 1.2 is focused on enhancing access to water by vulnerable communities through the rehabilitation of the water canals and a distribution plan for multiples users to permit the improvement of subsistence activities.
Under this outcome, the programme will implement a range of soil and water conservation (SWC) activities, in order to improve runoff management and infiltration on both rangelands and arable areas. An integrated catchment management (ICM) approach that takes into consideration climate change into planning and management and in the implementation of the soil water conservation (SWC) measures will be developed in order to minimize the sedimentation rate of the channels which amplifies climate impacts on the water system.

Activities related to output 1.1: Water infiltration, storage and flow in the Faguibine System improved through the rehabilitation and opening up to 20 km silted channels and obstructed ponds

*Activity 1: measures for unblocking the water ways and channels*
*Activity 2:preparation of site-specific designs and cost estimate for selected interventions required for unblocking the water ways and channels*
*Activity 3: Collecting native seed species for producing seedlings and establishing*
*Activity 4: Planting seedlings in areas marked out for rehabilitation*
*Activity 5: Maintenance and management of planted seedlings*

Activities related to output 1.2: Water access to 20 vulnerable communities enhanced by the rehabilitation of water canals and distribution plan for multiples users including climate resilient water management systems

Activity 1: Conducting vulnerability and local capacity assessment
Activity 2: Building rainwater collection and storage facilities
*Activity 3:* Rehabilitating wells
Activity 4 Construct dugout wells and ponds xxx

As raised by the communities during the consultations carried out in the framework of the project preparation, the activities planned to improve the water infiltration, storage, flow and access in the Faguibine system will have potential positive and negative trade-offs. The programme implementation will take in account these potential trade-off and will take appropriate measures (see table 5 below) in case these risks happen. And to further promote the acceptability by the communities of the technologies proposed, the programme inception phase will allow to present and discuss these solutions with the communities to reassure them and improve these solutions. The consultation made with the government and local authorities during the project preparation have concluded that the local authorities will be the contracting authorities for the infrastructures, the constructions and other supporting investments aiming at enhancing climate change resilience of local water systems in Mopti and Timbuktu regions. The local authorities will be contracting the adequate companies and individuals to carry out these tasks with the technical support of the Directorate of Hydrology. Thus, the Directorate of Hydraulics will provide to the Local authorities the required technical support for the elaboration of TORs and technical specifications, the selection of companies and individuals to contract, and the acceptance of completed work (ACW) for these water related infrastructures and works. The companies and individuals will be contracted by the local authorities.

**Table 5: Mitigation measures for potential negative trade-off of the water augmentation access technologies the programme will support**

| Water management technology | Positive trade-off | Negatives trade-off | Mitigation propositions for negative trade-off |
|---|---|---|---|
| **Water Supply and storage** | | | |
| Dugouts | Will be useful for dry season gardening. Reduces water shortage, safe, and can be used to grow fish<br><br>Can be used as reserve irrigation and drinking water for animals during the dry season.<br><br>Can be used to support dry season gardening | Animals can fall into them if they are not fenced. Can easily get polluted.<br><br>Can promote the proliferation of vector diseases like the mosquitoes and have a negative impact in Malaria control programs in this area | To minimize this risk, the project will include raising awareness about this risk in the training for livestock farmers that will be carried out under the output 2.1.<br><br>To facilitate the acceptation of this technology by sedentary livestock farmers communities, the project will also inform them about the possibility for the their animals to easily access to drinking water. For this purpose, the project implementation will ensure that the management rules of the dugouts will allow the livestock farmers to access du dugouts water during dry seasons<br><br>Concerning the water related diseases risks, the project will coordinate with the malaria and other vector born diseases programs to mitigate this risks. Indeed, these programs include arrangements for controlling water disease vector proliferation. |
| Borehole | Good for supplying domestic water use, safe for drinking, can supply water all the time, does not easily get polluted.<br><br>Water is reliable, clean and hence | Some boreholes yield salty water and hence not potable for human consumption<br><br>Inadequate knowledge on maintenance | The feasibility studies for the boreholes will take in account this risk and in case that the studies has revealed a high probability for this risk for the sites identified with the communities, the project will, with the |

| | | | |
|---|---|---|---|
| | prevents diseases.<br><br>Reduces the burden on women. | . | communities find more suitable areas or choose other more appropriate technologies. The project implementation, also, will find solutions to the issues that could arise with these changes with the communities' participations |
| Rainwater harvesting | Can be put close to houses and Can provide good clean water if the facility is covered. | Can cause water related diseases if not appropriately stored and covered | The project will link up with the health centres in those areas to find solutions to prevent these risks. |
| Wells | | Requires significant physical labour to construct. Hygiene can be poor if the well is not protected<br><br>Water contamination risks from the agriculture and livestock activities | But the communities consulted have said that they will accept this technology despite the fact that this technology requires significant physical labour. The problem may arise in the case the water level goes further down and is no longer accessible. In such case and in the case of water contamination with agriculture and livestock chemicals, the project, in consultation with the communities will close the concerned wells and support the installation of other water supply facilities that will be feasible for the project and the communities |
| Small scale dams | Good for humans and animals. Can provide irrigation during the dry season. Easy to construct and can reliably provide water (unlike boreholes that might not hit water) | The difficulty to control the water use (as it can be used for different purposes) may affect the sustainability of the water resources and the infrastructures | The project will support the establishment of the infrastructure management committee (either using existing mechanism or creating a new one) to control the water use according to rules accepted by the users. |
| **Irrigation** | | | |
| Sub-surface pipe irrigation | Save water | While subsurface irrigation delivers water to the root zones, buried, on- | These difficulties will be taken in account during the design and the implementation of |

| | | | |
|---|---|---|---|
| | | farm pipes create difficulties in addressing water application problems. | this irrigation technology in order to allow a easy access to the pipes and easy way of correction of water application rates and levels |
| Shallow well irrigation | Saves crops and enhance production | Water use can be difficult to control as it can be used for different purposes. Costly to build. | The project will support the establishment of the infrastructure management committee (either using existing mechanism or creating a new one) to control the water use according to rules accepted by the users. |
| **Management of flood waters** | | | |
| Flood water harvesting | Saves crops and enhance production | Risks of waterlogging and bund breakages<br><br>Risks of proliferation of water born disease vectors | The design of the infrastructure will allow a safe way of evacuation of the water in case of waterlogging or bund breakages<br><br>The design of the infrastructures will be done in consultation with the water vector born disease control programs and the health centres in the areas of intervention in order to find appropriate solutions to mitigate the risks of these diseases |

**COMPONENT 2: Resilience in subsistence livelihoods of vulnerable communities**

**Outcome 2:** Local livelihood systems such as agriculture, fisheries, livestock, and forest are enhanced for at least 20 communities under climate change

This expected outcome of this component is that the production in terms of tonnes per hectare of local livelihood systems such as agriculture, fisheries, livestock, and forest enhanced under climate change. This is particularly important in the target area, given already high levels of food insecurity and malnutrition, both of which will be exacerbated by the projected climate change impacts for the area. The socio-economic activities of the population include transhumance, cattle-breeding (Peulhs, Rimaibés, Bellas, Tamacheks, Arabes), farming (Bambaras, Sonrhais, Rimaibés, Soninkés) and fishing (Bozos, Somonos and Sorkos), all of whom depend on the natural resources of the surrounding ecosystems. These activities constitute baselines to track changes in livelihood enhancement activities. In order to capitalize on the investments in water infrastructure and SWC structures covered under Outcome 1, it is essential that the necessary support is provided to the semi-sedentary livestock- based agro-pastoralists and irrigation based agro-pastoralists who comprise the populations living in the programme area, so that they may improve the resilience of their livelihoods to climate impacts.

There are three inter-related outputs for the realization of outcome 2. Output 2.1 focuses on the range of fisheries, agro pastoral practices and technologies e.g. drought- and disease-resistant varieties introduced, and integrated crop-livestock production systems etc. practiced by 20 local communities to reduce their risks of climate change impacts. This will be achieved by undertaking activities that provide improved seeds, livestock and fish varieties to farmers in order to increase their yield. In support of community practices in using climate-resilient fisheries, agro-pastoral practices and technologies, extension services will be provided with skills and capacity for the distribution and use of adapted technologies. As part of postharvest management of products, village grain and seed storehouses will be established and equipped with technologies for preservation. Output 2.2 is on conservation and restoration practices e.g. conservation agriculture, agroforestry etc. introduced for forest ecosystem resilience to climate change. This will involve agro-forestry activities to increase soil and forest resilience and promoting « bourgou » fields in order to supplement animal feed. Protected areas for natural resource will be further conserved so that communities can use them to address climate change e.g. as sources of wild seeds and fruits, medicinal products etc. Lastly, Output 2.3 is on the improvement of dry-season gardening by women for food and income diversification. Other activities to support food and income diversification to enhance socio economic resilience of vulnerable communities will be implemented such as building the commercial capacity of vulnerable communities as well as supporting groups engaged in income generating activities (IGAs) to enable them to establish micro-enterprises.

Activities related to output 2.1: Climate-resilient fisheries, agro- pastoral practices and technologies e.g. drought- and disease-resistant varieties introduced and, integrated crop-livestock production systems etc. practiced by 20 local communities, will include:
Activity 1: identifying technologies adapted to the local conditions

Activity 2: Testing the identified technologies in participation with the local communities
*Activity 3:* Training and distributing improved seeds, livestock and fish varieties to farmers for trying them in their production systems *Activity 4: Design and establishment of dry season gardening schemes and training of women in how to manage them*

*Activity 54: Women in communities are supported in the establishment and management of dry season gardening schemes*

Activities related to output 2.2: Conservation and restoration practices e.g. conservation agriculture, agroforestry etc. introduced in 20 local communities for forest ecosystem resilience to climate change
*Activity 1: Communities are supported to design and construct wood lots and nurseries*
*Activity 2: Communities are trained in how to manage woodlots and nurseries for conservation purposes*

*Activity 3: Conserving protected areas for natural resources that communities can use as safety nets under climate change Activity 4: Planting « bourgou » fields in to supplement animal feed*

Activities related to output 2.3: Dry-season gardening activities by women in 20 communities improved for food and income diversification in 20 local communities
*Activity 1: Training women in market-gardening techniques for various crops*

*Activity 2: Install infrastructure to enhance market gardening activities*
*Activity 3: Women are supplied with equipment such as watering cans, spades, shovels etc. for market gardening activities*
*Activity 4: Training women in handling and marketing of their products xxx*

The consultations carried out during the project preparation have determined that the National Directorates of Agriculture, Livestock, Forestry and Fishing will be the technical partners for the implementation of the activities of this component 2 aiming at enhancing local livelihood systems such as agriculture, fisheries, livestock, and forest under climate change. The AEED (National Implementing Partner) will establish a technical committee (made up of the Technical Directorates of Agriculture, Livestock, Forestry and Fishing) in charge of providing technical support, selecting the NGOs partner and supervising the delivery of the selected NGOs. While these NGOs have been not yet identified, there are several experimented NGOs operating in the beneficiary municipality. The technical committee established by AEED will assess the NGOs (by using the UNDP NGOs/CSOs capacity assessment tool) and select the most appropriate NGOs for the implementation of the targeted activities. These NGOs will be responsible for piloting the selected climate resilient livelihoods options, selecting the beneficiary groups or individuals that will receive the grants for the implementation of the enhanced livelihood systems and. The National Technical Directorates of Agriculture, Livestock, Forestry and Fishing will be responsible for supervising the NGOs and providing technical advisory support to the NGOs for the pilot activities and the grantees through their extension staffs. Given that the Mali is currently under the modality of direct payment, the NGOs will not receive payments from UNDP, but will contract with the goods and services providers who will be paid upon payment requests from the NGOs partner. The beneficiary groups or individuals will also receive their grants directly from UNDP by quarterly instalments through the microfinance institutions and banks represented at the local and regional levels.

**COMPONENT 3: Capacity-building and knowledge generation for adaptation**

**Outcome 3:** Enhanced capacity of local institutions of 20 communities to better adapt to climate change.

Outcome 3 is on building capacity and knowledge of local institutions of 20 communities to better adapt to climate change. The outcome will be achieved through two outputs. Output 3.1 is on the knowledge and capacity of 20 communities improved to integrate climate

change risk management in their economic, social and cultural development plans (CESCDP). Output 3.2 relates to 100 community actors trained to handle climate change hazards and advance climate resilient income-generating activities. Finally there is Output 3.3 on local institutional capacity strengthened in establishing micro-credit schemes, cereal banks etc. and managing different community groups.

Currently there is little collated information available on climate-related risks in the agricultural sector, either at the national or local level. Management and dissemination of information about climate change-related risks is not carried out systematically, which further also militates against an effective response. Moreover, any lessons learned are not being captured in a fashion that facilitates broader sharing, or that casts light on ways to address an aggravation of the food security situation as a result of climate change. The programme will implement a knowledge management system, to be institutionalized within the local government administration, to capture and disseminate lessons learned through programme activities. This will also include specifically lessons learned on the additional burden faced by women and youths with respect to climate change.

This is expected to result in enhanced capacity of local institutions and communities to better adapt to climate change and improve their capacity to understand the opportunities and threats associated with climate change impacts, so as to enable and empower them to better update local development plans (PDSEC). This will involve mainstreaming climate change risk management into community economic, social and cultural plans (CESCDP). The capacity of local institutions will be enhanced in establishing micro-credit schemes, cereal banks etc. and managing different community groups such as women's groups, water users, village associations etc. to allow for the economic capitalization of the opportunities resulting from the programme activities.

The training of community groups in the management and maintenance of waterways and irrigation systems will be an important activity for the realization of this component. Furthermore, the knowledge and capacity of community actors to handle climate change hazards will also 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 services. Moreover, the programme will utilize the existing official frameworks for knowledge sharing and build on experiments and results achieved by the programme.

- *Regularly exchanging information and experience of pilot sites*: to ensure that lessons learnt 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 participating 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 the programme* which will establish a mechanism for gathering and capturing lessons learnt.

The programme will support preparation of a series of media supports, for example: reports, participatory video, regular community radio spots, documentaries, briefing papers, workshop reports and pamphlets.

- *Systematically sharing of lessons learnt under the programme with local partners, national and international agencies*.
  The programme will actively disseminate lessons and experience. Dissemination will be both general and targeted, and will be based on the communications strategy. The programme 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 programme will also regularly prepare and submit technical reports and documents on lessons learned.

Currently, the target regions of Mopti and Timbuktu have a total population of over 2,719,021 people two thirds of whom live along the Niger delta because of the economic opportunities it offers. This puts a lot of pressure on the area. Changes resulting from the programme implementation and the emerging opportunities will have the following measurable socio-economic and environmental benefits: reduction in the number of vulnerable households and communities; improvement in the surrounding ecosystem; strengthened local institutions; and effective and efficient decentralization.

Activities related to output 3.1: The knowledge and capacity of 20 communities improved to integrate climate risk management in economic, social and cultural development plans (ESCDP)*Activity 1: Training to improve the competence of 20 communities to understand the opportunities and threats associated with climate change in the long-term and the impacts of climate variability in order to better update communal development plans (ESCDP) and include climate change and support the implementation of local adaptation efforts*

*Activity 2: Preparation of local adaptation plans*
*Activity 3: Assessment of the vulnerability and local capacities to adapt to climate shocks and variability using participatory approach*
*…..*
*Activity 4: Supporting local institutions and technical support services to access and utilize climate information needed for the planning and follow-up of agricultural and pastoral activities.*
*Activity 5: Put in place inter-communal stakeholder groups in all target communities, (community organizations extension workers, NGOs, communal counselors)*

Activities related to output 3.2: **100** community actors trained to manage climate change hazards and in income-generating activities (IGA) *Activity 1: Assess and identify appropriate learning platforms and systems taking into account already functional platforms and systems*
*Activity 2: Create networks between NGOs and relevant local/district/regional institutions*
*Activity 3: Provide support for operationalizing knowledge sharing platforms and systems (e.g. regular climate forums)*
*Activity 4: Production and printing of lessons learnt documentation*
*Activity 4: Dissemination of lessons learnt*

Activities related to output 3.3: Local institutional capacity strengthened in 20 communities in establishing micro-credit schemes, cereal banks etc. and in managing different community groups
*Activity 1: Organisation of series of workshops to strengthen local institutional capacity*

*Activity 2: Communities are supported in the establishment of and implementation of micro-credit schemes*

*Activity 3: Communities are supported in the development and management of cereal banks*

The AEDD will be the direct executing agency for this component. The AEED will contract with the relevant goods and services providers (vendors) for the successful implementation of the activities of this component. The vendors will be paid directly by UNDP upon a request of payment made by AEED. The AEED will contract with microfinance institutions who will also receive on a yearly basis directly from UNDP the funds necessary for the establishment and implementation of micro-credit schemes. The Ministry of Finance (through the Division of Control and Surveillance of the Decentralized Financial Systems – CCS/SFD) will be supervising the microfinance institutions.

If successfully implemented, the AF financed programme has the potential to develop an enabling environment with innovative mechanisms to build greater resilience and institutional linkages that improves the effectiveness, equity and sustainability of local adaptation actions and integrates them into local development planning practice. 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, in support of Component 1 (which is to enhance water control measures in vulnerable water buffer zones), 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. Meanwhile Component 3 is on capacity-building and knowledge generation for adaptation required by the community and local institutions for the sustainability of the actions. In line with the National Food Security Strategy, Mopti and Timbuktu including the Faguibine System constitute an important hotspot for productivity under multiple production systems in the northern region which once constituted a major food production area, including the second area of fish production in the country. The productivity of the Faguibine ecosystems and its potential of rendering services is mainly determined by the scope and duration of water availability. These variables are determined, in turn, by the water level in the Niger River (height and duration of the flow) and the facility with which water can enter the system through natural feeding canals of the lake systems. The anthropogenic causes in the deterioration of the lake are, among others:

- The decrease of rainfall which contributed in diminishing the height and duration of water in Niger River;
- The obstruction of canals by silting following the effects of climate change and their poor management because of human activities (agriculture, livestock, fishing, etc.);
- Abusive uptakes of water upstream.

The programme will contribute in tackling this by:

- Restoring natural feeding canals and taking adaptation measures taking into account future rainfall and water flow scenarios;
- Ensuring a better training of populations for applying practices which preserve the state of the feeding canals;

There are several national policies and strategies for environmental and rural development which include: the National Strategy for Climate Change; Action Plan of the National Strategy for Climate Change; the National Programme for Adaptation to Climate Change (NAPA); The Agricultural Orientation Law (LOA); the National Strategy for Rural Development (SNDR); the National Strategy for Food Security; The National Food Security Programme (NASP); Programme of Action for the Integrated Management of Water Resources (PAGIRE); and the Programme for Sustainable Land and Water Management (GDTE). In support to the human and institutional capacity that already exists, this programme will develop knowledge to further enhance current capacities.

Furthermore, the Programme Coordination at national level by the Sustainable Development and Environment Agency (AEDD) will ensure that the programme reflects national priorities and that the results will contribute to the achievement of these priorities. The support provided by UNDP will strengthen AEDD capacity of mobilizing and managing adaptation programmes which will be an important asset in the future as an implementing agency for adaptation programmes.

At the sub-regional level, the OMVF already has expertise in the management, implementation and monitoring of projects. UNCDF, WFP and UNDP have also contributed to strengthening the capacity of elected representatives in local development that will integrate climate change into their development plans. Finally, there are existing capacities for programme execution whose capacity in turn will be enhanced through a learning-by-doing approach as Mali seeks to be an NIE in future. The Agency for Sustainable Development has a solid experience and has developed in-house and national partners' capacity for the implementation of International Conventions such as the UN Framework Convention on Climate Change, and to ensure their implementations, monitoring and evaluation.

