



ADAPTATION FUND

**REQUEST FOR PROJECT/PROGRAMME
FUNDING FROM THE ADAPTATION FUND**

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat
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Washington, D.C., 20433
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ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	Regular
Country/ies:	Guinea Bissau
Title of Project/Programme:	Scaling up climate-smart agriculture in East Guinea Bissau
Type of Implementing Entity:	Regional
Implementing Entity:	West African Development Bank (BOAD Regional Implementing Agency)
Executing Entity/ies:	General Direction of Environment/Secretariat of State of Environment and other Line Ministries
Amount of Financing Requested:	9,979,000.00 (in U.S Dollars Equivalent)

CONTEXT AND GENERAL FRAMEWORK OF THE PROJECT/PROGRAM

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 LOCALISATION



The Republic of Guinea Bissau is a West African coastal country with an area of 36,125 km² with 78% of continental and 12% of island (Bijagos archipelago). Its population is estimated to 1.73 million. Located east of the Atlantic Ocean, it borders are Senegal to the North and the Republic of Guinea to the East and South. The country organized into 8 major administrative 'Regions', which further divide into 'Sectors', 'Sections' and finally 'Tabancas' (villages) in decreasing levels of administration (Figure 1).

Figure 1: Administrative map of Guinea-Bissau
Source: Wikipedia.

SOCIO-ECONOMIC CONTEXT

Guinea-Bissau have a population estimated to 1.73 million with a density of 47.8 habitants per km². Bissau is the capital of Guinea-Bissau and the main administrative center, with about one quarter of the population living there. The annual rate in population growth is 2.54%¹. Despite high urbanization in recent years still about 58% of the population lives in rural areas. The project region (Gabú and Bafatá 'regions') covers a total area of 15,131 km², or 42% of Guinea-Bissau. Gabú with an area of 9,150 km² or 25% of the country is also the largest 'region' of all administrative regions.

The population of Guinea Bissau witch was 1 449 230 in 2009 will raise to 2 434 100 in 2030. The growth will be at least 68% of the population of 2009. In the project area (Gabù and Bafatà), the population will grow from 483191 people in 2016 to 682736 people in 2030 (see figure 2).

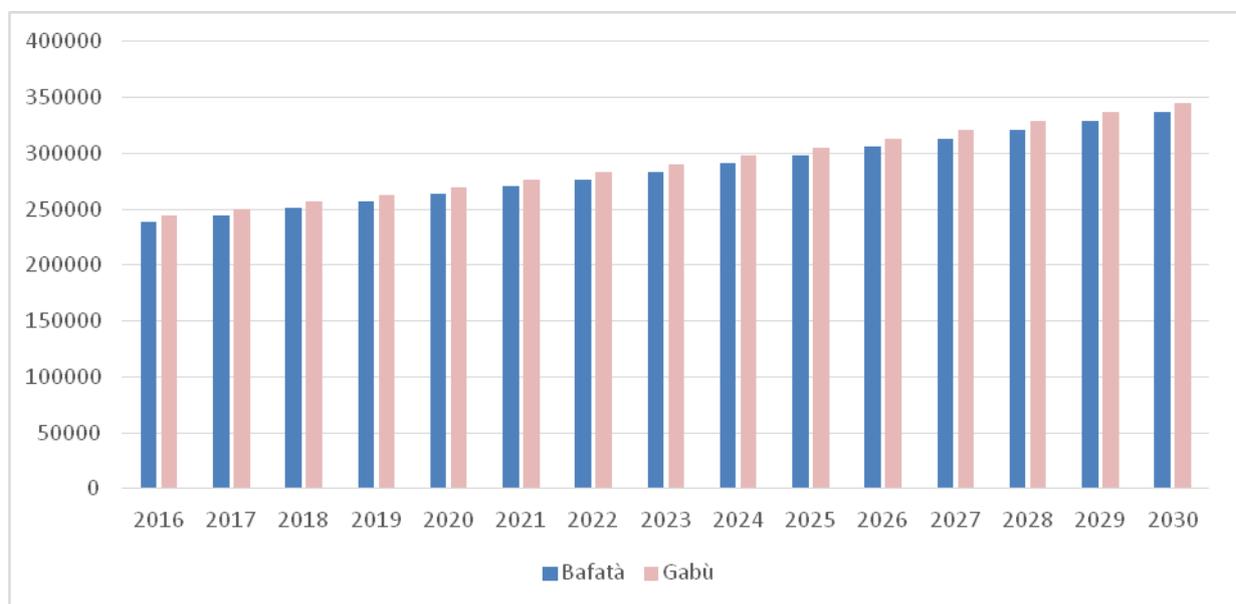


Figure 2: Growth of the population in the project area from 2016 to 2030 (Gabù and Bafatà)

The major socio-economic activities in the country lie is the exploitation of resources from agriculture, fisheries, forestry, livestock and mining extraction. Agriculture as primary economic sector of Guinea Bissau – alongside services – is largely based on subsistence farming, focusing predominantly on rice, cashew and livestock, employing 82% of the active population, generating 45% of GDP as well as the majority of exports receipts. The industrial sector is low in weight to the economy and focuses on the processing of cashew nuts.

It should be noted that, Guinea-Bissau is a Least Developed Country (LDC). The country has recently benefitted from considerable debt relief, which has helped the country to reduce its public debt to GDP ratio from a peak 113% of GDP end of 2009 to 28% of GDP by end of 2013 (IMF, 2014). While this has contributed to the stabilization of the economy with a GDP growth rate at 2.6 in 2014, 69% of the population continue to live below the poverty line, with 33% in conditions of 'extreme poverty' (<US\$1/day). The number of poor growth rate is

¹ Résultats de l'enquête approfondie sur la sécurité alimentaire et la vulnérabilité des ménages ruraux. République de Guinée Bissau, Mars 2011.

estimated at 4.6%². GDP per capita is only US\$1,400. The gap between the average income of the poor and the poverty line, which expresses the depth of poverty is more pronounced in Guinea-Bissau (25.0%). Income inequalities between poor, that measure the severity of poverty, show that the poorest of the poor are more numerous in Guinea-Bissau (i.e. a rate of 12.4%)³. The majority of these populations poor reside in rural areas. It is in these rural areas that the project will intervene to help to reduce poverty and improve living conditions.

Guinea Bissau's health situation is equally characterized by low use of health services and vulnerability of populations, particularly mothers and children under 5 years. Life expectancy is low (50 years) and infant mortality rates are high. During the last severe cholera epidemic in 2005, about 25,000 cases were reported, mostly due to unsanitary conditions, resulting in 400 deaths by the national report on human development published by the United Nations (PNUD, 2008).

Food insecurity in Guinea Bissau is also common: despite high rice production, more than 30% need to be imported in order to cover the population's needs⁴. Other speculations such as vegetables, tubers, oilseeds, maize, etc. are imported to cover the needs of a growing population.

Food security is connected to world market transactions: in 2010, a strong rise in Thai rice prices (benchmark price for rice) from US\$380 to US\$495 due to heavy floodings in Thailand increased pressures on Guinea-Bissau's food supply. Climatic conditions also play an important role: low rainfalls in the beginning of the 2015 cropping season have led the World Food Program (WFP) to issue a warning on critical food security conditions for East Guinea-Bissau where, due to below average precipitation, cereal production could be expected to decrease by over 32% compared to the five-year average level (WFP, 2014). Currently 18% of children under 5 years are underweight, and the 3-year average prevalence of undernourishment is at 20% of the population (FAO, 2015). As a consequence, Guinea-Bissau's score on the Human Development Index (HDI) is 0.420 or place 178 out of a total of 188 countries (2014). This value is both significantly below average of the Human Development Report's 'Low Human Development Group' (0.493) and below the average of Sub-Saharan African countries (0.502) (UNDP, 2014). Fallow periods under slash-and-burn agriculture necessarily surpass those of alternative agricultural practices such as conservation agriculture, but currently land under fallow in Guinea-Bissau is often reused before a regeneration of soil fertility has occurred due to increasingly scarce land for food production (SEAT/DGA and Republic of Guinea-Bissau, 2011).