- ***Describe how the programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities.***

Specific vulnerabilities to unpredictable changes in water and other natural resource availability have been detailed, and in particular the vulnerability of the poorest households. The risks of desertification, loss of biodiversity, malnutrition, food insecurity and ultimately migration have also been highlighted. Just like the impacts of climate risks are highly asymmetrically distributed among the population and institutions of governance, so too are the benefits of adaptation measures. Thus, the different categories of social, economic and environmental benefits are weighed against the different targeted groups of vulnerable communities and institutions in order to capture the wide range of benefits to communities and the institutions, by creating the enabling environment through this programme. Following the cross-cutting nature of some of the benefits temporarily and spatially, some will occur in more than one category. Where available, some baselines are provided to weigh the incremental benefits.

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.

**Table 5: Economic, social and environmental benefits**

| Benefits | Programme (Over 3 Years) | Baseline |
|---|---|---|
| **Social Benefits** | | |
| a) Vulnerable Households<br><br>b) Communities | • Improved food production by about 140,000 farmers in the regions of Mopti and Timbuktu<br>• Improvement of nutrition in about 50,000 households<br>• Greater mutual trust among populations and the communities in the framework of climate change<br>• Reduced social conflict among the stakeholders sharing the | If integrated water/agriculture adaptation actions are not implemented, the population of the programme area will continue to experience increasing vulnerability and growing insecurity due to decreased availability of water. Conflicts between crop and livestock uses. |

| | | |
|---|---|---|
| c) Local Government Institutions and National Government | common resources (e.g. water, forest etc.) especially among semi-mobile pastoralists and sedentary farmers because of increased availability of water and livestock fodder<br>• Better community cohesion through planning and working together<br>• Increase solidarity through the creation and enhancement of 50 women groups in the two regions<br>• Reduction of risks of conflicts among 25 communities<br>• Enhancement of social cohesion and autonomy for 60 management committees and 10 community radio stations<br>• More community empowerment achieved through the participatory approach in general, through enhanced knowledge and ability to act on climate change, and through implementation of the community-based early warning system.<br>• Low risks of conflicts<br>• Reduction in migration, especially for young people in search of new prospects and means of subsistence<br>• Greater mutual trust among the communities and communes in the framework of climate change<br>• A knowledge base is set up to enable best practices to be identified and replicated<br>• A multi-partner cooperation framework is supported and tested<br>• Decentralized departments (Environment and Agriculture) get more strategically involved, their role is identified and reinforced | This will damage the social fabric in rural areas and exacerbate existing migration to urban areas, thus resulting in increased urban joblessness and poverty. Women and children will be particularly hard hit.<br><br>Vulnerable rural communities and their associated livelihood would diminish over time, with loss of economic productivity and increased migration to urban areas, resulting of increasing pressure on already constrained urban economies. |
| **Economic Benefits** | | |
| a) Vulnerable Households | • Job opportunities through the programme activities (, on one hand, and IGA and other activities with multiplier effects for 140,000 households<br>• Increase in income through improved agricultural | Highly depleted fish population<br><br>Highly depleted cereal production;<br><br>Highly depleted forests and |

| | | |
|---|---|---|
| b) Communities | productivity and commercialization of woody and non-woody products<br>• Stabilization of food supply through increased and regular flow of water for food production<br>• Support women activities in market gardening with water access and provision of farming tools like watering cans etc.<br>• Diversification of livelihood activities e.g. fishing, forestry, livestock etc. improving safety nets for vulnerable households.<br>• Increase in productivity (yield/ha) of production systems following improvement in the effectiveness and efficiency of resource-utilization<br>• Increase in market access for women who are currently limited at the marketplace<br>• The increased water storage capacity of the channels and waterways, and the associated irrigation and introduction of climate resilient production practices will support the agro pastoralist community to change or/and expand the current hectares of land used from subsistent rain-fed production to irrigated vegetable production. Farmers will be able to produce at least twice a year. Households of agro-pastoralists using the water supply will increase their production by several folds.<br>• Risk of crop failure reduced: In areas where SWC on farmlands and flood diversion for supplementary irrigation is introduced, the risk of crop failure is reduced, crop yield is expected to increase, and availability of animal feed is increased (crop residue and pasture land carrying capacity). The development and dissemination of drought-resistant and early-maturing seeds will similarly reduce the risk of crop failure. | pastures |

| | | |
|---|---|---|
| c) Local Government Institutions and National Government | • The dissemination of drought-resistant livestock and appropriate livestock management techniques will enhance the economic benefits of the off-farm SWC, and, together with the improved extension services, will result in improved rangeland management in the programme area, with associated economic and environmental benefits.<br>• Increase revenue through local taxes following the improvement of income-generating activities by the communities<br>• A concerted planning on climate change, leading to investments designed and selected in optimal and perennial ways<br>• Reduction in food imports and greater independence from international prices<br>• Improvement in the GDP following increased productivity of the rural economy<br>• Improvement in economic decentralization and distribution of the wealth of the nation | |
| **Environmental Benefits** | | |
| a) Vulnerable Households and Communities | • A better conservation of natural resources (waters, land and forests) which deliver various environmental services (water purification, transportation, non-woody produce, less degraded lands etc.)<br>• Improvement in the availability of water<br>• Reversing degradation of natural resources such as land, water, forests and biodiversity will improve the livelihood of the programme's most vulnerable people. Introduction of multipurpose trees including forage and wild fruit trees within catchments and woodlots will reinforce communities' coping mechanism during times of drought.<br>• Increased regularity of water | In the absence of the programme increased climatic variability, reduced rainfall and increased incidence and severity of drought will exacerbate existing pressures on ecosystems already stressed through land degradation, soil erosion and reduced soil moisture. This will reduce the availability of ecosystem services and further hamper precarious livelihoods.<br><br>There will be ongoing and increased out-migration in search of animal feed and water and the associated spread of slash which will have negative impacts on natural resources and on |

| | | |
|---|---|---|
| | availability by securing water ways and channels from erosion and siltation<br>• Increased protection against desertification and land degradation<br>• Improvement of aquatic habitats with the rehabilitation of the riparian zones<br>• Reestablishment of fish stock and fisheries with the improvement of water flow into the Faguibine systems, and breeding areas in the riparian zones<br>• Increase in forest cover and stabilization of dunes with vegetation planting, thereby decreasing the rate of desertification<br>• A better conservation of natural resources resulting in a better community resilience to climate change<br>• Establishment and rehabilitation of nursery sites and tree planting, and expanding multipurpose trees in household woodlots and community enclosure areas, will enhance ecosystem services.<br>• A better understanding of the interaction between climate, environment and human factors which impact the sustainable use of natural resources<br>• The programme will result in increased carbon sequestration through integrating tree planting within the SWC works outside of farm lands and by expanding temporary and permanent enclosures, which will enhance vegetation regeneration. Increase in crop plant coverage and density will also contribute to carbon sequestration from agricultural activities.<br>• Environmental degradation will be reduced by reducing vulnerable communities' high dependency on natural resources for fuel wood, construction and other | ecosystem functioning.<br><br>Social conflict between different resources users such as between pastoralists and sedentary farmers will increase.<br>Erosion and siltation of the water ways and channels<br>Highly depleted fish population |

| | | |
|---|---|---|
| | purposes, through tree planting and woodlots | |

The socio-economic activities of the population include transhumance cattle-breeders (Peulhs, Rimaibés, Bellas), farmers (Bambaras, Sonrhais, Rimaibés, Soninkés) and fishermen (Bozos, Somonos and Sorkos), all of whom 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.

Changes resulting from the programme implementation will easily have the following measurable beneficiaries in economic, social and environmental terms; (1) vulnerable households, (2) communities, (3) communes and local elected governments and (4) the national government and decentralized structures.

A key aspect of the programme is to develop the capacity at the 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 population 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 built around their local knowledge and capabilities. Triggering social cohesion and community empowerment are crucial benefits of particular importance in shared responsibility in addressing a common problem. 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, and this in particular through a number of committees and groups, including:

- A community or management committee, deciding on the prioritization of works, the selection of vulnerable households to participate in the 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;
- Savings groups in the context of micro-credit.

If it is found feasible by the programme, it is expected that a community-owned radio station (initially supported under the programme), will produce multiple additional empowerment

benefits.[30] This is particularly crucial for the dissemination of information, such as for example, from the National Meteorological Services in orientating farmers in their cropping and grazing practices following the perturbation of the cropping calendar under climate change. Not only could this mitigate climate risks, but also contribute to responding positively to emerging opportunities. Evidence from many countries also demonstrates benefits such as increased capacity to find and retrieve relevant information and to discuss different views and interests from many different groups, including the illiterate and those that exclusively speak their local language; increased visibility and transparency of activities and developments, including with respect to the use of funds; and in consequence, improved accountability of community leaders and local government.

- ***Describe or provide an analysis of the cost-effectiveness of the proposed project***

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 Management (PAGIRE), the Programme for Sustainable Land and Water Management (GDTE), NAPA, as well as the recent Policy, Strategy and Plan of Action on Climate Change. This programme will thus help with the implementation of the necessary actions to ensure the achievements of those national priorities as reflected in the various national and other evaluation frameworks. 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. On such basis, various options and measures will be identified and necessary investments integrated in the revised CESCDP.

The proposed interventions outlined in this programme are based on the NAPA, the National Policy, Strategy and Action Plan on Climate Change for Mali, as well as through a thorough consultation of the stakeholders both at the national level and the target regions to determine the interventions which are most critical for these regions. A number of alternative options have been assessed during the programme design to strengthen adaptive capacity to climate change and to ensure the most cost-effective responses as articulated in the NAPA and the National Policy, Strategy and Action Plan on Climate Change. 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. The irrigation application method selected for the irrigation schemes are flood and surface irrigation application methods which are easily manageable, provide flexibility on the type of traditional cropping pattern practiced, have a low energy requirement, are not capital intensive and therefore remain affordable to communities. This is in contrast to other (such as drip) irrigation systems that require high investment cost for purchasing the equipment, and high technological expertise for installation, operation and maintenance.

Strengthening the resilience of local communities to climate change impacts in the Mopti and Timbuktu regions of Mali are of highest immediate benefits for the realization of the MDGs especially on Food security and poverty reduction. The proposed AF programme will therefore focus on strengthening the resilience of the local water systems as well as developing the adaptive capacity and strengthening livelihood resilience through practical and locally appropriate adaptation measures as cost effective options.

For Component 1, the adaptation actions will include the removal of silt from the currently blocked channels to enhance water infiltration and retention within the Faguibine system.

[30] 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.

There are options identified in carrying out the activity; a) using engineering techniques and b) using manual labour provided by the local communities. For the first option FSDA (OMVF) has the equipment in place acquired through other project fundings such as the Norwegian Fund for unblocking the main channels feeding the Faguibine system. They also have trained personnel in using the equipment. With FSDA having direct roles and responsibilities in the implementation of Component 1, this provides a cost-effective way of excavating the main channels instead of using human labor or hiring a contractor from outside of the region. In unblocking the smaller channels and water ways that feed production systems and community areas, human labour provided by the local communities will be a more cost-effective approach than using heavy equipment. Drawing from the incentive scheme of WFP on 'food-for-work' programme, this approach offers income opportunity to the local community.

Thus, the selection of technology for clearing and cleaning the channels in securing regular flow of water is based on considering the utilization of the locally available labor either through the replication of the 'cash-for-work' approach of WFP in order to improve cash flow to communities, or limited equipment inputs. Where there is inaccessibility to heavy equipment or this could result in more environmental damage to surrounding biodiversity, the human labor through the 'cash-for-work' scheme will be employed. That would also enhance the skills of local experts and farmers in undertaking the design and construction of similar activities. That will also enhance the capacity to operate and maintain the system for sustainability and cost-effectiveness in contrast of requesting for expert services from abroad and outside the region.

The rehabilitation of the surrounding degraded lands especially around the Faguibine system is another important adaptation action. This will involve reforestation of the surrounding woodlands, which currently serve as sediment troughs for wind erosion that get deposited in the channels as silts blocking the channels and waterways. The seedlings used for reforestation will be from indigenous species collected locally. All these will be capitalizing on the local knowledge of the communities in nursing and managing the tree species adapted to the local conditions offering cost-effective solution in restoring the degraded land. This is a cost-effective approach rather than using exotic tree species even if they are fast-growing species.

Component 2 that addresses the resilience in subsistence livelihoods of vulnerable communities will be achieved cost-effectively through the implementation of some adaptation actions that enhances the production of local livelihood systems such as agriculture, fisheries, livestock, and forests. The AF programme will undertake the mobilization and engagement of local communities and their various committees, groups and associations as cost-effective way of coordinating their activities and minimizing trade-offs and conflicts under multi-purpose and multi-stakeholders usage of the water resources without compromising the resilience of the system. Experiences from other places have shown that both the extent of long-term benefits, and in particular their sustainability, are directly related to the community ownership promoted through such mobilization efforts and strengthening of community-based groups. Diversification of local livelihood strategy is an adaptation action that will be undertaken in increasing the resilience of subsistence livelihoods cost-effectively. Not only does this reduce poverty through income-generation actively, it also increases food security and improves the nutritional level of households. The co-benefits emerging from the actions underscore the cost-effectiveness of the action. Providing the communities with range of fisheries, agro pastoral practices and technologies e.g. drought- and disease-resistant varieties, integrated crop-livestock production systems etc. in taking advantage of increased water availability to boost productivity, is a cost-effective investment instead of introducing activities outside of their local knowledge-based. For example, according to the FSDA report, the current productivity of some base crops in average stands at rice 4t/ha,

wheat 2t/ha, sorghum 1t/ha and maize 2t/ha which are currently very low. With the proposed adaptation measures there are potentials to increase productivity by about three folds. This is remarkable because the intervention with the adaptation actions first of arrest the declining trend in crop yield under climate change, and reverses it to increasing yield. This is more cost effective rather than allowing the communities to continue to rely on low-producing technologies. The implementation of adaptation actions such as conservation and restoration practices that involve agro-forestry activities to increase soil and forest resilience and promoting « bourgou » fields in order to supplement animal feed are cost-effective measures rather than purchasing inorganic fertilizer and purchasing concentrates as animal feed.

At present, consultations indicate that the programme will directly benefit about 28,000 households in the two selected regions. With an average size of 5 persons per household and taking into account the partial overlapping over months and years of activities, this will translate into about 140,000 direct beneficiaries. Beside the direct beneficiaries, indirect beneficiaries include the large majority of the populations in the targeted communities.

There will be increase in agricultural, pastoral and forestry productivity through the implemented measures for adaptation to climate change that helps reduce climate hazards, and water losses. That will induce greater agricultural efficiency. Complementing rainfall agriculture with irrigated agriculture in the zone will result in crop yield increase from 1.5 to possibly (in the best case scenario and environment) 5.5 tons per hectare in contrast to the less than a ton per hectare currently.

Planning of communal development is a participatory and iterative process which mobilizes the populations, the elected officials, and the technicians intervening in the communes. The programme will build on the experience of UNCDF and UNDP in participatory planning in order to better integrate the issues of climate change, water management strategies, and vulnerability into the local government programmes. In addition the programme will use the tool "Climate Proofing" developed by the NESDA. This analytical tool enables to take into account the climate information in the CESCDP. These various analyses and planning tools will ensure a better anchoring of the climate change problem, of water management and vulnerability in the CESCDP. This is currently not the case in Mali. The few adaptation response measures implemented in Mali to date have been quite isolated and site specific. They tend to be ad-hoc and small-scale interventions with less than adequate strategic alignment, particularly on an ecosystem and/or eco-region level. These fragmented responses may address an issue or yield an impact in a given locality or sector, but they often lack consideration of generating ecosystem-wide resilience to climate change. The approach recognizes that small, ad- hoc activities lead to externalities and are hard to bring to scale.

- ***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 ratified the Kyoto Protocol in 1999 after signing the United Nations Framework Convention on Climate Change (UNFCCC) in 1994. As required by the UN Framework Convention on Climate Change, Mali prepared the first National Communication in 2000 and completed the National Adaptation Plan of Action (NAPA) in 2007 where national priorities for adaptation were identified and classified according to the vulnerability to climate risks. Within the development plan to improve economic growth and reduce poverty, Mali prepared the 'Growth and Poverty Reduction Strategy Paper' (GPRSP) in 2006 to cover the period of 2007-2011. The country has also elaborated a long-term national development 'vision'

referred to as ‘Mali 2025’ whose goal is to promote redistribution of growth and poverty reduction while boosting the productivity of sectors. The first decade of the national development plan is targeting the achievement of the Millennium Development Goals (MDGs). In specifically addressing food security, Mali has developed a National Strategy for Food Security (NSFS) in 2002 together with a National Programme on Food Security (NPFS) covering the period of 2007 – 2011 and implemented by a Food Security Commission.

The Ministry of Agriculture has also put in place the Agricultural Orientation Law (AOL) which aims to integrate a long-term, sustainable perspective into the agricultural development policy. Mali has also developed a National Policy for the Protection of the Environment in 1998 recognizing environment as a crosscutting theme crucial for sustainable development and food security.

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

This 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 anchored on the priorities outlined in the National Adaptation Plan of Action on Climate Change (NAPA). The programme provides, among other things, for activities for water control, dissemination of seeds adapted to drought conditions, diversification of income generating activities, management of natural resources and promotion of renewable energy. All these activities support the implementation of the following NAPA project priorities:

1. Agricultural extension of improved food crop varieties adapted to climate change
2. Agricultural extension of animal and plant species with highest adaptation potentials to climate change
3. Promotion of income-generating activities and development of mutual assistance
4. Rehabilitation of aquaculture sites in Mali
11. Implementation of a runoff water harvesting system and restoration of water points (backwater, ponds and lakes)
12. Sensitization and organization of the population for the preservation of natural resources (elaboration of local conventions on reforestation and agroforestry)

The proposal also is in compliance with the Agricultural Policy Law (APL) which is aimed at promoting a sustainable, modern and competitive agriculture, mainly based on family-size 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 this proposed programme

The recent National Irrigation Strategy urges for improved capabilities to maintain irrigation agriculture as a means of increasing agricultural productivity and reducing dependence on rainfall. The goals of the National Irrigation Strategy are promoted through Component 1 of this me. 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 improve market access to small producers.

The proposal also supports the achievement of the objectives of several others national policies and strategies for environmental and rural development which include: the National Climate Change Policy the National Strategy for Climate Change; Action Plan of the National Strategy for Climate Change; the National Strategy for Rural Development (SNDR); the National Strategy for Food Security; The National Food Security Programme (NASP); Programme of Action for the Integrated Management of Water Resources (PAGIRE); and the Programme for Sustainable Land and Water Management (GDTE). All these policies, strategies and programmes share with this proposal the common objectives of advancing the integrated management of water resources, the strengthening of rural communities' livelihood, the improvement of food security, the economic and social development and the preservation of the ecosystems.

Additionally, the proposal constitutes a support to the missions of the Sustainable Development and Environment Agency (AEDD) and the OMVF which have in charge respectively to ensure the mainstreaming of climate changes concerns in the development policies and strategies and the management of water resources in the Faguibine and its connected ecosystems.

Furthermore, the Programme Coordination at national level by the Sustainable Development and Environment Agency (AEDD) will ensure that the programme reflects national priorities and that the results will contribute to the achievement of these priorities. The support provided by UNDP will strengthen AEDD capacity of mobilizing and managing adaptation programmes which will be an important asset in the future as an implementing agency for adaptation programmes.

The programme also follows the national priorities in terms of zones of intervention as indicated in the framework of Initiative 166 (the 'Poorest Communes') of the National Food Security Programme (NFSP). More than half of those communes, most vulnerable to climate change and food crisis, are located in the regions of Mopti and Timbuktu (94/166).

The programme is also in direct line with the Ten-year Plan for the achievement of the Millennium Development Goals (2006-2015).

Out of the three objectives/components proposed by this programme, the first and second are focusing on investment and resilience activities while the third is on capacity building and knowledge management.