Guinea-Bissau has suffered from repeated, ongoing, political unrest in recent decades since independence in 1974, worsening already precarious economic and social conditions. Heads of state have been deposed or assassinated in repeat military skirmishes and coups, the most recent in 2009. The 2006 National Poverty Reduction Strategy Paper (PRSP) highlights government instability, mismanagement of public funds, structural constraints in the economy as key issues, including little diversification of income sources, low internal resource availability, weak human capital and lack of private sector dynamism. The PRSP's strategy focuses on a broad spectrum of issues to address these endemic problems, including instigating good governance, battling corruption, improving human rights, building institutional capacity and human resources, and increasing agricultural and fishing productivity alongside improving environmental protection. In addition, the PRSP points to an increasing involvement of well-informed NGOs and participation of a strong civil society, which can be mobilized to improve social and economic conditions. However, following the

² BECEAO, Report on the situation of poverty in UEMOA countries, 2012

³ BECEAO, Report on the situation of poverty in UEMOA countries, 2012

⁴ Trade in the cashews and rice: Implications for food security, joint Mission of the Ministry of Agriculture and Rural Development (MARD), the Organization for food and Agriculture of the United Nations (FAO) and the United Nations World Food Programme (WFP), Principal Report. P. 6

2009 coup d'état political stability has been considerably strengthened, particularly after the successful elections early 2014. This has led to renewed donor presence in the country and successful regional bond issuance, among other.

FOOD INSECURITY

The analysis of the evolution of the grain production shows that it follows a variable trend with an average growth rate of just 1% over the last decade (according to figures of the Ministry of agriculture). This grain growth is much lower than the population growth, which is 2.5%. As a result, grain production is insufficient to cover the food needs of the country estimated at 175 kg including 129,9 kg of rice per year and per person. The coverage rate of the grain needs of the country by national production was only about 58% over the period 2000-2010, compared to 72% on the period 1992-1997 reflecting a sharp decline of domestic production. Assuming the annual growth rate of grain production, which is 1% and the rate of population growth which is 2.5%, the coverage of the country's grain needs will be 40% in 2030 and that of rice by 35 percent (figure 3). The cereal deficit will be 253 168 tonnes including 238 373 tons of rice. The situation is going to get worse. But rice is not only the most widely grown cereal (75% of total grain production) but also the most consumed in Guinea-Bissau. Rice is consumed by about 90% of the households in Guinea-Bissau

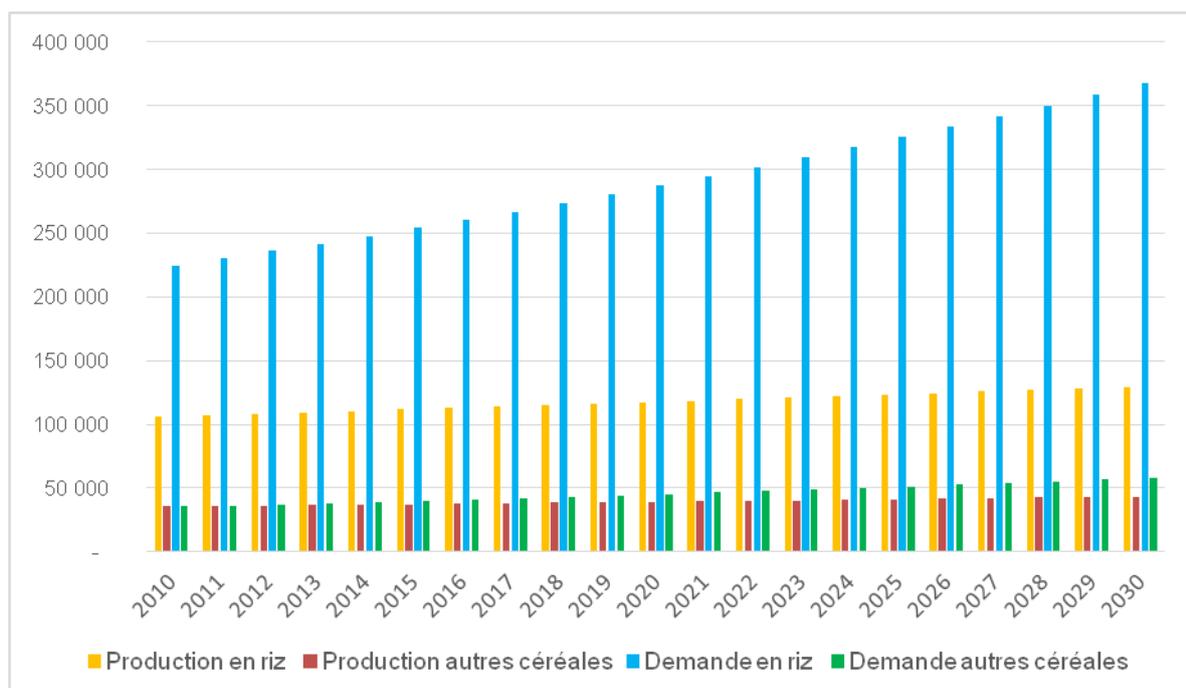


Figure 3: Evolution of production and demand for rice and other cereals in Guinea Bissau

The figure above shows that the gap between production in rice or other cereals is widening more. However the rice deficit remains very high (see following figure). As a staple of more than 90 percent of the population, its impact on food security and the welfare of households will be strong.