- ***Describe how the project / programme meet relevant national technical standards, where applicable.***

The programme outcomes and outputs meet the standards established by Government, in particular of the Ministry of Environment and Sanitation (MES), of the Ministry of Agriculture (MA), and of the Ministry of Energy and Water. It is in this framework that the programme activities comply with the standards established by the government.

- National Environmental Impact Assessment Procedures and Guidelines:
  The programme will be coordinated by the Ministry of Environment and Sanitation (AEDD) which is responsible for the environmental impact studies for the entire country. The programme deals with all of the priorities identified in this guideline.

- Standard Design and Procedure in Construction of Water Works:

Mali has elaborated an Integrated Water Management Programme that defines the best way in the use of water resources. There is however no implementation plans for which this programme will fill the gap and lead the way implementing the specified standards. Also the Ministry of Energy and water is a member of the Steering Committee of the programme. Its department has been fully involved in Programme proposal and is also involved in its implementation. Following the approval of the programme, all studies and designs of the water infrastructures components will be submitted to the Department in charge of Water Resources for technical review and approval.

- Procedures and Standards in development and dissemination of improved seed such as drought and disease resistant and early maturing crops:
  The overall responsibility of producing service seed, the identification and development of drought and disease resistant and early maturing crops is the responsibility of the National Institute of Rural Economy, while promotion and distribution using the extension network is under the Seed Unit of the same Institute.

  On the other hand, to oversee imported seed quality, conduct pest risk analysis and issue phytosanitary certification is the responsibility of Regulatory Service Department of the Ministry of Agriculture which is member of the Steering Committee of the programme. If there is importation of plant materials (improved seeds), live animals (poultry) and other genetic materials under the programme, the programme management will comply with the phytosanitary and zoosanitary standards of the country.

- Standards of the Meteorological Stations:
  There are national standards for meteorological stations and the equipments are fully tested and have demonstrated good results. The programme will capitalize on the quality of these equipments and the data collected. However, the improvement of currently installed meteorological equipment will be jointly supported with the national Meteorological Directorate in order to maintain uniformity with the World Meteorological Organization (WMO) standards for the meteorological stations.

The programme will 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. For the development of nurseries for the re-afforestation of the river system the programme will put an emphasis on local and traditional species capable to adapt and having a good nutritional value.

- ***Describe if there is duplication of project/ programme funding sources if any.***

This programme has been designed in full compliance with Mali's Policy, Strategy and Action Plan on Climate Change. The purpose of this strategy is to build synergies and complementarities in all projects that are designed and implemented in the framework of adaptation strategies in the key sectors. Compliance with this strategy, therefore, is a pre-requisite for Government and compliance of this programme with this requirement has been checked and confirmed by the relevant authorities who oversee the implementation of the climate change strategy. This is crucial for the avoidance of duplication. In alignment to the national vision, the programme to be financed has been elaborated from a starting point that included the mapping of ongoing and planned project interventions on environment and development as well as climate change specific projects and programmes nationwide as well as other relevant project activities in other thematic areas but within the proposed programme sites (See Table 6).

**Table 6 Climate Change Initiatives in Mali**

| Project/Programme | Status | Implementation Organizations | Sites of Intervention | Link with the proposed programme |
|---|---|---|---|---|
| **1. Environment – base Projects** | | | | |
| 1. Project Support for the Restoration of the Faguibine System | Ongoing (2010-2011) Norwegian Funding | - Office for the Development of the Faguibine System (OMVF) | Goudam circles, Dire, Timbuktu | The program of the Adaptation Fund (AF) will complement the activities of deepening of the channels and dune fixation on sites not covered by the project for the restore of the Faguibine system. In addition the AF program will benefit from the capacity building of the OMVF staff |
| 2. Sustainable land management | | World Bank – GEF Funding | Sikasso, Mopti Timbuktu etc. | -The AF program will support this project to mainstream climate change in its implementation. Concretely, this project is supporting farmers training in the SLM and sustainable agriculture practices. The AF program will support the integration of climate risks assessments and adaptation options in the SLM training. |
| 4. Restructuring agricultural competitiveness and diversification project (PCDA) | Ongoing (2006-2012) | World Bank | Sikasso Bamako Segou | The PCDA aims to promote commercial agriculture. To do this, it supports the most promising sectors to make them more competitive while encouraging diversification.<br>The most promising sectors for the region of Mopti are:<br>• Onions and Shallots;<br>• Livestock / Meat;<br>• Milk;<br>• Fish<br>The AF program will use the experience and knowledge drawn from the PCDA project and expand the PCDA activities (through the components 1 and 2) in the other communes not covered by the PCDA. |
| 5. Mali Rural Community Development Project | Ongoing (2006-2013) | World Bank | Mopti Timbuktu Ségou Sikasso | - Opportunity to mainstream climate change into sustainable land management using AF proposed programme |

| 2. Adaptation Projects | | | | |
|---|---|---|---|---|
| 6. Enhancing Adaptive Capacity and Resilience to Climate Change in the Agriculture Sector in Mali | 2010 ($3Million) | UNDP – LDCF | Mopti<br>Other national locations | The activities of this project include:<br>• The water control;<br>• Making available to the population of seeds, animals, fish and plants adapted to climate;<br>• Training of people in farming techniques resilient to climate change;<br>• The realization of alternative income generating activities such as: The market gardening; The small ruminants; Fish farming; Agroforestry activities; Activities of transformations, conservation and marketing of local products<br>-Replication of lessons learnt from the pilot activities of the project in AF proposed programme<br><br>While the AF programe will intervene in the region of Mopti, they are not intervening in the same communes. But the AF programme will take in account the lessons and experiences learnt from the project |
| 7. Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas | 2009 ($2.11Million) | FAO - LDCF | Mopti<br>Kayes<br>Sikasso | The activities of this project are:<br>- Integrated Pest Management (IPM),<br>-the integrated management of soil fertility,<br>- diversification of cropping systems,<br>- connection of small farmers to local and regional markets,<br>- monitoring of the environment and risks to human health;<br><br>While these 2 projects are working together in the region of Mopti, they are not intervening in the same communes. But the AF programme will take in account the lessons and experiences learnt from the project |

| | | | | |
|---|---|---|---|---|
| 10. GCCA in Mali: CC integration in the development strategies and management of forestry sector | 2010 ($7.68Million) | Global Climate Change Alliance | nationwide | The AF programme will take advantage of the results of the forest inventory and reforestation activities conducted by the GCCA at different sites. |
| 12. Strengthen the adaptive capacity of communities in the Faguibine Systems from the impacts of climate change | | World Food Programme | Faguibine | This project and the AF program are sharing the same objective of preserving the Faguibine system but they are not working in the same communes. However, the AF program will take advantage of the lessons learnt from Food for work activities implemented in this WFP project in the activities for improvement of the functionality of the waterways and channels of the AF program |
| **3. Integrated Water Catchment Management Projects** | | | | |
| 15. Management of Faguibine ecosystems (Mali) for human wellbeing: adapting to climate change and avoiding conflict | Just approved (Not yet started) | UNEP – UEMOA Funds | Faguibine | This project and the AF program will work in different commune. However they will exchange experience and knowledge during their implementation |

These projects were identified and reviewed for their objectives, scope of intervention, duration and details of each activity conducted. The mapping provided the landscape of the types of interventions in guiding the establishment of synergies and complementarities with the proposed programme activities for capitalization and re-enforcing previous interventions and to make sure there is value-added and no duplication. The matrix from the mapping was presented to the national government and the designated government department responsible for climate change activities (AEDD), who consequently have confirmed their satisfaction that there is no duplication by the proposed programme. On the contrary, it was evident by the mapping exercise that there was indeed a very weak and sometimes non existing relationship between ongoing project interventions thereby limiting the sustainability of the actions. There was also no proper coordination mechanism for the integration of the multiple project interventions in the same locality, and linking them to national programmes. This will be fully addressed and corrected with and under the current programme, which is also to be a platform for the government (and the Ministry and AEDD in particular, as well as the National Climate Committee) to ensure enhanced inter-project/programme coordination.

The government of Mali underscores the re-establishment and maintenance of water systems in the regions of Mopti and Timbuktu in adaptation to climate change and in restoration of economic development activities in a critical area of great productivity potential (agriculture, livestock, fisheries, forestry etc.) in the centre of the country. Hence the Faguibine System Development Authority (FSDA) was created in 2006 with the following objectives: (1) the maintenance of the waterways feeding the Faguibine system; (2) the development of crops and animal production and fishery potentials; (3) the implementation of activities likely to increase the productivity of production systems as well as income for the rural populations; and (4) environmental protection of the region especially combatting desertification.

The FSDA has limited technical and financial resources to implement the scope of the operations needed to fulfill its mandate. FSDA therefore works in close collaboration with partners contributing resources, technical and capacity support through project activities as identified in the mapping. To avoid duplication therefore, the proposed programme will, in its Faguibine activities, be integrated into the FSDA programme. Common actions will be undertaken using approaches that expand the number of beneficiaries using cost effectiveness analysis. For example, the Norway financed Project for the Rehabilitation of the Faguibine System (PARF) plans to acquire some heavy equipment (hard measures) in the maintenance of waterways. This could be complemented on a case-by-case basis with the community work approach commonly used by World Food Programme (WFP). Although this approach is labour intensive, it however allows the communities to earn some money that could improve family income for diversification of livelihood.

The proposed programme builds on the achievements and experience of the Territorial Collectivities and Local Development (TC-LD) Project, a joint UNDP and UNCDF project in the regions of Mopti and Timbuktu. The aim of the TC-LD project was to build the capacity of communities including their institutions in the area of micro-projects and structuring investments. Thanks to the level of funding, 134 local government institutions out of the 159 in the two regions of Mopti and Timbuktu benefited in the improvement of their capacity to organize, plan and implement local government development programmes, mostly programmes to fight poverty, improve access to basic social services, and capacity building in sustainable natural resources management. The proposed Programme will capitalize on the approach for the delivery of adaptation capacities to the communities, and for the operationalization of the national policy, strategy, and action plan for climate change in Mali. Working through this local government instrument will enhance the adaptation capacity of local institutions in 40 of the poorest communes of the Mopti and Timbuktu regions.

Drawing from the activities of specific projects from the mapping, duplication will be avoided. UNEP is also providing some preparatory support to the Government of Mali for the Faguibine Rehabilitation Project that is presently in its first phase with the financial support of the government of Norway. The following technical and normative (preparatory) activities are being conducted:

- supporting and strengthening OMVF efforts with the rehabilitation of the water network of the Faguibine system;
- quantifying the potential ecosystem services rendered by the Fagubine system;
- strengthening the institutional, organizational and technical capacities of OMVF;
- supporting a national dialogue on water policies and on the effects of climate change and human activities on the potential services rendered by the ecosystems of the Niger River including the Faguibine system.

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

The proposed programme provides the opportunity to mainstream climate change adaptation into the comprehensive programme being developed for the Faguibine system.

There is also limited Norway financing for the Rehabilitation of the Faguibine, part of which is managed directly by OMVF, and the other part by UNDP. The 12-months project was launched in February 2011 with the aim to contribute to food security and improve living conditions in the zone covered by OMVF. The specific objectives of the project are:

- ensure optimal and sustainable flow of water into the lakes by rehabilitating and optimizing the water system of the Faguibine;
- increase productivity of production systems and income of producers;
- improve food security and the living conditions of the beneficiaries.

Programme activities will be carried out through the following components:

- Excavating and clearing of water channels feeding the system to enable water to fill the system with the objective of re-stimulating livestock practices, agriculture, fishery and forestry;
- Improving agricultural development, by increasing exploitable and harvestable areas aiming at increased revenues of beneficiaries;
- Environmental protection through dune and bank stabilization
- Capacity strengthening of OMVF through provision of equipment (heavy machinery, etc.) and strengthening the capacity of OMVF staff.
- Strengthening institutional and community capacity in hydrology and technical feasibility and environmental impact.

In general, although the projects identified in the matrix are in the same regions, they are being conducted on totally different sites and very limited in scope compared to the vast land size and population of the northern regions. For example the UNDP-LDCF project is limited only to the Mopti region and just one community in the region of Timbuktu. Similarly, the FAO-LDCF project only targets a very limited number of communities in the Mopti region. It should be noted that both UNDP and FAO LDCF projects have all held their kickoff workshops in October 2011 to identify concrete adaptation activities on the sites selected in consultation with the local communities and with the participation of stakeholders directly involved in the proposed AF financed programme. Thus, collaborative planning started in the conceptualization of this programme in building on the complementarities with ongoing projects and programmes.

In summary, each of the projects in the matrix has its own focus, guided by the comparative advantage and the mandate of the executing agencies. The activities of this proposed AF programme are designed to promote the success of the programme as a whole and drawing from the lessons of other projects. The value-added by 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 small-scale activities, implemented with community participation and communal management in order to ensure sustainability of the interventions. The programme will capitalize on the experience of UNCDF / UNDP and AEDD in participatory planning to better integrate climate change issues, strategies for water management, and vulnerability in the policies / programmes and legislation.

- ***If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.***

Recognizing the importance of knowledge management (KM) to enhance impacts and facilitate replication, this programme integrates various KM related actions. During and after the AF programme, Malians will know more about climate change and its likely impacts on

the country's northern regions including the Faguibine System, as well as know about the range of measures to enhance resilience of community livelihoods and understand the importance of undertaking management planning that integrates climate risks. Lessons will be documented by programme staff who will be supported by a Communications Specialist. Programme learnings will be disseminated through a number of appropriate means to various target audiences and be guided by a programme communication strategy. For example: 1) Radio and TV programmes, leaflets and posters will target the public with special attention to audio-visual presentations in the Malian language; 2) training modules generated from programme case studies and demonstrations will be used well after the programme ends by young Malians through units developed for the school curriculum ; 3) the OMVF website will contain specific programme reference material and links to other relevant CCA projects and programmes within the Faguibine System and worldwide where applicable;4) national level training workshops will be held to facilitate peer-to-peer exchange of knowledge.

This programme will generate knowledge and develop basic tools and information to ensure that climate risks are incorporated into planning and management processes of local institutions and local governments in Mali. It will also implement a range of adaptation responses within an integrated package in the environs of the Faguibine System which is of strategic importance in the productivity of food systems in Mali, as well as in the Mopti and Timbuktu regions.

There is a critical importance to capture lessons learned and practices for utilization across the country. Building on the experiences achieved by the local governments through this programme will be important since it is a pioneering activity under the ongoing national decentralization process. 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.

Component 3 on capacity building and knowledge generation for adaptation requires that the knowledge and capacity of community be improved for climate change risk management in economic, social and cultural development plans. This requires training of local institutions and 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 infrastructures.
Output 3.2 on community actors trained to handle climate change hazards will have activities that directly focus on the capture and diffusion of knowledge. For example training of farmers in integrating climate change in sustainable land management; training grass-root community organizations in valuing forest products; training youth groups in income generating activities; supporting local institutions and technical support services to access and utilize climate information needed for the planning and follow-up of agricultural and pastoral activities, and supporting existing knowledge platforms for networking and sharing.

Output 3.2 requires a communication and outreach strategy to uptake lessons and practices developed through the programme, and will ensure that all programme outputs and activities are being communicated in the most efficient and systematic manner throughout the programme to all intended target groups. This will require diligent documentation of lessons and best practices derived from the implementation of the programme components, including requirements for execution/or application and information on their costs and benefits. The mechanisms for disseminating this information will be adjusted to different audiences, which range from poor communities with low levels of literacy to high-level policy makers. Therefore the dissemination strategy will be very versatile and will range from mechanisms such as a

dedicated programme website to radio programmes and community outreach events (workshops, contests, etc.). The programme will capitalize on ongoing projects such as the German-funded BMU project that has major component on capacity building with much larger investment and nationwide application, for sharing and diffusing knowledge generated from the programme.

Considering that the mass media plays a crucial role in forming public opinion and raising environmental awareness, the programme will build constructive relationships with journalists, other communicators, editors and media producers through activities aimed at improving their understanding of climate change issues. This effort will not focus only on information about climate change impacts but also on response options. Links to the Adaptation Learning Mechanism (ALM) will facilitate the communication of the lessons learned to the global climate change adaptation community and especially countries in the region struggling with similar climate change challenges.

Municipal development planning is a participatory and iterative process that engages people, elected officials, and technicians involved in the community. It starts at the community level (village, district or fraction) before completing the process. It uses dialogue as the main communication instrument between communities elected representatives and technicians who work for the well-being of the community.

Finally, through building on and disseminating the experience of UNDP from the programme, 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.

- ***Describe the consultative process, including the list of stakeholders consulted, undertaken during programme preparation.***

The formulation of the concept note for the Adaptation Fund went through a participatory process which led to consultations at the level of the communities of Mopti and Timbuktu where the programme will be implemented. This helped align the programme with local priorities and discuss with the technical services, including those of the OMVF (also referred to as FDSA) responsible for the management of the Faguibine System. There were also high level consultations with the national administration and policy decision-makers in Bamako (See Annex 2).

The following key stakeholders were consulted during the formulation of this programme proposal:

- Office for the Implementation of the Faguibine System
- Ministry of Territorial Administration and Local Governments
- Nongovernmental Organisation
- Ministry of Environment and Handicraft
- Ministry of Agriculture
- Ministry of Energy and Water
- Ministry of Livestock and Fisheries
- National Meteorology Department
- Food Security Commission
- Ministry of Commerce and Industry
- Ministry of Youths and Sports
- Ministry of Women, Children and Family Affairs

The Ministry of Environment has set up a National Climate Change Committee that is responsible for the follow-up and validation of all national decisions on climate change. This Committee participated in all the consultation phases of the preparation of the proposal. Others consulted included the Ministry of Territorial Administration; Regional departments for

Agriculture, Forestry, Water Resources, Fisheries, Rural Engineering, communal leaders, local populations, etc. Initial consultations were conducted with stakeholders in food security, especially with the Ministry of Agriculture. The Ministry of Equipment through the National Directorate for Meteorology, which is in charge of climate change related issues, was consulted at the very early stages of the preparation of this programme proposal.

Several consultations were conducted with the National Environment and Sustainable Development Agency (NESDA also referred to as AEDD in French) 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 proposal was submitted to the National Environment and Sustainable Development Agency which held national 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 that involve other stakeholders have been undertaken in the elaboration of the detailed work planning of the programme. Namely, local elected officials, civil society actors and communities have been consulted for the constitution and validation of the log frame as well as propose activities under each of the outputs to play a decisive role in the implementation of the programme depending on their comparative advantages of being close to the beneficiary populations. With regards to programme implementation, a consultation was specifically held with the Faguibine System Development Authority (FSDA) under the leadership of the director general and the technical advisor, to fully identify and agree on their role in the programme and suggestion of pilot sites within the Faguibine system using the same criteria for site identification in the programme. A MoU will be established formalizing the role of FSDA.

- ***Provide justification for funding request, focusing on the full cost of adaptation reasoning.***

The smallholding farmers, pastoralists and fishermen are those particularly vulnerable and pushed to the limits of migrating towards the southern part of the country triggering other national challenges. The programme is structured to allow a high proportion of funds to flow into concrete activities for livelihood adaptation and demonstrations of low-cost resilient technologies and management structures, particularly in components 1 and 2. As such, the components are expected to result in a higher adaptation benefit than an equivalent investment in capital intensive infrastructure. The vulnerability of the livelihoods of local communities remains structural in nature, and requires a policy solution to improve the resilience of their natural resource-base and build awareness of best practice, both among policy makers and local communities. It is important therefore to intervene with adaptation measures to promote resilience and safeguard from climate impacts.