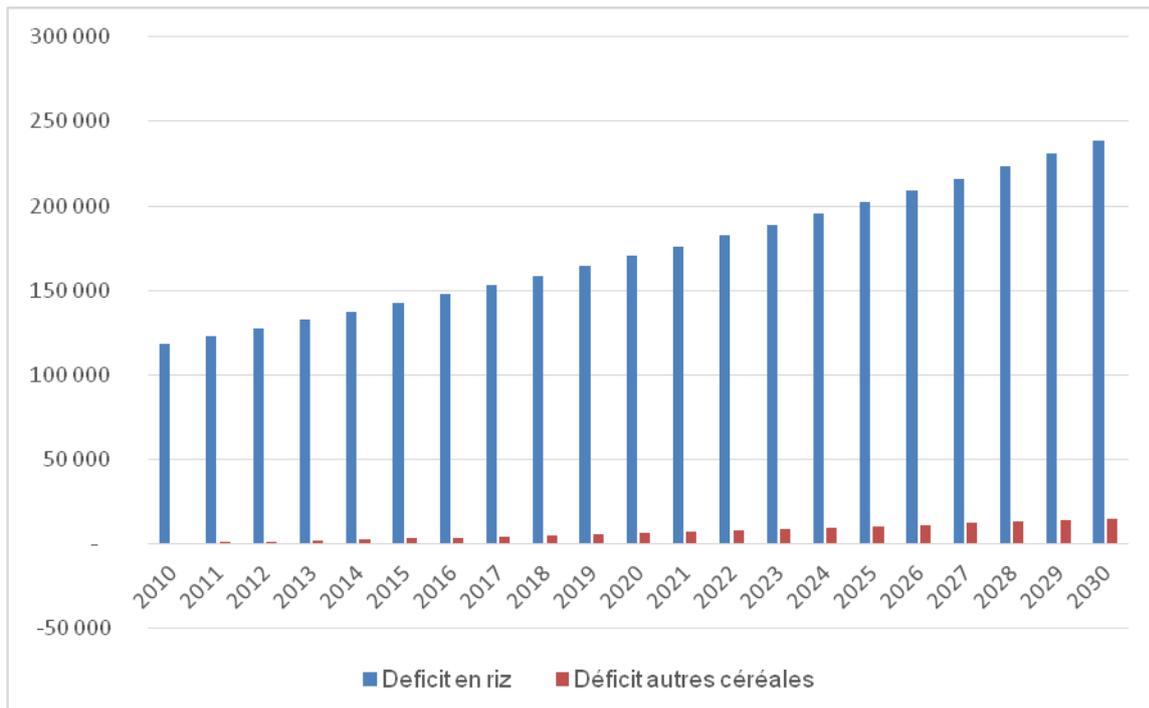


Figure 3: Increase in the deficits in rice and other cereals in Guinea Bissau

These recurring deficits makes the population highly dependent on market during the lean season from May to October (figure 5) before the new harvest from October to January. About 76% of the households depend on markets for access to rice during the peak of the lean season (August) against 40% in November, 28% in December and 27% in January. The dependence on the market increases as one moves away from the harvest time and strengthens food insecurity.

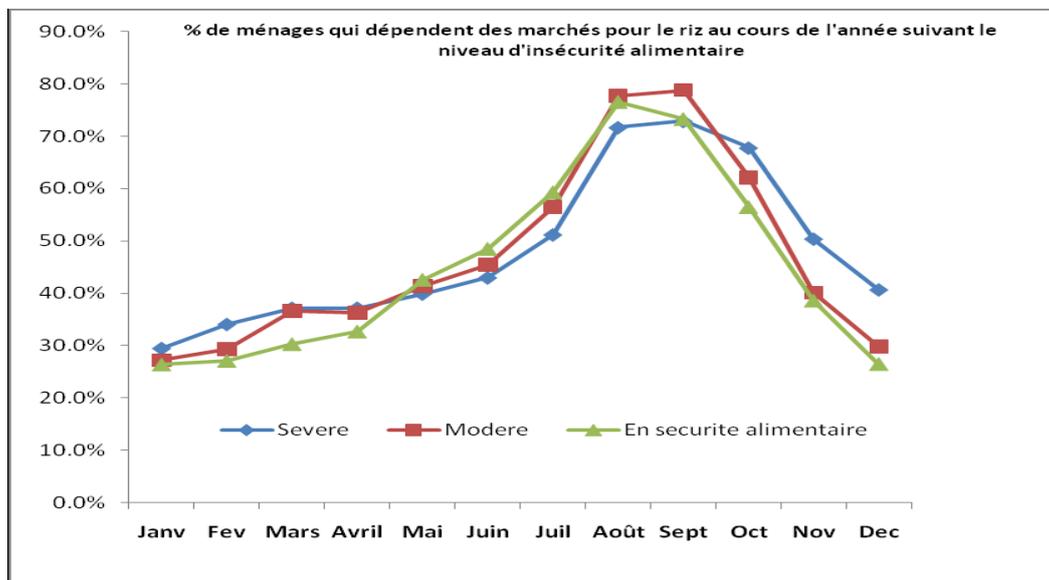


Figure 4: Evolution of the dependence of households in markets for rice during the year

Source: Results of the survey on food security and vulnerability of rural households. The Republic of Guinea Bissau, March 2011.

This situation is common to all households regardless of their level of food insecurity or their livelihood (figure 9).