The local government approach used as the main platform for programme implementation is highly justified following the ongoing national transition in the devolution of administrative powers to local governments under the decentralization process. Local governments will constitute an important policy level for more efficient implementation of adaptation measures. The OECD Guidance Note for integrating climate change into development cooperation emphasizes that local government level is important for mainstreaming climate change for three reasons: first, climate change impacts are manifested locally; second, vulnerability and adaptive capacity are determined by local conditions; and third, adaptation activities are often best implemented and sustained at the local level. However, perhaps the most powerful argument for local government's involvement in building resilience to climate change is that it

falls within their core mandate. The problem is that poorer local administrations lack the funds to upgrade their systems in the face of a changing climate and central governments often lack the fiscal resources to subsidize them. Not only are local-level institutions best placed to identify local adaptation needs and priorities, but local responses can create opportunities for innovative public-public and public-private partnerships, increasing the amount of resources dedicated to adaptation and ensuring the sustainability of the measure.

Thus, increasing effective expenditure on adaptation and mitigation does not necessarily require the creation of new institutions and functions; rather, it requires that existing institutions start taking climate change issues into account in their everyday decisions and planning e.g. with regards to natural resource management, food security etc.

The mainstreaming of adaptation therefore involves all existing stakeholders at the local level: local government officials, the local private sector and the communities – with the aim of designing and implementing holistic adaptation responses that are tailored specifically to local conditions.

The advantages of the approach therefore include:

- Linking up to regular government fiscal transfers and / or direct local government budget allocations and supplementing those;
- Building on existing management structures rather than having to set-up parallel systems which carry large transaction costs and administrative burdens.
- Providing an opportunity to local governments to incorporate a “climate-adaptation-lens” into their planning, decision-making and investment, thus effectively mainstreaming climate change concerns at the local level
- Enabling local governments to leverage value from their own resources. The programme fund can be combined with existing funds and / or used in conjunction with other existing sources of funding (programmes).

Therefore the programme will involve the Ministry of Territorial Administration and Local Authorities (MATCL), the Ministry of Environment (ME), the Ministry of Agriculture (MA) as the national executing partners among others.

A further funding justification of the programme is based on the target area for the programme. Among the 166 most vulnerable local government communes across the country and prioritized by the Malian government for specific efforts to promote the achievement of the Millennium Development Goals, 50 of them fall in the two regions of Mopti and Timbuktu. The Lake Faguibine system lies within the region of Timbuktu. All intervention zones covered by the proposal are characterized by high poverty, high food insecurity and high vulnerability to climate change. The Faguibine area has in addition a unique potential to serve as a buffer for water and food resources. Increased attention has to be given to the co-utilization land and water by agriculture, cattle and fisheries. Increased pressure on natural resources due to climate change risk to lead to increasing environmental degradation, excessive use of natural resources, and not least conflicts among different population and livelihood groups. Addressing these challenges and capitalizing on the natural and human potential of the areas to increase climate resiliency and promote improved adaptation to climate change requires specific, well-coordinated interventions at various levels and in different technical areas. Further cost of adaptation reasoning is set out below.

**OUTCOME 1: Increased climate change resilience of local water systems in Mopti and Timbuktu regions**

*Baseline (without AF Resources)*

Water is the most limiting factor to the improvement of productivity of agricultural, livestock and fishery practices in the drought-prone programme area located in the northern region of the country where extremely variable seasonal and inter-annual rainfall and water productivity is often insufficient to support existing livestock and human populations. Furthermore land degradation and soil erosion are serious environmental problems in the region. These constraints are projected to increase as the impacts of climate change become more severe in the region. While other projects have tried to implement soil and water conservation and infrastructure, this has not always taken climate change into consideration to make the investment resilient to future climate impacts. As a result there has not been optimization in harnessing the investment so far. The reduction in annual flow of water into the Faguibine System and its tributaries will also affect the recharge of the groundwater aquifers as well as flow into the floodplains commonly used by livelihood systems. This is likely to negatively impact water supply for irrigation, human and livestock consumption. Increased temperature and reduced rainfall in the region will further reduce soil moisture thereby affecting agricultural productivity. While the government of Mali is aware of these problems, they lack the resources and budget to put in place the necessary interventions to address them.

The relevant Ministries in the agro-industrial complex (Agriculture, Livestock, and Fisheries etc.) currently lack the capacity and expertise to scale up climate related water activities into national priority programmes. The local elected authorities also lack the capacity to implement communal management of water delivery services. Without the AF programme, it is likely that the pace of reform and the benefits in decentralization and devolution of authority will be slow, with limited development of community water management systems, adaptation planning and dissemination of best practices. Vital flexible mechanisms, such as seasonal water allocation and multiple users' regimes will remain untested. In this respect, the most marginal communities engaged in agricultural, livestock management are likely to suffer most.
The Government of Mali is very aware of the key role which communities must play in the revitalization of the Faguibine system for climate change adaptation. Previous and on-going programme interventions have created a knowledge base useful for future planning and implementation of future operations. However, there is still need to empower local administrative authorities for community mobilization, community participation, and guiding community adaptation planning.

Importantly, while physical engineering works aiming to re-establish the macro-water channels of the Faguibine Systems are required, there is limited access to heavy machinery to clear and clean the channels thereby constricting the ability of the most vulnerable farmers to improve their agricultural techniques and productivity. In 2005, OMVF estimated that there are 1,458,649 $m^3$ of channels to excavate the accumulated silt and restore water flow in the channels. So far, 749,853 $m^3$ have been realized. Some programme interventions in the region might lead to some degree of livelihood support, but not providing long-term sustainability and resilience of the poorest and most vulnerable communities. There are presently limited efforts to support small farmers' access to water. Presently, where access roads exist, greater market participation by smallholder farmers is prevented by a combination of a low level of productivity, organization, quality assurance, storage and overall lack of skills in commercialization.

*Additionality (with AF resources) (***US$3,749,500)**

With AF resources, the Government will adopt a differentiated approach to the delivery of adaptation measures using local government institutions with full account of social vulnerability and the enhancement of the capacity of local population. It will also cover the cost of all necessary legislative and regulatory adjustments by the local government to optimize water management and utilization by multiple users in the face of climate change. The programme will cover the cost of the progressive reforms required for water resource management under climate change in the Faguibine system that will yield much greater adaptation benefits than merely the standard infrastructure only development and rehabilitation. The programme will identify and transfer best production practices and management models to ensure that social impacts are mitigated for the most vulnerable groups. The programme will promote the improvement of water flow into the Faguibine System as well as flooding of the surrounding plains commonly used for crop, livestock and fish production. That will also encourage groundwater recharge and implementation of harvesting of flood water and water storage by a range of climate-proofed mechanisms including sub-surface dams, small floodwater diversions off the tributaries, micro dams, and off-farm and on-farm soil and water conservation structures and methods. An integrated and holistic response will be developed to managing climate risks in the Faguibine System and the Mopti and Timbuktu regions, with the programme activities targeting vulnerable communities, in order to expand livelihood opportunities through improved water management and groundwater recharge.

With AF funding, the programme will cover the cost of communal water management arrangements through strengthening roles and capacities of local associations that will continue enforcing locally appropriate and tested adaptation measures in water access and management. Providing investment funds through Water User Associations will encourage capacity at community level delivery systems, and support their ability to engage with and leverage government social development funds through their local government system. Although to date, government and donor supported initiatives in the Faguibine System have achieved significant improvements in local land management practices, they have yet to achieve the scale-up to other surrounding regions as elaborated in this proposal. The programme covers the cost of the replication of well proven adaptation measures through social protection and development programmes that will grant long term sustainability of the AF pilot investments.

**OUTCOME 2: Enhanced local production systems such as agriculture, fisheries, livestock, and forest under climate change**

*Baseline (without AF Resources)*

Under current government proposals, the focus is likely to remain on expanding supply side capacity, particularly in terms of water storage, to support agricultural irrigation for community managed croplands and livestock pastures. Local government officials will be limited in their ambition and capacity to address water demand due to a lack of local demonstrations, and the absence of a methodology for assessing climate vulnerability. The absence of proof of concept for innovative water management techniques/technologies will lead to an increased supply/demand constraint as climate change impacts accelerate conflicts among multiple users. This will impact most upon non-state actors, including those involved in agriculture, market gardening, and livestock management. According to OMVF, the cultivated areas have increased from 15,000 ha in 2006, to almost 30,000 ha in 2010 with a growth rate of 15% per annum. This signifies that increase in agricultural production has largely depended on an increase in the area of cultivated land rather than on improvement of production systems. The current structure of agricultural support programmes by other donors and government neither consider climate impacts, nor their likely distributional effects on the agricultural economy.

The on-going projects in 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.

*Additionality (with AF resources) (*US$2,428,840)

The AF programme rebalances the prevailing focus within Mali on crop and livestock management and large scale water systems, towards more efficient use of available resources through the demonstration of climate resilient demand and supply side water management techniques. With AF resource, the programme will incur the cost of direct adaptation measures, in the agro-ecological zones that require distinct and locally tailored adaptation solutions for reducing water demand and improving water availability and supply systems. The activities have been selected for their potential demonstration effect and their wider social importance, and as such will allow synergies with other economy strategies (poverty reduction, economic diversification) to be explored in national strategy development.

The training of officials in sustainable water modeling and land use planning will support the development of land use management in the regions, and underpin reform of land use practices which is central to water efficiency. The impacts of these knowledge based reform activities are expected to be significant in relation to their overall costs.

**OUTCOME 3: Enhanced capacity and knowledge of local institutions and of communities to better adapt to climate change.**

*Baseline (without AF Resources)*

While policy makers and planners are becoming more aware of the importance of an enhanced response to climate change, Mali has just developed a national or sub-national climate change policy, strategy and action plan that requires implementation. At the local level, local government authorities are not aware of the increasing climatic variability that is negatively affecting the livelihoods of the communities. They also lack an understanding of the global issue. Despite progress, there remains a lack of understanding of the sectoral and development implications of climate change effects in line ministries. This is an underlying cause of the current situation, in which climate change in general and adaptation in particular is not mainstreamed into development planning processes. This is the case both nationally and in the regions. Currently there is little collated information available on climate-related risks either at the national or regional level. Management and dissemination of information about climate change-related risks is not carried out systematically, which further also militates against an effective response. Moreover, any lessons learned are not being captured in a fashion that facilitates broader sharing, or that casts light on ways to address an aggravation of the food security situation as a result of climate change. Thus opportunities for cross-fertilization between programmes and regions, and to influence policy, are being lost.

*Additionality (with AF resources*)( US$1,004,160)

The programme will have a strong learning and knowledge generation component to capture and disseminate lessons learned and to influence policy and institutional capacity. The knowledge system will be institutionalized within local government administration, which will in itself provide lessons to guide the other regions. This will include lessons learned on the additional burden faced by women and children with respect to climate change. Lessons will be shared through various appropriate regional and global networks, such as the Adaptation Learning Mechanism, to facilitate learning across countries. The knowledge management system will include a feedback loop to policy makers at the zoba and national level, to

facilitate uptake of lessons learned into policy.

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.

The proposed Adaptation Fund programme would be fully integrated into the overall plan for the area and would ensure a strong adaptation focus at local and 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 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.

The following table show the costs for the implementation of the different components of the Programme

**Table 3: Programme components, outcomes, outputs and Financing**

| PROGRAMME COMPONENTS | EXPECTED OUTCOMES | EXPECTED CONCRETE OUTPUTS | AMOUNT (US$) |
|---|---|---|---|
| **1.** Enhanced water control measures in vulnerable water buffer zones | **OUTCOME 1:** Increased climate change resilience of local water systems in Mopti and Timbuktu regions | **Output 1.1:** Water infiltration, storage and flow in the Faguibine System improved through the rehabilitation and opening up to 20 km silted channels and obstructed ponds | **US$1,000,000** |
| | | **Output 1.2:** Water access to 20 vulnerable communities enhanced by the rehabilitation of water canals and distribution plan for multiples users including climate resilient water management systems | **US$1,730,000** |
| **Total Outcome 1** | | | **US$2,730,000** |
| **2.** Resilience of the means of subsistence of vulnerable communities | **OUTCOME 2:** The production of local livelihood systems such as agriculture, fisheries, livestock, and forest enhanced under climate change | **Output 2.1:** Climate-resilient fisheries and agro- pastoral practices and technologies e.g. drought- and disease-resistant varieties introduced and, integrated crop-livestock production systems etc. practiced by 20 local communities | **US$1,100,000** |
| | | **Output 2.2**: Conservation and restoration practices e.g. conservation agriculture, agroforestry etc. introduced in 20 local communities for forest ecosystem resilience to climate change | **US$1,000,000** |
| | | **Output 2.3**: Dry-season gardening activities by women improved for food and income diversification in 20 local communities | **US$1,149,000** |
| **Total Outcome 2** | | | **US$3,249,000** |
| **3.** Capacity-building and knowledge generation for adaptation | **OUTCOME 3:** Enhanced capacity and knowledge of local institutions and of communities to better adapt to climate change. | **Output 3.1.** The knowledge and capacity of community improved to integrate climate risk management in economic, social and cultural development plans (ESCDP) | **US$232,500** |
| | | **Output 3.2: 100** community actors trained to manage climate change hazards and in income-generating activities (IGA) | **US$500,00** |

| | | | |
|---|---|---|---|
| | | **Output 3.3** Local institutional capacity strengthened in 20 communities in establishing micro-credit schemes, cereal banks etc. and in managing different community groups. | **US$471,000** |
| **Total Outcome 3** | | | **US$ 1,203,500** |
| 7. Programme Implementation – Total Costs | | | US$ 7,182,500 |
| 8. Programme/Programme Execution cost[31] | | | US$ 682,337 |
| 9. Total Programme/Programme Cost | | | US$ 7,864,837 |
| 10. Programme Cycle Management Fee charged by the Implementing Entity (8.5%) * Note | | | US$ 668,511 |
| **Amount of Financing Requested** | | | **US $ 8,533,348** |

## PART III: IMPLEMENTATION ARRANGEMENTS

### A. Describe the arrangements for project/programme implementation.

The Project will be implemented through UNDP's **National Implementation Modality (NIM),** with the the Ministry of Environment and Sanitation (MES) through the Environment and Sustainable Development Agency (AEDD) serving as the designated national executing agency ("*Implementing Partner*") of the programme. AEDD will have the technical and administrative responsibility for applying AF inputs in order to reach the expected outcomes/outputs as defined in this programme document. AEDD is responsible for the timely delivery of programme inputs and outputs, and in this context, for the coordination of all other responsible parties, including other line ministries, local government authorities and/or UN agencies.

Upon the request of the Government of Mali, UNDP will serve as the Multilateral Implementing Agency (MIE) for this programme. Services that UNDP will provide to the Implementing Partner in support of achieving project Outcomes are outlined in Annex 1. UNDP's services will be provided by staff in the UNDP Multi-Country Office in Mali, UNDP GEF Regional Centre in Pretoria (with a Regional Technical Advisor on Adaptation out-posted in Mali) as well as UNDP Headquarters (New York).

A **Programme Board** (PB), responsible to approve key management decisions of the programme and will play a critical role in assuring the technical quality, financial transparency and overall development impact of the programme, will be established as soon as this programme is approved. The PB will be composed of designated senior-level representatives of the AEDD, a sub-committee of the National Climate Change Country Team. A complete list of PB members and their designated alternates will be provided in the inception report.

AEDD will appoint a **National Programme Director** (NPD), who will be designated over the course of the programme inception phase. The costs of the NPD role will be borne by the Government of the Mali as in-kind contribution to the programme.

**National Project Manager** (NPM): He/she will be a dedicated professional designated for the duration of the programme. The PM's prime responsibility is to ensure that the programme produces the results specified in the programme document to the required standard of quality and within the specified constraints of time and cost.

**Project-Support:** The NPM will be supported by a core team of technical and support staff forming the **Programme Implementation Unit** (PIU) located at AEDD to execute programme activities, including day-to-day operations of the programme, and the overall operational and financial management and reporting.

**Project assurance and implementation:** UNDP Mali will support programme implementation by assisting in the monitoring of programme budgets and expenditures, contracting programme personnel and consultancy services, and subcontracting and procuring equipment at the request of the AEDD. On the technical side, UNDP Mali will monitor progress of programme implementation and achievement of programme outcomes/outputs as per the endorsed programme document. A designated Programme Officer will be assigned in the Country Office in Mali to provide financial and technical monitoring and implementation support services.

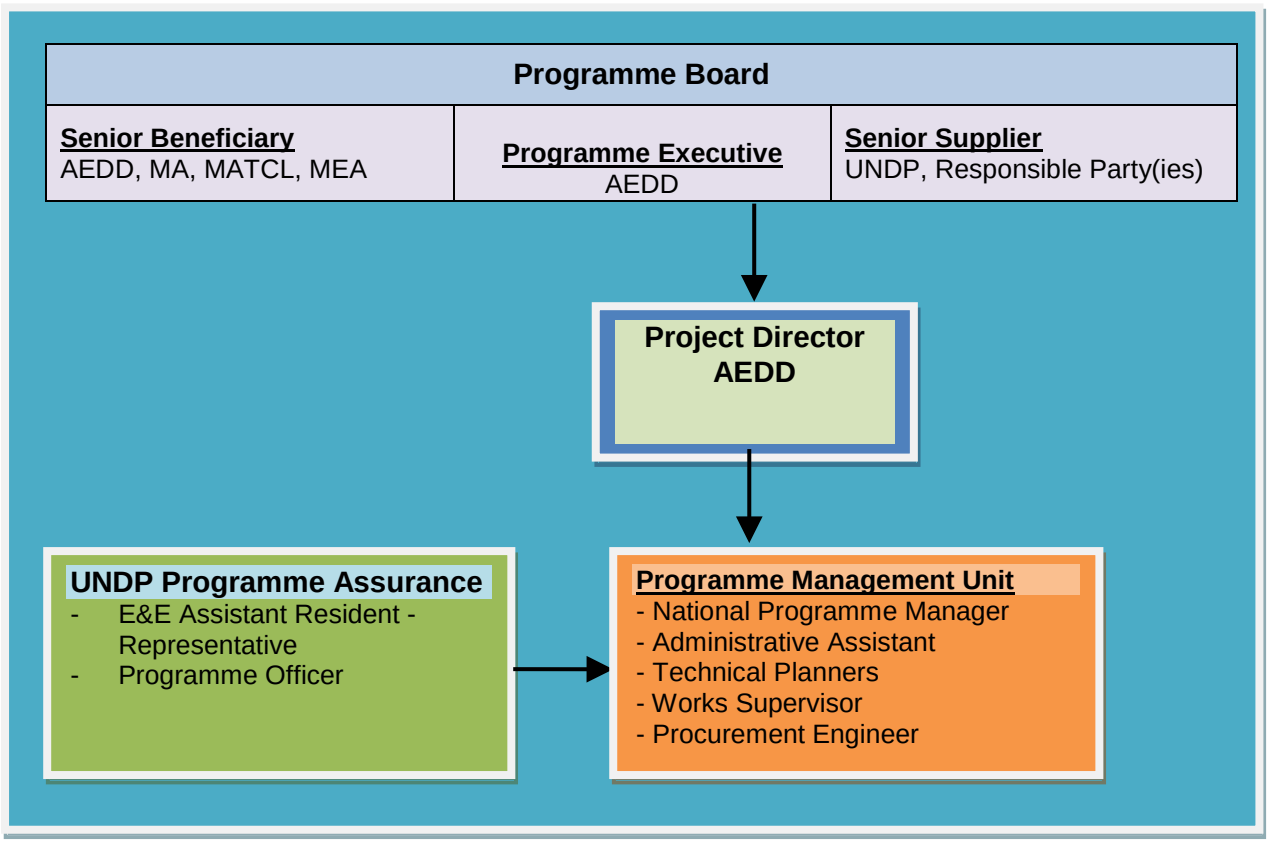
To deliver specific Outputs as outlined in the logical framework, AEDD will delegate such responsibilities to external partners (to be referred to as *Responsible Parties*) namely the national and regional technical Directorates of Hydraulics, Agriculture, Livestock, Fishing and Forestry as well as NGOs through direct contracting. AEDD will bear responsibility for the delivery of those Outputs and put in adequate place measures to oversee such work. Such institutions will be contracted through appropriate modalities (as advised by UNDP). The corresponding Letters of Agreement (LoA) will be annexed to the programme document that will be signed between UNDP and the Government of Mali after the AF programme document has been endorsed.

For the Component 1, the local authorities (municipality and region councils) of Mopti and Timbuktu regions will be the contracting authorities for the infrastructures, the constructions and other supporting investments aiming at enhancing the climate change resilience of local water systems under. The Directorate of Hydraulics will provide to the local authorities technical support for the elaboration of TORs and technical specifications, the selection of companies and individuals and the acceptance of completed work (ACW) for the water related infrastructures and works under Components 1 and 2. This Directorate has Given that Mali is currently under the modality of direct payment (a sub-modality of the NIM modality), the payment of the contracting companies will be made directly by UNDP upon ACW from the National Directorate of Hydraulics and a request of payment made by AEDD (the national implementing partner). If the Mali moves towards a full National Implementation Modality during the project implementation, the AEED, as implementing partner, will receive the project funds from UNDP on a quarterly basis and will be responsible for paying the companies and individuals contracting with the local authorities. The National Hydraulics Directorate's mission is to develop elements of the national policy in hydraulics, the coordination and technical oversight of regional and local units as well as connected divisions that contribute to the implementation of the national hydraulics policy. As such, it is responsible for: i) to inventory and evaluate the potential at the national level of water resources; ii) to plan, study, monitor, supervise the construction works of hydraulic constructions and ensure their proper working order; iii) to carry out the monitoring and evaluation of development projects in the water sector; iv) to participate in the promotion of sub-regional cooperation in the management of water resources. It is responsible in particular for defining policies, setting standards, planning the development of public service of drinking water and sanitation at the national level and, importantly, for providing advisory and technical support to local authorities. It has 11 high level water engineering officers and has developed several policies and guidelines related to the planning, implementation and monitoring of water supply and control infrastructures construction and operations. The directorate of hydraulics has also supported several development projects related to the water sector.

For the component 2, the National Directorates of Agriculture, Livestock, Forestry and Fishing will be the technical partners for the implementation of the activities aiming at enhancing local livelihood systems such as agriculture, fisheries, livestock, and forest under climate change. The AEED (National Implementing Partner) will sign MOU with experimented NGOs operating in the beneficiary municipalities to be the executing partner of the activities of the component 2. The AEED will establish a technical committee (made up of the Technical Directorates of Agriculture, Livestock, Forestry and Fishing) in charge of providing technical support, selecting the NGOs partner and supervising the delivery of the selected NGOs. While these NGOs have been not yet identified, there are several experimented NGOs operating in the beneficiary municipality. The technical committee established by AEED will assess the NGOs (by using the UNDP NGOs/CSOs capacity assessment tool) and select the most appropriate NGOs for the implementation of the targeted activities. These NGOs will be responsible for piloting the selected climate resilient livelihoods options, selecting the beneficiary groups or individuals that will receive the grants for the implementation of the enhanced livelihood systems and. The National Technical Directorates will be responsible for supervising the NGOs and providing technical advisory support to the NGOs for the pilot activities and the grantees through their extension staffs. Given that the Mali is currently under the modality of direct payment, the NGOs will not receive payments from UNDP, but will contract with the goods and services providers who will be paid upon payment requests from the NGOs partner. The beneficiary groups or individuals will also receive their grants directly from UNDP by quarterly instalments through the microfinance institutions and banks represented at the local and regional levels. If the Mali moves towards a full national Implementation Modality during the project implementation, the AEED, as implementing partner, will received project resources from UNDP on a quarterly basis and will be responsible for paying the companies and individuals contracting with the national executing institutions. The Directorate of Agriculture has 11 senior management staff, 128 Agricultural Specialist and 841 extension staff. The clientele served by the Agriculture Directorate includes large commercial farmers, small/medium-scale commercial farmers, Farmers growing cotton, farmers growing rice, farmers growing mango, small-scale subsistence farmers, women farmers, young (adult) farmers. It is responsible in particular for defining policies, strategies and planning the development of the sector. The DNA is the implementing partner of UNDP/LDCF and FAO/LDCF projects and other agricultural sector development projects. The Directorates of Livestock and Fishing are responsible for the development of national policies in the domains of livestock raising and fisheries. As such, they actively participate in the following: i) sustainable development of animal and fisheries resources within the scope of realizing the objectives of food security and sovereignty; ii) input to rural development through the implementation of measures aimed at the improvement of living conditions of breeders/farmers and fishermen; iii) management of actions for fighting animal diseases; iv) modernization of techniques and methods and the improvement of the quality of husbandry and fishing products; veterinary research; and fisheries' policing and management .

For the component 3, the AEDD will be the direct executing agency. AEED will contract with the relevant goods and services providers (vendors) for the successful implementation of the component 3 aiming at enhancing the capacity of the local institutions to better adapt to climate change. The vendors will be paid directly by UNDP upon a request of payment made by AEED. The AEED will contract with microfinance institutions who will also receive on a yearly basis directly from UNDP the funds necessary for the establishment and implementation of micro-credit schemes. The Ministry of Finance (through the Division of Control and Surveillance of the Decentralized Financial Systems – CCS/SFD) will be supervising the microfinance institutions.

The organigram of the programme is as follows:


Programme Board
Senior Beneficiary
AEDD, MA, MATCL, MEA
Programme Executive
AEDD
Senior Supplier
UNDP, Responsible Party(ies)
Project Director
AEDD
UNDP Programme Assurance
- E&E Assistant Resident - Representative
- Programme Officer
Programme Management Unit
- National Programme Manager
- Administrative Assistant
- Technical Planners
- Works Supervisor
- Procurement Engineer

## Programme Execution Costs

| Cost Item | Year 1 | Year 2 | Year 3 | TOTAL |
|---|---|---|---|---|
| 1. National Programme Coordinator Salary - Programme Management Unit | 36,000 | 36,000 | 36,000 | 108,000 |
| 2. Technical Officer - Programme Management Unit | 33,600 | 33,600 | 33,600 | 100,800 |
| 3. Administrative Assistant - Programme Management Unit | 18,000 | 18,000 | 18,000 | 54,000 |
| 4. Field Coordinator – Mopti region | 33,600 | 33,600 | 33,600 | 100,800 |
| 5. Field Coordinator - Timbuktu region | 33,600 | 33,600 | 33,600 | 100,800 |
| 6. 3 Work Supervisors | 18,238 | 18,238 | 18,238 | 54,714 |
| 7. Office Furniture | 12,457 | 0 | 0 | 12,457 |
| 8. Computers/IT equipment | 10,000 | 2,500 | 2,500 | 15,000 |
| 9. Stationary and supplies | 4,000 | 4,000 | 4,000 | 12,000 |
| 10. Vehicle and travel to project field sites | 35,000 | 9,633 | 9,133 | 53,766 |
| 11. Monitoring, Evaluation, and Audit (see Section C for breakdown of cost) | 23,000 | 13,000 | 34,000 | 70,000 |
| **TOTAL** | | | | **682,337** |

**B.** ***Describe the measures for financial and project / programme risk management.***

Key risks underlying the programme 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 7: Programme Risks and Mitigation Measures**

| Risks | Level | Mitigation measures | Responsibility |
|---|---|---|---|
| Arm conflict that has recently escalated and engulfed the Northern region of Mali risking session | **High** | ➢ Out of the two regions for programme implementation, Mopti is not part of the affected region which allows for full implementation of programme activities<br>➢ Using government mediation to allow for programme implementation in the affected region | AEDD, FDA and UNDP |
| Delays in programme inception impact on achieving outputs and outcomes and reduce scope to deliver programme as outlined in proposal | **Medium** | ➢ Develop detail inception work plan to guide inception phase | AEDD and UNDP |
| Insecurity in the area – terrorist attacks or regular banditry – may jeopardize the implementation and follow-up of the programme | **Medium** | ➢ The programme shall take this into account through various measures<br>❖ cooperation with local communities and structures<br>❖ a good cooperation with local organizations for the programme implementation<br>❖ Using UN security alert system and the national police force<br>❖ distance follow-up and reporting tool<br>❖ Using local communities in ground actions | AEDD and UNDP |
| A poor collaboration between programme partners | **Medium** | ➢ Inception workshop to clarify roles and responsibilities and establish and implement programme stakeholder collaboration and team activities | AEDD |
| A poor understanding of the objectives by the programme team | **Low** | ➢ A strong involvement of leaders and players<br>➢ Support of national experts<br>➢ Adapted trainings | AEDD |

| | | | |
|---|---|---|---|
| Low mobilization of the target group caused by a poor understanding of climate change issues | **Low** | ➢ Increased collaboration with the target communes<br>➢ A participatory approach<br>➢ Sensitization to the effects of climate change | AEDD |
| Lack of sufficiently qualified partners | **Low** | ➢ Capacity-building<br>➢ Permanent Screening and evaluation of partners<br>➢ Collaboration with communes at a decentralized level | AEDD and UNDP |

### *C. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.*

Programme monitoring and evaluation (M&E) will be in accordance with established UNDP procedures and will carried out by the Programme team, verified by the UNDP Regional and Country Office. 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 programme will define success indicators for programme implementation as well as the respective means of verification. The programme will be monitored through the following M&E activities. The M&E budget is provided in the table below.

Programme start:

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

The Initiation Workshop will address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the programme.

b) Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the programme team.

c) Discuss the roles, functions, and responsibilities within the programme's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for programme staff will be discussed again as needed.

d) Based on the programme results framework and the relevant SOF (e.g. GEF) Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.

e) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.

f) Discuss financial reporting procedures and obligations. Audits of the programme will follow UNDP finance regulations and rules and applicable audit policies

g) Plan and schedule Programme Board meetings. Roles and responsibilities of all programme organisation structures should be clarified and meetings planned. The

first Programme Board meeting should be held within the first 12 months following the inception workshop.

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

**Quarterly**

- Progress made shall be monitored in the UNDP Enhanced Results Based Managment Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high.
- Based on the information recorded in Atlas, a Programme Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

**Annually**

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

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

- Progress made toward programme objective and programme outcomes - each with indicators, baseline data and end-of-programme targets (cumulative)
- Programme outputs delivered per programme outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

**Periodic Monitoring through site visits**

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

**Mid-term of programme cycle**

The programme will undergo an independent Mid-Term Evaluation at the mid-point of programme implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of programme implementation; will highlight issues requiring decisions and actions; and will present initial

lessons learned about programme design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the programme's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the programme document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

**End of Programme**

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

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

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

**Table 8 Monitoring and Evaluation and Budget**

| Type of M&E activity | Responsible Parties | Budget US$ *Excluding programme team staff time* | Time frame |
|---|---|---|---|
| Initiation Workshop and Report | ▪ Programme Manager<br>▪ UNDP CO | Indicative cost: 5,000 | Within first two months of programme start up |
| Measurement of Means of Verification of programme results. | ▪ UNDP CCA RTA/Programme Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. | Indicative cost: 10,000<br>To be finalized in Inception Phase and Workshop. | Start, mid and end of programme (during evaluation cycle) and annually when required. |
| Measurement of Means of Verification for Programme Progress on *output and implementation* | ▪ Oversight by Programme Manager<br>▪ Programme team | Indicative cost: 5,000<br>To be determined as part of the Annual Work Plan's preparation. | Annually prior to ARR/PIR and to the definition of annual work plans |
| ARR/PIR | ▪ Programme manager and team<br>▪ UNDP CO<br>▪ UNDP RTA<br>▪ UNDP EEG | None | Annually |
| Periodic status/ progress reports | ▪ Programme manager and team | None | Quarterly |
| Mid-term Evaluation | ▪ Programme manager and | Indicative cost: | At the mid-point of |

| Type of M&E activity | Responsible Parties | Budget US$ *Excluding programme team staff time* | Time frame |
|---|---|---|---|
| | team<br>▪ UNDP CO<br>▪ UNDP RCU<br>▪ External Consultants (i.e. evaluation team) | 10,000 | programme implementation. |
| Final Evaluation | ▪ Programme manager and team,<br>▪ UNDP CO<br>▪ UNDP RCU<br>▪ External Consultants (i.e. evaluation team) | Indicative cost: 10,000 | At least three months before the end of programme implementation |
| Programme Terminal Report | ▪ Programme manager and team<br>▪ UNDP CO<br>▪ local consultant | 5,000 | At least three months before the end of the programme |
| Audit | ▪ UNDP CO<br>▪ Programme manager and team | 16,000 | |
| Visits to field sites | ▪ UNDP CO<br>▪ UNDP RCU (as appropriate)<br>▪ Government representatives | 9,000 | Yearly |
| **TOTAL indicative COST**<br>Excluding programme team staff time and UNDP staff and travel expenses | | **US$ 70,000** | |

**D. Include results framework for the programme proposal, including milestones, targets and indicators**

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

| Indicator | Baseline | Target | Sources of verification |
|---|---|---|---|
| **Outcome 1: Increased climate change resilience of local water systems in Mopti and Timbuktu regions** | | | |
| Functional waterways and channels increased by about 40 % | Only about 15% of the waterways and channels are functional | By 2015, double the renewable water resources in the regions | - Programme progress and technical reports,<br>- Programme terminal evaluation |
| At least 30 % increase in the kilometers of cleared water channel | Currently about 50 km of the water channels are cleared | At least 100 km of the water channel should be cleared by 2015 | - Programme progress and technical reports,<br>- Programme terminal evaluation |
| **Outcome 2: Local livelihood systems such as agriculture, fisheries, livestock, and forest enhanced for 20 communities under climate change** | | | |
| Number of dry season market gardens managed by women, and community fish | There are presently few market gardens and no community fish farms | At 100 dry season gardening schemes for women, and 20 community fish farms | - Programme progress and technical reports<br>- Programme website |

| Indicator | Baseline | Target | Sources of verification |
|---|---|---|---|
| farms established | | established | |
| Number of tree nurseries of local tree species established in each local communities | Few communities benefit from community managed tree nurseries | At least 100 community nurseries (5 per community) established | - Programme progress and technical reports<br>- Programme website |
| **Outcome 3: Enhanced capacity and knowledge of local institutions and of communities to better adapt to climate change.** | | | |
| 100 local councilors from 20 councils are trained in institutional management of climate change | There are currently no local councilors trained to enhance their institutional capacity to adapt to climate change | By 2015, the capacity of locally elected officials and local government institutions enhanced in integrating climate change into planning processes | - Local government report<br>- Terminal evaluation report |
| Number of CESCDP revised in including climate change management | Just about 6 CESCDP currently include climate change management | 20 local community plans will be developed to include climate change management | - Local government report<br>- Terminal evaluation report |

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

**A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT**[32] *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:*

| | |
|---|---|
| M. Mamadou GAKOU<br>Director General<br>Agence de l'Environnement et du Développement Durable (AEDD),<br>Bamako, Republic of Mali<br>Tel: +223-2023-1074;<br>Fax: +223-2023-5867<br>Email: aedd@environnement.gov.ml | Date: April 22, 2013 |

**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. | |
|  <br>Adriana Dinu<br>Officer-in-Charge and Deputy Executive Coordinator,<br>UNDP/GEF | |
| Date: May 27, 2013 | Tel. and email: +1-212-906-5560<br>adriana.dinu@undp.org |
| Programme Contact Person: Henry Rene Diouf | |
| Tel. and Email: +27123548115; henry.rene.diouf@undp.org | |

**Annexes:**

32. 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.

**ANNEX 1: UNDP Environmental Finance – Specialized Technical Services**

The implementing entity fee will be utilized by UNDP to cover its indirect costs in the provision of general management support and specialized technical support services. The table below provides an indicative breakdown of the estimated costs of providing these services. If the national entity carrying out the programme requests additional Implementation Support Services (ISS), an additional fee will apply in accordance with UNDP fee policy regarding ISS and would be charged directly to the programme budget.

| Category | Indicative Services[33] Provided by UNDP | Estimated Cost of Providing Services[34] |
|---|---|---|
| **Identification, Sourcing and Screening of Ideas** | Provide information on substantive issues in adaptation associated with the purpose of the Adaptation Fund (AF).<br>Engage in upstream policy dialogue related to a potential application to the AF.<br>Verify soundness and potential eligibility of identified idea for AF. | ***US$ 33,236*** |
| **Feasibility Assessment / Due Diligence Review** | Provide up-front guidance on converting general idea into a feasible project/programme.<br>Source technical expertise in line with the scope of the project/programme.<br>Verify technical reports and project conceptualization.<br>Provide detailed screening against technical, financial, social and risk criteria and provide statement of likely eligibility against AF requirements.<br>Determination of execution modality and local capacity assessment of the national executing entity.<br>Assist in identifying technical partners.<br>Validate partner technical abilities.<br>Obtain clearances from AF. | ***US$102,000*** |
| **Development & Preparation** | Provide technical support, backstopping and troubleshooting to convert the idea into a technically feasible and operationally viable project/programme.<br>Source technical expertise in line with the scope of the project/programme needs.<br>Verify technical reports and project conceptualization.<br>Verify technical soundness, quality of preparation, and match with AF expectations.<br>Negotiate and obtain clearances by AF.<br>Respond to information requests, arrange revisions etc. | ***US$124,000*** |
| **Implementation** | Technical support in preparing TORs and verifying expertise for technical positions.<br>Provide technical and operational guidance project teams.<br>Verification of technical validity / match with AF expectations of inception report.<br>Provide technical information as needed to facilitate implementation of the project activities. | ***US$ 307,000*** |

[33] This is an indicative list only. Actual services provided may vary and may include additional services not listed here. The level and volume of services provided varies according to need.