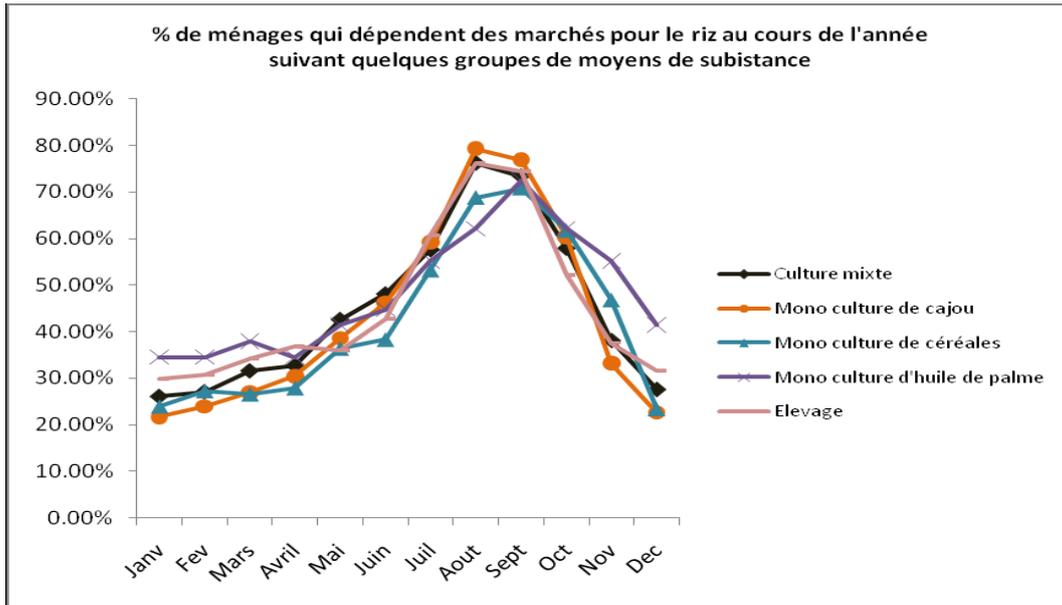


Figure 5 : Dependence of markets and seasonality according to livelihoods
 Source: Results of the survey on food security and vulnerability of rural households. The Republic of Guinea Bissau, March 2011.

Also, 20% on average, rural households are affected by food insecurity 8% affected by severe food insecurity, and 12% by moderate food insecurity (figure 7).

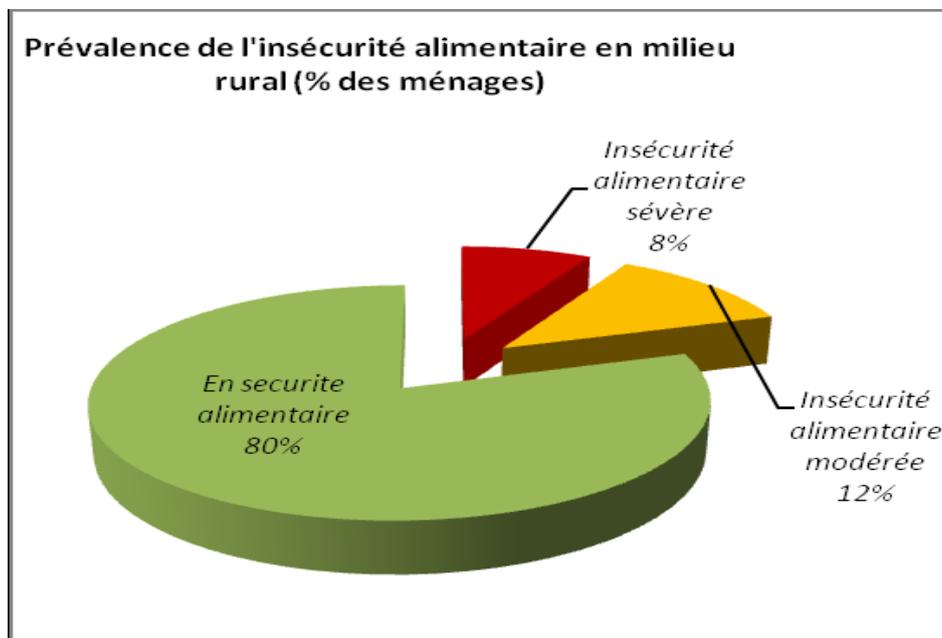


Figure 6: Food insecurity in rural areas
 Source: Results of the survey on food security and vulnerability of rural households. The Republic of Guinea Bissau, March 2011.

In the project area, moderate food insecurity affects 11 percent of the population in Bafata and 12% to Gabu. In both regions, 3% of the population are affected by severe food insecurity. These rates hide the depth of food insecurity within the villages where poor rural

people to over 70%, are forced to obtain most of their food on the market between May and October. The question is even more worrying when it comes to household kept by women. The rate of severe and moderate food insecurity is significantly higher among households headed by a woman (27.6% including 13.8% of severe food insecurity) than among households headed by a man (19.5% whose 7.3% of severe food insecurity). The majority of the heads of households women (61.9%) consisting of widows. With respect to the level of education of the household head, noted that the rate of food insecurity is significantly higher for households without education (23% with 10% of severe food insecurity) among households in which the head can read and write (16.3% including 4.7% severe).

The average share of food in total spending is 53% for food insecure populations while the share of rice in food spending expenditures represents 52.3% for people in severe food insecurity and 29% for populations in moderate food insecurity (see table below).

Table 1: Socio-economic characteristics of households in relation to food insecurity

Household characteristics		Food insecurity		
		Severe (%)	Moderate (%)	Severe and moderate (%)
Sex of household head	Woman	13.8	13.8	27.6
	Man	7.3	12.2	19.5
The head of household can read and write	Yes	4.7	11.6	16.3
	No	10.1	12.9	23.0
The average share of food in total expenses		52.0	53.9	53
Share of rice in food expenditures		52.3	29.7	46.0

To deal with the precarious food situation, households are appeal to a number of survival strategies for their food. Some of these strategies can improve short-term food security of the household but may be long-term negative. The investigation on food security and vulnerability of rural households reveals that the reduction in the quantities consumed by adults including youth for the benefit of the children is the most used strategy by the Bissau Guinean rural households. Also, the use of one such form of strategy contributes to weakening the adult members of the household and reduce accordingly their ability to procure food. Less preferred food consumption is also very intense. The other strategies are: (i) reduction of the amount of food eaten during the meal; (ii) the reduction in the number of meals per day; and (iii) dependent on the help of family or friends (see table below).

Table 2: Survival strategies developed by households

survival strategies	In food insecurity		In food security	Total
	Severe	Moderate		
Consumption of least favorite food	78.6%	57.5%	57.2%	59.0%
Dependence of the help of family or friends	67.2%	49.3%	51.2%	52.3%
Reduction of the food quantities consumed during meals	69.8%	51.7%	51.6%	53.1%
Reduction of the quantity of food consumed by adults for the benefit of children	72.1%	55.2%	59.6%	60.1%
Reduction of the number of meals per day	66.0%	50.7%	51.4%	52.5%

Source: Results of the survey on food security and vulnerability of rural households. The Republic of Guinea Bissau, March 2011.

These strategies not only to plunge people into a vicious circle where poverty and food insecurity are mutually reinforcing but show that there are real difficulties of access to food in Bissau Guinean rural and especially during the lean period.

The situation worsens over the years due to climate shocks including floods and droughts/irregularity of heavily rains affecting production. About 32% of rural households have cited drought / irregularity of rains and 33% cited flooding as the main shocks affecting agricultural production in recent years thereby exacerbating food insecurity. These shocks are: (i) the lack of mobilization of water for irrigation although it is available; (ii) damage related to very recurring Bush fires, (iii) bad agricultural practices and soil degradation; (iv) the plant disease and; (v) the increase in the prices of commodities food corollary of low production. More than one household in two (54%) in severe food insecurity or moderate said the rising prices of food as one of the most important shocks that have affected their food situation.

SOIL AND LAND USE

In the Republic of Guinea-Bissau, land is the property of the State and the common heritage of all persons. Land, as the basic physical support of the community, has eminently national value irrespective of the form of its use and exploitation. Improvements in the field may be public or private (Article 2 of the Law (Lei n°5/98 de 23 de Abril) on the land use). See annex 12.

In Guinea-Bissau the following types of soil are distinguished: Ferral soils, Plinth soils, sandy soils, hydromorphic soils and other types of substrate (Bouali, mud and sands). In the table below, the area occupied and percentage occupancy for each soil type is shown.