[34] The breakdown of estimated costs is indicative only.

| Category | Indicative Services[33] Provided by UNDP | Estimated Cost of Providing Services[34] |
|---|---|---|
| | Provide advisory services as required.<br>Provide technical support, participation as necessary during project activities.<br>Provide troubleshooting support if needed.<br>Provide support and oversight missions as necessary.<br>Provide technical monitoring, progress monitoring, validation and quality assurance throughout.<br>Allocate and monitor Annual Spending Limits based on agreed work plans.<br>Receipt, allocation and reporting to the AFB of financial resources.<br>Oversight and monitoring of AF funds.<br>Return unspent funds to AF. | |
| **Evaluation and Reporting** | Provide technical support in preparing TOR and verify expertise for technical positions involving evaluation and reporting.<br>Participate in briefing / debriefing.<br>Verify technical validity / match with AF expectations of all evaluation and other reports<br>Undertake technical analysis, validate results, compile lessons.<br>Disseminate technical findings | ***US$ 102,275*** |
| **Total** | | ***US$ 668, 511*** |

## Annex 2. Total Programme Budget and Work Plan

| Award ID: 64182 | Project ID: 81072 | Business Unit: MLI10 | PIMS Number: 4789 |
|---|---|---|---|
| Project Title | Climate Change Adaptation in the vulnerable regions of Mopti and Timbuktu | | |
| Implementing Partner | MIE/UNDP | Executing Entity | Agence de l'Environnement et du Développement Durable (AEDD) |

| ATLAS Budget Code | ATLAS Budget Desc. | Description of Expenditure/Budget Notes | Total Cost | USD Yr 1 | USD Yr 2 | USD Yr 3 |
|---|---|---|---|---|---|---|
| **1. . ENHANCED WATER CONTROL MEASURES IN VULNERABLE WATER BUFFER ZONES** | | | | | | |
| **Outcome 1: Increased climate change resilience of local water systems in Mopti and Timbuktu regions** | | | | | | |
| 72100 | Intl Consultant | International water resource management expert: $13,000/month | 26,000 | 13,000 | 0 | 13,000 |
| 71300 | Local Consultant | 2 National experts; $2500/month | 180,000 | 60,000 | 60,000 | 60,000 |
| 72100 | Contractual Services | Disbursement for water control investments and works | 1,913,000 | 1,200,000 | 713,000 | 0 |
| 74200 | Audio Visual&Print Prod Costs | Audiovisual and printing materials and other for education and raising awareness | 145,000 | 25,000 | 100,000 | 20,000 |
| 75700 | Training, Conference and Worshops | Meetins conference and Workshops | 200,000 | 40,000 | 110,000 | 50,000 |
| 71600 | Travel | Travel costs for workshops and meetings, DSA | 100,000 | 15,000 | 60,000 | 25,000 |
| 72800 | Information Technology Equipmt | purchase of IT equipments,models. data etc. | 110,000 | 90,000 | 15,000 | 5,000 |
| 72400 | Communic & Audio Visual Equip | Communication Equip, charges and related costs | 56,000 | 10,000 | 36,000 | 10,000 |
| **TOTAL for Component 1** | | | **2,730,000** | **1,453,000** | **1,094,000** | **183,000** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **2. RESILIENCE IN THE MEANS OF SUBSISTENCE OF VULNERABLE COMMUNITIES** | | | | | | |
| **Outcome 2: Local livelihood systems such as agriculture, fisheries, livestock, and forest enhanced for 20 communities under climate change** | | | | | | |
| 72100 | Intl Consultant | International climate resilient livelihoods expert (agronomist/forestry) : $13,000/month | 26,000 | 13,000 | 0 | 13,000 |
| 71300 | Local Consultant | 2 National climate resilient livelihoods experts providing ongoing support months : $2500/month | 180,000 | 60,000 | 60,000 | 60,000 |
| 72600 | Grants | Disbursement for activities carried out by community groups, NGOs etc. | 2,443,000 | 1,200,000 | 743,000 | 500,000 |
| 74200 | Audio Visual&Print Prod Costs | Audio Visual & Print Prod Costs | 70,000 | 50,000 | 10,000 | 10,000 |
| 75700 | Training, Conference and Worshops | Meetins conference and Workshops | 250,000 | 90,000 | 100,000 | 60,000 |
| 71600 | Travel | Travel costs for workshops and meetings, DSA | 180,000 | 60,000 | 85,000 | 35,000 |
| 72800 | Information Technology Equipmt | purchase of IT equipments,models. data etc. | 80,000 | 70,000 | 10,000 | 0 |
| 72400 | Communic & Audio Visual Equip | Communication Equip, charges and related costs | 20,000 | 5,000 | 10,000 | 5,000 |
| **TOTAL for Component 2** | | | **3,249,000** | **1,548,000** | **1,018,000** | **683,000** |
| **3. CAPACITY BUILDING AND KNOWLEDGE, GENERATION FOR CLIMATE CHANGE ADAPTATION** | | | | | | |
| **Outcome 3: Enhanced capacity and knowledge of local institutions and of communities to better adapt to climate change.** | | | | | | |
| 72100 | Intl Consultant | International expert on supporting marketing and developing income generating activities : $13,000/month | 26,000 | 13,000 | 0 | 13,000 |
| 71300 | Local Consultant | 2 National experts on providing ongoing support for the design and implementation of the IGAs months: $2500/month | 180,000 | 60,000 | 60,000 | 60,000 |
| 72600 | Grants | Disbursement for activities carried out by community groups, NGOs etc. | 647,500 | 349,500 | 248,000 | 50,000 |
| 74200 | Audio Visual&Print Prod Costs | Audiovisual and printing materials and other for education and raising awareness | 30,000 | 5,000 | 20,000 | 5,000 |
| 72800 | Information Technology Equipmt | purchase of IT equipments,models. data etc. | 120,000 | 90,000 | 30,000 | |
| 71600 | Travel | Travel costs for workshops and meetings, DSA | 150,000 | 50,000 | 50,000 | 50,000 |
| 72400 | Communic & Audio Visual Equip | Communication Equip, charges and related costs | 50,000 | 0 | 50,000 | 0 |
| **TOTAL for Component 3** | | | **1,203,500** | **567,500** | **458,000** | **178,000** |

| | | | | |
|---|---|---|---|---|
| **6. Programme Implementation – Total Costs** | **7,182,500** | **3,568,500** | **2,570,000** | **1,044,000** |
| **7. Project/Programme Execution cost** | **682,338** | **339,008** | **244,150** | **99,180** |
| **8. Total Project/Programme Cost** | **7,864,838** | **3,907,508** | **2,814,150** | **1,143,180** |
| **9. Programme Cycle Management Fee charged by the Implementing Entity (8.5%)** | **668,511** | | | |
| **Amount of Financing Requested** | **8,533,349** | | | |

1) The national water management expert will support the international expert

2) The international consultants' costs have been reduced to 2 months for each component. These consultancy services will be used as follow:

a. At the beginning of the project to support the national expertise to develop the required methodologies, technologies et strategies for the implementation of each component
b. At the end of the project for the assessment, documenting and codification of experiences and knowledge drawn from the project implementation

## Annex 3. Programme Implementation Schedule / Gantt Chart

**Implementation schedule:**
**Milestones:** ▲

Award id: 00064182
Project id: 00081072

| Particulars | Schedule | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YEARS | Year 1 | | | | Year 2 | | | | Year3 | | | |
| QUARTERS | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| PROGRAMME INCEPTION | | | | | | | | | | | | |
| **OUTCOME 1:** Increased climate change resilience of local water systems in Mopti and Timbuktu regions | | | | | | | | | | | | |
| Output 1.1. Water infiltration, storage and flow in the Faguibine System improved by opening up to 20 km silted channels and obstructed ponds | | | | | | | | | | | | |
| 1.1.1. Measures for unblocking the waterways and channels | | | | | | | | | | | | |
| 1.1.2. Preparation of site-specific designs and cost estimate for selected intervention for unblocking the water ways and channels | | | | | | | | | | | | |
| 1.1.3. Collecting native seed species for producing seedlings and nurseries for afforestation | | | | | | | | | | | | |
| 1.1.4. Planting seedlings in areas marked out for rehabilitation | | | | | | | | | | | | |
| 1.1.5. Maintenance and management of planted seedlings | | | | | | | | | | | | |
| Output 1.2: Water access to 20 vulnerable communities enhanced by the rehabilitation of water canals and distribution plan for multiples users including climate resilient water management systems | | | | | | | | | | | | |
| 1.2.1. Conducting vulnerability and local capacity assessment | | | | | | | | | | | | |
| 1.2.2. Building rainwater collection and storage facilities in the communities | | | | | | | | | | | | |
| 1.2.3. Rehabilitating at least 10 wells in each local community | | | | | | | | | | | | |
| 1.2.4. Construct dugout wells and ponds in the communities | | | | | | | | | | | | |
| **OUTCOME 2:** Local livelihood systems such as agriculture, fisheries, livestock, and forest enhanced in at least 20 communities under climate change | | | | | | | | | | | | |
| Output 2.1 Climate-resilient fisheries, agro- pastoral practices and technologies e.g. drought- and disease-resistant varieties introduced, and, integrated crop-livestock production systems etc. practiced by local communities | | | | | | | | | | | | |
| 2.1.1. identifying technologies adapted to the local conditions | | | | | | | | | | | | |
| 2.1.2. Testing the identified technologies in participation with communities | | | | | | | | | | | | |
| 2.1.3. Training and distributing improved seeds, livestock and fish varieties to farmers for trying them in their production systems | | | | | | | | | | | | |
| 2.1.4. Design and establishment of dry season gardening schemes and training of women in how to manage them | | | | | | | | | | | | |
| 2.1.5. Women in communities are supported in the establishment and management of dry season gardening schemes | | | | | | | | | | | | |
| Output 2.2: Conservation and restoration practices e.g. conservation agriculture, agroforestry etc. introduced in 20 local communities for forest ecosystem resilience to climate change | | | | | | | | | | | | |
| 2.2.1. Communities are supported to design and construct wood lots and nurseries | | | | | | | | | | | | |
| 2.2.2. Communities are trained in how to manage woodlots and nurseries for | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| conservation purposes | | | | | | | | | | | | |
| 2.2.3. Conserving protected areas for natural resources that communities can use as safety nets under climate change | | | | | | | | | | | | |
| 2.2.4. Planting « bourgou » fields in to supplement animal feed | | | | | | | | | | | | |
| Output 2.3: Dry-season gardening activities by women improved for food and income diversification | | | | | | | | | | | | |
| 2.3.1. Training women in market-gardening techniques for various crops | | | | | | | | | | | | |
| 2.3.2. Install infrastructure to enhance market gardening activities | | | | | | | | | | | | |
| 2.3.3. Communities are trained in how to manage woodlots and nurseries for conservation purposes | | | | | | | | | | | | |
| 2.3.4. Training women in handling and marketing of their products | | | | | | | | | | | | |
| **OUTCOME 3:** Enhanced capacity and knowledge of local institutions of 20 communities to better adapt to climate change. | | | | | | | | | | | | |
| **Output 3.1.** The knowledge and capacity of community improved to integrate climate risk management in economic, social and cultural development plans (ESCDP) | | | | | | | | | | | | |
| 3.1.1. Improving the competence of local communities to understand the opportunities and threats associated with climate change in the long-term and the impacts of climate variability in order to better update communal development plans (ESCDP) and include climate change and support the implementation of local adaptation efforts. | | | | | | | | | | | | |
| 3.1.2. Preparation of local adaptation plans | | | | | | | | | | | | |
| 3.1.3. Assessment of the vulnerability and local capacities to adapt to climate shocks and variability using participatory approach | | | | | | | | | | | | |
| 3.1.4. Supporting local institutions and technical support services to access and utilize climate information needed for the planning and follow-up of agricultural and pastoral activities. | | | | | | | | | | | | |
| 3.1.5. Put in place inter-communal stakeholder groups in all target communities, (community organizations extension workers, NGOs, communal counselors) | | | | | | | | | | | | |
| **Output 3.2:** 100 community actors trained to handle climate change hazards and income generation activities (IGA) | | | | | | | | | | | | |
| 3.2.1. Assess and identify appropriate learning platforms and systems taking into account already functional platforms and systems | | | | | | | | | | | | |
| 3.2.2. Create networks between NGOs and relevant local/district/regional institutions | | | | | | | | | | | | |
| 3.2.3 Provide support for operationalizing platforms and systems (e.g. regular climate forums) | | | | | | | | | | | | |
| 3.2.4. Production and printing of lessons learnt documentation | | | | | | | | | | | | |
| 3.2.4. Dissemination of lessons learnt | | | | | | | | | | | | |
| **Output 3.3**.Local institutional capacity strengthened in 20 communities in establishing micro-credit schemes, cereal | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| banks etc. and in managing different community groups | | | | | | | | | | | | |
| 3,3,1. Organisation of series of workshops to strengthen local institutional capacity | | | | | | | | | | | | |
| 3.3.2. : Communities are supported in the establishment of and implementation of micro-credit schemes | | | | | | | | | | | | |
| 3.3.3. Communities are supported in the development and management of cereal banks | | | | | | | | | | | | |
| **PROGRAMME EXECUTION** | | | | | | | | | | | | |
| 5.1. Programme Management Unit established and operational | | | | | | | | | | | | |
| 5.1.1. Programme staff recruited | | | | | | | | | | | | |
| 5.1.2. Office furniture, equipment, vehicle, and stationary procured | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| **5.2. Programme monitoring and evaluation** | | | | | | | | | | | | |
| Inception report | | | | | | | | | | | | |
| Quarterly reports | | | | | | | | | | | | |
| Six monthly technical monitoring | | | | | | | | | | | | |
| Annual Audits | | | | | | | | | | | | |
| Mid Term Evaluation | | | | | | | | | | | | |
| Final Programme Evaluation | | | | | | | | | | | | |
| Programme Terminal Report | | | | | | | | | | | | |

## ANNEX 4: DISBURSEMENT SCHEDULE

| | Upon Agreement signature | 1st disbursement (received at time of agreement) | One Year after Project Start | Year 3 | Total |
|---|---|---|---|---|---|
| **Scheduled Date** | | 30-Jul-13 | 30-Jul-14 | 30-Jul-15 | |
| **Project Funds** | | 3,907,507.50 | 2,814,150.00 | 1,143,180.00 | 7,864,837.50 |
| **Implementing Entity Fee** | 267,404.48 | 199,282.88 | 143,521.65 | 58,302.18 | 668,511.19 |
| **Total** | 267,404.48 | 4,106,790.38 | 2,957,671.65 | 1,201,482.18 | 8,533,348.69 |

## Annex 5: List of Stakeholders Consultations

a) First t National Climate Change Committee meeting held in Bamako to discuss the programme concept note on the 16th June 2011 presided by the Minister of Environment and sanitation

| N° | NAMES | INSTITUTION/ORGANIZATION | ADRESSE-TELEPHONE AND/OR EMAIL |
|---|---|---|---|
| 1 | Boubacar Mody Guindo | National Centre of Research and Technology (CNRST) | 66 79 18 12 |
| 2 | Mme Dembélé Aminata Dembélé | National Council of Farmers' Organization (CNOP) | 76 28 81 30 |
| 3 | Zan Diarra | DNGR | 66 83 74 60 |
| 4 | Mahamadou Coulibaly | Ministry of Energy and Water/National Direction of Hydraulic | 76 44 17 76 |
| 5 | Colonel Bah Samaké | Ministry of Security and Civil Protection/ General Direction of Civil Protection | 66 76 38 39 |
| 6 | Mme Camara Lala | National Plan and Development Direction | 66 72 28 47 |
| 7 | Tidiani Coulibaly | Forestry Direction | 66 76 83 35 |
| 8 | Dr Sacko Modibo | DNACPN (National Direction of Sanitation and Nuisance and pollution Control) | 66 74 23 42 |
| 9 | Hamadou Oumarou Dramé | National Direction of Agriculture | 76 48 90 93 |
| 10 | Sada SOW | National Council to combat Paludisme | 76 03 62 72 |
| 11 | Sory Ibrahima Bouaré | DNS/DHPS | 66 88 02 36 |
| 12 | Alassane BA | AEDD /Ministry of Environment | 66 73 73 64 |
| 13 | Abdoulaye BAYOKO | Climate Change Advisor/PNUD | 20 70 00 51 |
| 14 | Aida M'BO | Environment Advisor/PNUD | 20 70 0013 |
| 15 | Souleymane Cissé | Technical advisor/Ministry of Environment | 66 89 74 24 |
| 16 | Mamadou Gakou | Head of AEDD/ Ministry of Environment | 76 46 16 45 |
| 17 | Maurice Dewulf | Represent ant Resident a.i. and Programme Director / PNUD | 20 70 00 02 |
| 18 | Moussa Dabitao | ANADEB (Biocarburant Energiy Development National Agency) | 79 55 58 21 |
| 19 | Daouda Zan Diarra | Meteorological Direction | 66 82 24 77 |
| 20 | Dantoumé Tounkara | Mine and Geology Direction | 66 97 70 46 |
| 21 | Mme Meti Aminata Wallet Bayes | Territorial Collectivity National Agency | 66 72 55 78 |
| 22 | Madani Ouattara | DNTTMF | 66 98 19 78 |
| 23 | Mme Niaré Maïmouna Sidibé | Collective of Associations and Women Organizations | 66 71 16 89 |
| 24 | Mohamed Doumbia | National Council of the Youngness | 76 48 66 78 |
| 25 | Mandiou Gassama | CPS/SEEUDE | 66 97 24 65 |
| 26 | Siriman Kanouté | ANGESEM | 76 46 86 69 |
| 27 | Djiriba Traoré | AEDD | 65 62 44 67 |
| 28 | Ibrahima Aya | European Union Commission | 76 46 21 14 |
| 29 | Bakary B. Diallo | Ministry of Tourism | 76 28 32 00 |
| 30 | Tiémoko Coulibaly | ADE.Sa | 66 79 72 49 |
| 31 | Seydou Mamadou Traoré | Rural Polytechnic Institute | 66 87 53 59 |
| 32 | Arona Coulibaly | National School of Engineers | 66 71 24 96 |
| 33 | Boubacar Sidiki Dembélé | Deputy Director of AEDD | 66 73 15 38 |
| 34 | Fatoumata Coulibaly | AEDD | 66 84 79 76 |
| 35 | Robert Oliver | World Food Programme | Robert.oliver@wfp.org |
| 36 | Lasseni Traoré | Climate Network | lassenitraore@gmail.com |
| 37 | Alida Boye | Norway Embassy | Alida.boye@nfa.no |
| 38 | Sekou Sidibé | UNCDF | Sekou.sidibe@uncdf.org |

| | | | |
|---|---|---|---|
| 39 | Aïcha Tapo Niangado | Carbon Network | Reseaucarbone.ml@yahoo.fr |
| 40 | Abdji Hamadou Guitteye | NGOs Association | secoong@orangeml.int |
| 41 | Ousmane Samassekou | NGOs Association | sewakadji@yahoo.fr |
| 42 | Bakary Doumbia | National direction of Job | Bdoumbia2006@yahoo.fr |
| 43 | Alain Gerbe | Special advisor/Ministry of Environment | alaingerbe@cefib.com |
| 44 | Dembélé Hawa Katilé | National Direction of Women Improvement | katilehawa@yahoo.fr |
| 45 | Moussa Coulibaly | Ministry of Energy and water | mousslc@yahoo.fr |
| 46 | Aissata Soumaré | DNCT/MATCL | Asoumare63@yahoo.fr |
| 47 | Yves Dakono | Vegetable Protection Office | yvesdakona@yahoo.fr |
| 48 | Mahamadou Traoré | AEDD | Traoremouha2@yahoo.fr |
| 49 | Dr Vincent Dami traoré | National High School | Vincent.vincentraore@gmail.com |
| 50 | Professor Tiémoko SANGARE | Minister of Environment and Sanitation | |

**b)** Stakeholders meeting of 02 November 2011 with the staff of the Environment and Sustainable Development Agency (AEDD)

| N° | Nom & Prénom | Structure | Contact / Email |
|---|---|---|---|
| 1 | Djiriba TRAORE | AEDD | Djiriba.traore@gmail.com |
| 2 | Alamir Sinna TOURE | AEDD | astoure@hotmail.com |
| 3 | Amadou MAIGA | AEDD | adoumaiga@yahoo.fr |
| 4 | Daouda SANGARE | AEDD | David65nfs@yahoo.fr |
| 5 | Djibril BAGAYOKO | AEDD | Bagastp2008@yahoo.fr |
| 6 | Mme AG Rokiyatou Walet HATTAYE | AEDD | trokite@yahoo.fr |
| 7 | Ahmadou S. DIALLO | AEDD | Ahmadousambel2004@yahoo.fr |
| 8 | Oulematou S. SALL | AEDD | Sarons25@yahoo.fr |
| 9 | Daouda DIALLO | AEDD | Daoudial@gmail.com |
| 10 | Toumany DEMBELE | AEDD | toumanydems@yahoo.fr |
| 11 | Abdoulaye KANTE | AEDD | abkant@yahoo.fr |
| 12 | Mme Aïssata KEITA SYLLA | AEDD | Bijou842002@yahoo.com |
| 13 | Mme COUMARE Nana KONATE | AEDD | Nanakonate11@yahoo.fr |
| 14 | Mme SACKO Mariam DIAKITE | AEDD | Mamadiakite2003@yahoo.fr |
| 15 | Mohamed SOUMARE | AEDD | S_mkf@yahoo.com |
| 16 | Fatou M. BAGAYOKO | AEDD | Fatydan2002@yahoo.fr |
| 17 | Fily NIANG | AEDD | nahfily@hotmail.com |
| 18 | Agalyou A. MAIGA | AEDD | maigaagalyoualk@yahoo.fr |
| 19 | Mme BARRY Kadidia DABO | AEDD | dabokadidia@yahoo.fr |
| 20 | Cheick Oumar TOURE | AEDD | cheickotoure@yahoo.ca |
| 21 | Tenin S. KONATE | AEDD | tninsekoukonate@yahoo.fr |
| 22 | Mme SY Nia DABO | AEDD | Nia_dabo@yahoo.fr |
| 23 | Boubacar TRAORE | AEDD | cochboy@live.fr |
| 24 | Abdoulaye Y. HAIDARA | AEDD | abdoulyaha@yahoo.fr |
| 25 | Indé dit Amadou TEMBINE | AEDD | Tembine.inde@gmail.com |
| 26 | Sékou DIALLO | AEDD | Skoudiallo27@yahoo.fr |
| 27 | Boubacar DIARRA | AEDD | Diarraboubacar20012002@yahoo.fr |
| 28 | Sidi DIALLO | AEDD | Sidi.diallo@hotmail.com |
| 29 | Mohamed A. TRAORE | AEDD | behady@yahoo.fr |
| 30 | Abdoulaye CISSE | AEDD | Cisseno1@yahoo.fr |
| 31 | Mme TRAORE Yaye B. DRAME | AEDD | yayeboury@yahoo.fr |
| 32 | Idrissa MAIGA | AEDD | idiveliki@hotmail.com |
| 33 | Sékou SIDIBE | UNCDF | Sekou.sidibe@uncd.org |
| 34 | Maï Moussa KATIELLA | UNCDF | katiella@undp.org |
| 35 | Johnson NKEM | UNDP | johnsonnkem@undp.org |
| 36 | Abdoulaye BAYOKO | PNUD | Abdoulaye.bayoko@undp.org |
| 37 | Boubacar Sidiki DEMBELE | AEDD | boubacarsdembele@gmail.com |
| 38 | Mme SIDIBE Mariétou KORNIO | AEDD | marikornio@yahoo.fr |

### c) Stakeholders Meetings in Mopti

| N° | NAME | INSTITUTION/ORGANIZATION | ADRESSE-TELEPHONE AND/OR EMAIL |
|---|---|---|---|
| 2 | OUMAR TAMBOURA | PROJET CT-DL /MOPTI | Tel : 00223/ 76 31 80 80<br>otamboura@yahoo.fr |
| 3 | NOUHOUM CISSE | PROJET CT-DL /MOPTI | Tel :00223/ 76 38 22 38<br>Caf.ctdl@orangemali.net |
| 3 | MOUSSA COULIBALY | PROJET CT-DL /MOPTI | Tel : 66 76 80 28<br>Moussa.koul@yahoo.fr |
| 4 | BOCARI CISSE | MAIRE DE LA COMMUNE DE BASSIRO<br>MEMBRE DU HAUT CONSEIL DES COLLECTIVITES TERRITORIALES | Tel : 00223/ 79 42 25 20<br>00223/ 66 52 87 30<br>Bocari.cisse@yahoo.com |
| 5 | SAMBOUROU BARRY | SECRETAIRE GENERAL MAIRIE DE LA COMMUNE DE BASSIRO | Tel : 00223/ 65 88 60 96 |
| 6 | HAMADOUN GUIMBAYARA | CONSEILLER COMMUNAL MAIRIE DE LA COMMUNE DE BASSIRO | Tel : 00223/ 63 50 49 02 |
| 7 | MAMA KAÏKOUMANA | CONSEILLER COMMUNAL MAIRIE DE LA COMMUNE DE BASSIRO | Tel : 00223/ 65 82 00 29 |
| 8 | BAYON KASSAMBARA | CONSEILLER COMMUNAL MAIRIE DE LA COMMUNE DE BASSIRO | Tel : 00223/ 63 69 09 11 |
| 9 | BAMAGAN MAÏGA | MAIRE DE LA COMMUNE DE FATOMA | Tel : 00223/ 66 17 63 60<br>00223/ 76 01 45 35<br>maganmaiga@yahoo.fr |
| 10 | OUMAR TANGARA | SECRETAIRE GENERAL MAIRIE DE LA COMMUNE DE FATOMA | Tel : 00223/ 66 22 63 67 |
| 11 | ABDOULAYE MAMADOU DIARRA | GOUVERNEUR DE LA REGION DE MOPTI | Tel : 00223/ 76 05 19 21<br>grmopti@yahoo.fr |
| 12 | SAHIDOU TANGARA | DIRECTEUR DE CABINET DU GOUVERNEUR DE MOPTI | Tel : 00223/ 76 11 45 19<br>00223/ 76 05 24 30<br>grmopti@yahoo.fr |
| 13 | MAMADOU GAOUSSOU TRAORE | CONSEILLER AUX AFFAIRES ADMINSTRATIVES ET JURIDIQUES DU GOUVERNEUR DE MOPTI | Tel : 00223/ 76 17 04 97<br>grmopti@yahoo.fr |

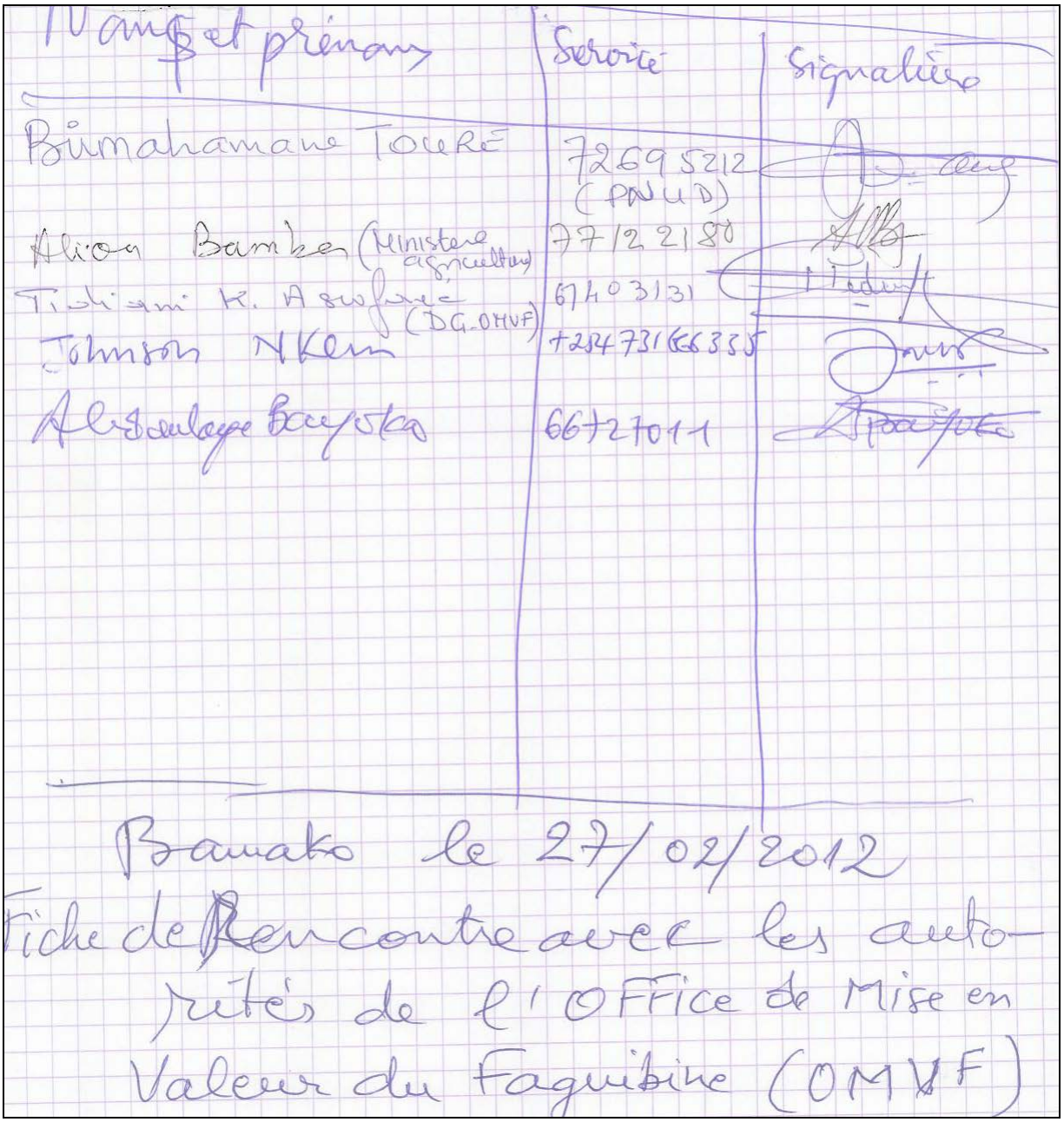
### d) Stakeholders Meetings in Goundam

| **N°** | **NAME** | **INSTITUTION/ORGANIZATION** | **ADRESSE-TELEPHONE AND/OR EMAIL** |
|---|---|---|---|
| 1 | Jean Dubélé Diassana | CPS/SDR | 76 02 14 95 |
| 2 | Aliou Bamba | Ministère de l'Agriculture Bamako | 66 74 74 62 |
| 3 | Abdoulaye Dembélé | Direction Régionale du Génie Rural / Bamako | 76 46 13 75 |
| 4 | Ousmane S. Traoré | Gouvernorat /Tombouctou | 76 18 37 80 |
| 5 | Amadou Diallo | Direction Régionale Eaux et Forêts/ Tombouctou | 76 3178 20 |
| 6 | Assim Togo | Préfet/Goundam | 79 13 94 97 |
| 7 | Aboubacar M. Diall | Secteur Agricole /Goundam | 76 20 80 15 |
| 6 | Ibrahim Marico | Service vétérinaire/ Goundam | 76 45 82 74 |
| 7 | Hamadou Doucouré | FUCAMSYF/Goundam | 79 38 45 21 |
| 8 | Hama Abacrine | FUCAMSYF/Goundam | 73 42 25 67 |
| 9 | Mamoutou Dembélé | Commune Rurale/Adermalane | 79 18 93 69 |
| 10 | Oumar Al. Touré | Commune Rurale/Douékiré | 76 02 31 11 |
| 11 | Amadou Aba | Maire Commune Rurale de Bintagoungou | 75 15 37 00 |
| 12 | Mahamoud Fané | Goundam/Radio locale | 75 29 66 97 |
| 13 | Bakary Ouonogo | Préfet/Diré | 76 30 50 71 |

e) Validation meeting of the National Climate Change Committee held in Bamako the 22 December 2011 with the presence of the Minister of Environment and sanitation

| N° | NAMES | INSTITUTION/ORGANIZATION | ADRESSE-TELEPHONE AND/OR EMAIL |
|---|---|---|---|
| 1 | Boubacar Mody Guindo | National Centre of Research and Technology (CNRST) | 66 79 18 12 |
| 2 | Mme Dembélé Aminata Dembélé | National Council of Farmers' Organization (CNOP) | 76 28 81 30 |
| 3 | Zan Diarra | DNGR | 66 83 74 60 |
| 4 | Mahamadou Coulibaly | Ministry of Energy and Water/National Direction of Hydraulic | 76 44 17 76 |
| 5 | Colonel Bah Samaké | Ministry of Security and Civil Protection/ General Direction of Civil Protection | 66 76 38 39 |
| 6 | Souleymane Doumbia | National Plan and Development Direction | 66 72 28 47 |
| 7 | Kouloutan Coulibaly | National Direction of Forest and Water | |
| 8 | Dr Sacko Modibo | DNACPN (National Direction of Sanitation and Nuisance and pollution Control) | 66 74 23 42 |
| 9 | Mme Niambélé | National Direction of Agriculture Coordinatrice Projet MA/PUNU/LDCF | 76o 76611 |
| 10 | Sada SOW | National Council to combat Paludisme | 76 03 62 72 |
| 11 | Sory Ibrahima Bouaré | DNS/DHPS | 66 88 02 36 |
| 12 | Alassane BA | AEDD /Ministry of Environment | 66 73 73 64 |
| 13 | Abdoulaye BAYOKO | Climate Change Advisor/PNUD | 20 70 00 51 |
| 14 | Aida M'BO | Environment Advisor/PNUD | 20 70 0013 |
| 16 | Mamadou Gakou | Head of AEDD/ Ministry of Environment | 76 46 16 45 |
| 17 | Maurice Dewulf | Represent ant Resident a.i. and Programme Director / PNUD | 20 70 00 02 |
| 18 | Moussa Dabitao | ANADEB (Biocarburant Energiy Development National Agency) | 79 55 58 21 |
| 19 | Sékou Nfaly Sissoko | Meteorological Direction | |
| 20 | Dantoumé Tounkara | Mine and Geology Direction | 66 97 70 46 |
| 21 | Mme Meti Aminata Wallet Bayes | Territorial Collectivity National Agency | 66 72 55 78 |
| 22 | Madani Ouattara | DNTTMF | 66 98 19 78 |
| 23 | Mme Niaré Maïmouna Sidibé | Collective of Associations and Women Organizations | 66 71 16 89 |
| 24 | Mohamed Doumbia | National Council of the Youngness | 76 48 66 78 |
| 25 | Mandiou Gassama | CPS/SEEUDE | 66 97 24 65 |
| 26 | Siriman Kanouté | ANGESEM | 76 46 86 69 |
| 27 | Bakary B. Diallo | Ministry of Tourism | 76 28 32 00 |
| 28 | Tiémoko Coulibaly | ADE.Sa | 66 79 72 49 |
| 30 | Seydou Mamadou Traoré | Rural Polytechnic Institute | 66 87 53 59 |
| 31 | Boubacar Sidiki Dembélé | Deputy Director of AEDD | 66 73 15 38 |
| 32 | Fatoumata Coulibaly | AEDD | 66 84 79 76 |
| 33 | Sokona | Malifolkcentre | |
| 34 | Pierre Dembélé | Climate Network/ malifolkcentre | 76239780 |
| 35 | Aïcha Tapo Niangado | Carbon Network | Reseaucarbone.ml@yahoo.fr |
| 36 | Abdji Hamadou Guitteye | NGOs Association | secoong@orangeml.int |
| 37 | Ousmane Samassekou | NGOs Association | sewakadji@yahoo.fr |
| 38 | Bakary Doumbia | National direction of Job | Bdoumbia2006@yahoo.fr |
| 39 | Alain Gerbe | Special advisor/Ministry of Environment | alaingerbe@cefib.com |
| 40 | Dembélé Hawa Katilé | National Direction of Women Improvement | katilehawa@yahoo.fr |
| 41 | Moussa Coulibaly | Ministry of Energy and water | mousslc@yahoo.fr |
| 42 | Aissata Soumaré | DNCT/MATCL | Asoumare63@yahoo.fr |
| 43 | Yves Dakono | Vegetable Protection Office | yvesdakona@yahoo.fr |
| 44 | Dr Vincent Dami traoré | National High School | Vincent.vincentraore@gmail.com |
| 45 | Professor Tiémoko SANGARE | Minister of Environment and Sanitation | |

**F) Meeting with the management of the Faguibine System on 27 February 2012 in defining their roles in the AF Programme**



| Noms et prénoms | Service | Signature |
|---|---|---|
| Bumahamane TOURÉ | 72695212 (PNUD) | |
| Alion Bamba (Ministère agriculture) | 77122180 | |
| Tchiami K. Aswlare (DG-OMVF) | 67403131 | |
| Johnson NKem | +2547316663355 | |
| Abdoulaye Bayoko | 66727011 | |

Bamako le 27/02/2012

Fiche de Rencontre avec les autorités de l'OFFice de Mise en Valeur du Faguibine (OMVF)

**Annex 6.**

## REPORTS OF LOCAL CONSULTATIONS Mopti and Timbuktu

**Date:** March 16 to 21 2012-04-16

### A. Introduction

1. In order to enhance ownership by the beneficiaries of the program locally and to better reflect their concerns in terms of solutions to their adaptation to the adverse effects of climate change and strengthen their resilience, an additional series of consultations was held with local communities in Mopti and Timbuktu.

2. Thus, the consultation teams were in the field from16 to 21 March in Mopti and Timbuktu. The team responsible for conducting the consultations in Mopti was composed of Mr. Abdoulaye Bayoko (representing UNDP) and Mr. Hamidou Traoré (representative of AEDD). They were supported by the project teams and Local Authority for Decentralisation under UNCDF based in Mopti and Timbuktu.

3. Three municipalities were targeted in representation of the climate challenges affecting the entire region of Mopti. They included Koubaye in flooded areas, Bassirou in semi-arid areas, and Dangolbore in arid areas.
4. The consultation took place on 17 March 2012 in KOUBAYE, 18 March 2012 in BASSIROU, 19 March 2012 DANGOLBORE and 20 March 2012 that of the town of Mopti.
5. For each of these meetings, the team was impressed by the enthusiasm and spontaneity with which local people welcomed the team.
On each occasion, discussions the meeting discussions began after the usual greetings and messages of welcome by local authorities.

### B. Discussions on the Programme of the Adaptation Fund

1. After the arrival and registration of the participants (with a strong representation of women), it was agreed that the working language will be the local language understood by almost everyone. There were however opportunities for translation into other local languages and in French. It was also proposed as a methodology to have two focal group discussions whenever needed; one for men and the other for women so that they can fully express themselves on their priorities.
2. However, to our surprise, during all the sessions of consultations, the women themselves requested to maintain a single group discussion during which they had no complex to express their needs in front of their men counterparts.

3. The critical activity of the consultation was to review the activities of the logical framework of the programme and to collect the opinions of the people on the relevance of the activities for the study area and also to receive their propositions of activities they will like to see implemented.

4. Indeed, one could note a very active participation of women at the point we can say that they spoke more than men to emphasize some of their specific complaints such as deepening of wells around the perimeters of the gardens that dried up often as emphasized by women presidents of the commune of KOUBAYE (in flood zone) Alimatou TANAPO and vice president of women BASSIROU (in semi flooded areas).
5. According to Lalla FASCOYE, women's priorities include:
• The equipping of wells for vegetable gardens with more appropriate ways such as drainage pumps powered by solar or wind;
• The provision of means of water distribution to women in far away villages from near the river (this will ensure water all year next to the gardens and reduce stress of transporting

water to the perimeters of their gardeners);
• To equip the market gardens with mesh fences;
• Supporting women associations in rice growing areas;
• Training and supporting for women to undertake income-generating activities;
• Making available to women facilities for agriculture (plows, oxen plowing etc.).
• The provision of women with adapted seeds of millet varieties that are not attacked by seed-eating birds;
• Making available to women short-cycle seeds of corn, rice etc. varieties;
• Making available to women animal and fish species and providing training necessary to enable them to raise small ruminants, fish etc.
• Making available to women means of income generating activities in other sectors.

6. Note that all these activities are found in all three components of the program and at the time of implementation must be scrupulously respect the demands of women.
7. Without reservation, the people approved all the programme activities and strongly supported it. They think that its implementation will contribute greatly to strengthen their resilience and adaptation to climate change. Their main concern is the culmination of the program for which they are hopeful because they say, in the past they spent several time with partners asking their opinions in formulating a good program and the process is never followed up with implementation (word by Alimatou TANAPO Women President of KOUBAYE, and Belco TRAORE of the same locality).

8. At the level of communes visited, high priority was placed on the control of water through the cleaning of some channels that would help improve the flow of more water at the same time.

9. The people have asked that the result of the interventions be reformulated and extended to the Mopti region for which the water control is the first priority.

10. The people have strongly demanded the rehabilitation of water channels at SONNON, KORO PATAWAL and contributing to allow water flow to the Dialoube, Soukoma, Soukoma,Togorocotia, Koubaye, and Ouromody Salsabe. This activity started by UNCDF must be complemented and strengthened.

11. In the commune of Bassirou, an emphasis was placed on the need for rehabilitation and strengthening of the channel at TIONFOL which had been dugged by UNCDF, but without measures of resilience that has started to fill up through landslide of its borders and thus, has not allowed this year, water supply to the largest lake in the town which is a source of live livelihood for people.

12. In addition, the restoration of a mini dam that was built by tGIZ and does not used today due to the silting of the creek bed YAME and bank erosion the latter.

13. At Dangolboré, another commune in the region, the crowd was too large (more than 70 participants with a strong representation of women (see list in annex). Again, the mixed group was selected and the women had an active participation. Participants, (ex: Mr. Hamadi Traore of BORON), in turn expressed their full commitment to the program that they believe is their program. However, women of this locality (e.g. Mrs. Batou Coulibaly, municipal councilor) reiterated the same concern that was raised by the women of Koubaye namely the need to accelerate the start of the program because the activities correspond perfectly to their concerns adaptation.
14. During the last consultation in the city of Mopti with regional officials and other projects operating in the region, the followings were discussed among other things:
• A Review the list of commune targeted following the fact that some municipalities on the list resulting from the ranking of the most vulnerable among the 166 poorest municipalities in

terms of food security have benefited over time of significant achievements than others that have become more vulnerable;
• Conduct a distribution slightly more balanced (ias much as possible) of communes targeted between the two targeted regions of Mopti and Timbuktu, and also within the same region;
• Revise downward (if necessary) the number of municipalities to ensure significant impacts in communes.

15. Consultations were held in Timbuktu in the municipalities of Lafia and Kondi (the details of the minutes of Timbuktu are presented separately).

16. As the Mopti consultations, the participants expressed their full adherence to the program and that all the components reflect their concerns. They made suggestions for the reformulation of certain activities (see details of the minutes).
17. On the modalities of implementation, the participants shared past experiences with irrigation, the biological and mechanical fasteners. All these actions have been financed by projects and programs under the project owner and the financial support up to 3% by the municipality.
18. With regards to the method of implementation of activities of this program: participants described two approaches possible:
- The program approach which consists of identifying together with the communities, actions to be undertaken and achieved directly by those selected by the project team;
- The community based approach is to allocate funding to the community for them to implement the actions identified with the beneficiaries as selected by the community on procedures.

Mayor and Amadou Kips proposed implementation of the program.
Binta Taher, Sakinatou Attaher, Molly and Fadimata Kadidia Boukou, Amadou Ali and Ibrahim Amadou, Sanoussi proposed implementation by the municipality.
The different speakers of whom the majority of women, peasants and some councilors preferred the "community based approach". Specifically, for Income Generating Activities (IGA), some participants such as the
mayor, Amadou Amadou Ibrahim Kipsi favored "program-based approach".

| Community Water Management Activities: Responses by Region | | | | |
|---|---|---|---|---|
| **Water Management Technology** | **Is the technology successfully used in the communities in your district? How is it used** | **Advantages of this technology for the communities in your district** | **Disadvantages/ problems of this technology for the communities in your district** | **Would you recommend this technology for your community? If so, why?** |
| **WATER SUPPLY AND STORAGE** | | | | |
| Dugouts | Inonded zone of Mopti region (Group of Commune of Koubaye): Yes | Will be useful for dry season gardening. Keeps animals at home. Reduces water shortage, safe, and can be used to grow fish. | Animals can fall into them if they are not fenced. Can easily get polluted. | Yes. Preferred choice over boreholes. |
| | Semi inonded zone of Mopti region (Groupe of Commune of Bassiro): Yes | Can be used as reserve irrigation and drinking water for animals during the dry season. | Can dry up very quickly if temperature is very high, animals may fall into dug-outs | Yes |
| | Exonded zone of Mopti (Groupe of Commune of Dangolboré): Yes | | | No |
| | Groupe1 of Timbuktu area ( group of commune of Lafia) | Can be used to support dry season gardening | | Yes |
| | Group 2 of Timbuktu zone (Group of commune of Kondi ): Yes | | | |
| Boreholes | Inonded zone of Mopti region (Group of Commune of Koubaye): Yes | Good for supplying domestic water use, safe for drinking, can supply water all the time, does not easily get polluted. | Mobilizing the financial resourcesrequired for build a borehole is beyond the capacity of the community | Yes |
| | Semi inonded zone of Mopti region (Groupe of Commune of Bassiro): Yes | Reliable. Water is reliable, clean and hence prevents diseases. | Can be expensive to build. Some boreholes yield salty water and hence not palatable for human consumption | Yes |
| | Exonded zone of Mopti (Groupe of Commune of Dangolboré): Yes | Provides clean disease-free, clean water | Costly | Yes |
| | Groupe1 of Timbuktu area ( group of commune of Lafia): Yes | Provides clean water. Reduces the burden on women. | Inadequate knowledge on maintenance | Yes |
| | Group 2 of Timbuktu zone | | | |

| Community Water Management Activities: Responses by Region | | | | |
|---|---|---|---|---|
| **Water Management Technology** | **Is the technology successfully used in the communities in your district? How is it used** | **Advantages of this technology for the communities in your district** | **Disadvantages/ problems of this technology for the communities in your district** | **Would you recommend this technology for your community? If so, why?** |
| | (Group of commune of Kondi ): Yes | | | |
| Rainwater harvesting | Group of semi ezonded zone of Mopti (Group of commune of Dangolboré): Yes | Good drinking water | Expensive | Yes |
| | Group of zone semi ezonded of Mopti region (Group of commune of Bassiro): Yes | Can be put close to houses. Can provide clean water if the facility is covered. | Can cause diseases if not appropriately stored and covered | Yes |
| Wells | Group of semi ezonded zone of Mopti (Group of commune of Dangolboré) : Yes | | Requires significant physical labour to construct. Hygiene can be poor if the well is not protected | Yes |
| Contour bunds | Group of semi ezonded zone of Mopti (Group of commune of Dangolboré) : Yes | Prevents erosion of topsoil | Can lead to waterlogging | Yes |
| | Group of semi ezonded zone of Mopti (Group of commune of Dangolboré) : Yes | Leads to more available water in farms. Saves crops from wilting as it helps stores moisture. | Can lead to too much water | Yes |
| Small scale dams | Group of zone semi ezonded of Mopti region (Group of commune of Bassiro): Yes | Good for humans and animals. Can provide irrigation during the dry season. Easy to construct and can reliably provide water (unlike boreholes that might not hit water) | Water use can be difficult to control as it can be used for different purposes. Costly to build. | Yes. |
| Conservation tillage techniques | Group of semi ezonded zone of Mopti (Group of commune of Dangolboré) : Yes | Leads to more available water in farms. Saves crops from wilting as it helps stores moisture. | | Yes |
| **IRRIGATION** | | | | |
| Sub-surface pipe irrigation | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Saves crops | | Yes |
| | Croup of Kondi Commune of Timbuktu: Yes | | | |

| Community Water Management Activities: Responses by Region | | | | |
|---|---|---|---|---|
| **Water Management Technology** | **Is the technology successfully used in the communities in your district? How is it used** | **Advantages of this technology for the communities in your district** | **Disadvantages/ problems of this technology for the communities in your district** | **Would you recommend this technology for your community? If so, why?** |
| | Group of Lafia commune of Timbuktu: Yes | | | |
| Shallow well irrigation | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Saves crops and enhance production | Water use can be difficult to control as it can be used for different purposes. Costly to build. | Yes |
| | Croup of Kondi Commune of Timbuktu: Yes | | | |
| | Group of Lafia commune of Timbuktu: Yes | | | |
| **MANAGEMENT OF FLOOD WATERS** | | | | |
| Flood water harvesting | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Saves crops and enhance production | Water use can be difficult to control as it can be used for different purposes. Costly to build. | Yes |
| | Croup of Kondi Commune of Timbuktu: Yes | | | |
| | Group of Lafia commune of Timbuktu: Yes | | | |
| Drainage channels/ ditches to manage flood waters | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Saves crops and enhance production | Takes time to build. Can lead to water loss. | Yes |
| | Croup of Kondi Commune of Timbuktu: Yes | | | |
| | Group of Lafia commune of Timbuktu: Yes | | | |
| **Livelihood Diversification Activities: Responses by Region** | | | | |
| **Livelihood Activity** | **Is the livelihood activity successfully undertaken in the communities in your district? How is it used** | **Advantages of this activity for the communities in your district** | **Disadvantages/ problems of this activity for the communities in your district** | **Would you recommend this activity for your community? If so, why?** |
| Community based fish farms | Upper West: No | Provides income. Helps in preservation of water bodies | Initial capital requirement could be high. Community has no technical know-how. Uses a lot of water. | Yes. |
| | Northern Group 2: Yes in a few places | Can provide food, income, and employment | Transportation to the market could be a challenge. Storage of fish would be a problem. | Yes – high income potential |

| Community Water Management Activities: Responses by Region | | | | |
|---|---|---|---|---|
| **Water Management Technology** | **Is the technology successfully used in the communities in your district? How is it used** | **Advantages of this technology for the communities in your district** | **Disadvantages/ problems of this technology for the communities in your district** | **Would you recommend this technology for your community? If so, why?** |
| Community based tree nurseries/ wood lots | Group of zone semi ezonded of Mopti region (Group of commune of Bassiro): Yes | Also added advantage of protecting the land. Source of additional income. | In terms of land allocation, farming trees would compete with other crops | Yes |
| | Group of semi ezonded zone of Mopti (Group of commune of Dangolboré) : Yes | Provides income and employment | Can fail if there's water shortage | Yes |
| | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Reverses deforestation. Prevents bush burning. | Lack of materials to start. | Yes |
| | Croup of Kondi Commune of Timbuktu: Yes | Serves as good windbreaks. Provides extra sources of income. | Could compete with other uses of water. Capital requirement could be high. | Yes |
| Dry season gardening | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Reduction of food shortage, reduction of unemployment and provide extra source of income, encourages year-round farming, and provides feeds for animals during the dry season. | Can potentially degrade land if you don't leave land fallow. Competes with other uses of water during the dry season. Could be sensitive to pest/disease attacks if there's rain in the dry season. | Yes. Both domestic and commercial scale would be useful. |
| | Croup of Kondi Commune of Timbuktu: Yes | Provides supplementary source of income and employment | Can fail if there's water shortage | Yes |
| | Group of Lafia commune of Timbuktu: Yes | Provides employment. Improved nutrition. | Inadequate knowledge on how to maintain the garden. Limited extension services to support community efforts. | Yes but stress on not encouraging the use of pesticides and chemicals. |
| Bee keeping | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Can provide medicine, food, and opportunities for income generation. Will provide incentive people to protect trees. | Bees can be dangerous to animals and humans. It needs a lot of attention and the establishment would be difficult to manage without support. | Yes |
| | Croup of Kondi Commune of Timbuktu: Yes | Provides income. Good medicinal value | Difficult to get resources to build the hives | Yes |

| Community Water Management Activities: Responses by Region | | | | |
|---|---|---|---|---|
| **Water Management Technology** | **Is the technology successfully used in the communities in your district? How is it used** | **Advantages of this technology for the communities in your district** | **Disadvantages/ problems of this technology for the communities in your district** | **Would you recommend this technology for your community? If so, why?** |
| Shea butter processing | Group of Lafia commune of Timbuktu: Yes | Good medicinal value | Community has inadequate knowledge of processing. Lack of processing machinery. Lack of capital. | Yes |
| Rice processing | Inundated zone of Mopti (Group of Koubaye Commune): Yes | Provides additional income. Provides bedding materials for animals | Takes a lot of time | Yes |
| Small ruminants | Croup of Kondi Commune of Timbuktu: Yes | Manure can be used as fertilizer | Reliant on rainfall. Lack of capital. | Yes |
| | Group of Lafia commune of Timbuktu: Yes | Manure can be used as fertilizer | Reliant on rainfall. Lack of capital | Yes |
| Adapted crop seeds diffusion | Inonded zone of Mopti (Group of Koubaye Commune): Yes | Enhance crop production | crop seeds availability | Yes |
| | Croup of Kondi Commune of Timbuktu: Yes | | | |
| | Group of Lafia commune of Timbuktu: Yes | | | |
| | Group of zone semi ezonded of Mopti region (Group of commune of Bassiro): Yes | | | |
| | Group of semi ezonded zone of Mopti (Group of commune of Dangolboré) : Yes | | | |

## Criteria for selecting targeted communes

The criteria include:
1) rank among the 166 poorest municipalities in Mali in terms of food security
Among the selection criteria of these municipalities include among others:
• The level of degradation of natural resources must be understood to mean the effects of the action on the environment and natural resources due to poverty (wood cutting, poaching, deforestation, etc..). The consequences of the degradation of natural resources include: extreme temperatures, floods, prolonged drought, the drying up of water needed for human and animal life in communities.

• The level of food insecurity: they are the common structural deficit in cereal production and food and where the lean season is becoming longer (4-6 months). In these municipalities, the pillars necessary for food security are not solid production, accessibility, utilization.

2) Belong to different ecological zones among which include among others:
• The flooded area in Mopti;
• The uncovered area of Mopti;
• The semi-drenched Mopti;
• The area of Lake Faguibine.

3) Belong to different administrative regions;
• Mopti region;
• Region of Timbuktu.

4) Do not have benefited from investments that have reduced its vulnerability since the ranking of the 166 municipalities that would justify its non eligibility

5) Having suffered a sharp deterioration since the ranking of the 166 municipalities' that justifies his choice.

## Annex 7: List of Acronyms

| Acronym | French | English Equivalence |
|---|---|---|
| **AEDD** | Agence de l'Environnement et du Développement Durable | National Environment and Sustainable Development Agency (NESDA) |
| **ABN** | Autorité de Bassin du Niger | Niger River Basin Authority |
| **ANICT** | Agence Nationale d'Investissement des Collectivités Territoriales | National Agency for Local Authorities |
| **AWP** | Plan de travail annuel | Annual Work Plan |
| **CCOCSAD** | Comité Communal d'Orientation, Coordination et de Suivi des Actions du Développement | Comunale Guidance Board, Coordination and Monitoring of Development Actions |
| **CLOCSAD** | Comité Local d'Orientation, Coordination et de Suivi des Actions du Développement | Local Guidance Board, Coordination and Monitoring of Development Actions |
| **CROCSAD** | Comité Régional d'Orientation, Coordination et de Suivi des Actions du Développement | Regional Committee for Guidance, Coordination and Monitoring of Development Actions |
| **CSA** | Commissariat à la Sécurité Alimentaire | The Commission for Food Security |
| **DNCT** | Direction Nationale des Collectivité Territoriale | National Directorate for Local Authority |
| **DNM** | Direction Nationale de la Météorologie | National Directorate for Meteorology (NDM) |
| **EMM** | Entité Multilatérale de Mise en Œuvre | Multilateral Implementing Entity (MIE) |
| **GEF** | Fonds pour l'environnement mondial (FEM) | Global Environment Facility |
| **IPCC** | Groupe d'experts intergouvernemental sur le changement climatique (GEICC) | Intergovernmental Panel for Climate Change |
| **MA** | Ministère de l'Agriculture | Ministry of Agriculture |
| **MATCL** | Ministère de l'Administration Territoriale et des Collectivités Locale | Ministry of Territorial Administration and Local Government |
| **MCI** | Ministère du Commerce et de l'Industrie | Ministry of Commerce and Industry |
| **MEA** | Ministère de l'Environnement et de l'Assainissement | Ministry of Environment and Sanitation |
| **MEE** | Ministère de l'Energie et de l'Eau | Ministry of Energy and Water |
| **MEP** | Ministère de l'Elevage et de la Pêche | Ministry of Livestock and Fisheries |
| **MJS** | Ministère de la Jeunesse et du Sport | Ministry of Youth and Sports |
| **MPFEF** | Ministère de la Promotion de la Femme, de l'Enfant et de la Famille | Ministry for the Promotion of Women, Children and Family Affairs |
| **NSTRC** | Centre National de Recherche Scientifique et Technologique du Mali | National Scientific and Technological Research Center of Mali |
| **OMD** | Objectifs du Millénaire pour le de Développement | Millennium Development Goals (MDG) |
| **OMVF** | Office de Mise en Valeur du Faguibine | Office for the Development of the Faguibine |
| **ONG** | Organisations non Gouvernementales | Non-Governmental Organizations (NGO) |
| **PDESC** | Programme de Développement Economique, Social et Culturel | Programme for Economic, Social and Cultural Development |
| **PIB** | Produit Intérieur Brut | Gross Domestic Product |
| **PNSPACC** | Politique nationale, Stratégie et Plan d'action sur les changements climatiques au Mali | National Policy, Strategy and Plan on Climate Change in Mali |
| **PNUD** | Programme des Nations Unies pour le Développement | United Nations Development Programme |
| **PPA** | Parité du Pouvoir d'Achat | Purchasing Power Parity |
| **PRSP** | Document de Stratégie de Réduction de la Pauvreté | Poverty Reduction Strategy Paper |
| **QPR** | Revue Trimestrielle des Projets | Quarterly Project Review |
| **UNDP CO** | Bureau de Pays du PNUD | UNDP Country Office |
| **UNDP EEG** | Groupe d'Environnement et Ėnergie | UNDP Environment and Energy Group |
| **UNDP RCA** | Centre Régional du PNUD pour l'Afrique | UNDP Regional Centre for Africa |
| **UNDP RCU** | Unité de Coordination Régionale du PNUD | UNDP Regional Coordination Unit |
| **UNDP RTA** | Conseiller Technique Régional du PNUD | UNDP Regional Technical Adviser |
| **WFP** | Programme Alimentaire Mondial | World Food Programme |

## Annex 8. Alignment of Programme Objectives with the AF Results Framework

### Alignment of Project Objectives/Outcomes with Adaptation Fund Results Framework

Any project or programme funded through the Adaptation Fund (AF) must align with the Fund's results framework and directly contribute to the Fund's overall objective and outcomes outlined. Not every project/programme outcome will align directly with the Fund's framework but at least one outcome and output indicator from the Adaptation Fund's Strategic Results Framework must be included at the project design stage.

There is currently, no place within the project document where an explicit link to the AF's results framework is delineated. As such, the secretariat is requesting project proponents to fill out the table below to directly link, where relevant, project objectives and outcomes to the Fund level outcome and outputs.

| **Project Objective(s)**[35] | **Project Objective Indicator(s** | **Fund Outcome** | **Fund Outcome Indicator** |
|---|---|---|---|
| **Outcome 3:**<br>**Enhanced capacity and knowledge of local institutions and of communities to better adapt to climate change.** | Number of local government institutions, and communities trained to enhanced adaptive capacity to climate risks | **Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses | 2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks |
| **Outcome 3:**<br>**Enhanced capacity and knowledge of local institutions and of communities to better adapt to climate change.** | Number of local adaptation plans prepared to enhance adaptive capacity to climate risks | **Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level | 3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses |
| **Outcome 1:**<br>**Increased resilience of local water systems to climate change in the Mopti and Timbuktu regions** | The extent of the waterways and channels cleared | **Outcome 4:** Increased adaptive capacity within relevant development and natural resource sectors | 4.2. Physical infrastructure improved to withstand climate change and variability-induced stress |
| **Outcome2:**<br>**Enhanced local production systems such as agriculture, fisheries, livestock, and forest under climate change** | Number of hectares irrigated with efficient and adapted methods | **Outcome 6:** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas | 6.1 Percentage of households and communities having more secure (increased) access to livelihood assets |
| **Project Outcome(s)** | **Project Outcome Indicator(s)** | **Fund Output** | **Fund Output Indicator** |
| **Output 3.2:**<br>**Knowledge and capacity of community actors increased to handle climate change hazards** | Number of people using best production practices to adapt to climate change | ***Output 2.1***: Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events | 2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events |
| **Output 3.1:**<br>**Climate change risk management improved for community use in economic, social and cultural development plans (CESCDP)** | Number of people trained in climate risk management | ***Output 3***: Targeted population groups participating in adaptation and risk reduction awareness activities | 3.1.1 No. and type of risk reduction actions or strategies introduced at local level |

[35] The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

| | | | |
|---|---|---|---|
| **Output 1.1:**<br><br>**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** | The number of kilometers of water channel cleared and improved ponds | ***Output 4:*** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability | 4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types) |
| **Output 2.1:**<br>**A range of fisheries, agro pastoral practices and technologies transferred e.g. drought- and disease-resistant varieties, integrated crop-livestock production systems etc. to the communities to reduce their risks of climate change.** | Annual increase production in agriculture, pastoral and fishery practices | ***Output 6:*** Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability | 6.1.2. Type of income sources for households generated under climate change scenario |