Table 3: Types of soil, surface and % of occupancy (adapted).

Soil types	Area (Ha)	% occupation
1 - Ferral soils (Ferralitic and Fersialitic)	1 960 000	62
2 - Plinth soils (Litolics and Litosols)	550 000	17
3 - Sandy soils (Regosols psamitic)	20 000	1
4 - Hydromorphic Soils:	650 000	20
4.1 - Gleisols (Continental)	150 000	5
4.2 - Riverine (Derived from marine alluvium)	500 000	15
4.2.1 - Tropical polders	100 000	3
4.2.2 - Halo - hydromorphic	400 000	12

Source: Second National Communication on Climate Change in Guinea-Bissau, 2011

The landscape of Guinea-Bissau comprises lowland coastal plains and mangrove swamps, which to the inland East give way to a savannah woodlands (deciduous) region, where this project ('regions' of Gabú and Bafatá) is to develop its activities. Tree growth in the savannah forest is limited mostly to the proximity to (perennial) streams and hillsides. Forest fires, either induced (slash-and-burn agriculture) or due to high temperatures and low rainfalls, occur frequently in the East, with an average fire density of 1.3 to 2.3 fires per km² per year, but on occasion up to 3.0 to 7,6 (World Bank, 2015).

The following figure shows the density of bush fires in different regions of Guinea Bissau.

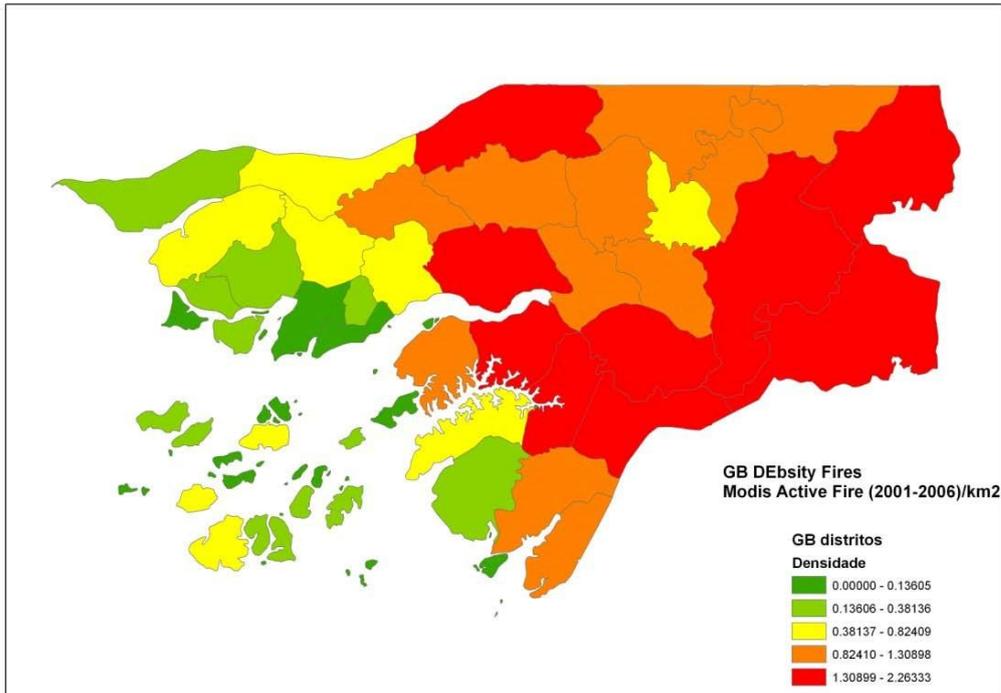


Figure 7: Density of fires in Guinea-Bissau, based on the composition of the images daily MODIS satellite between 2001-2006, adapted from the Project CARBOVEG-GB (2007)

Ferralsols and Lixisols are the primary agricultural soils in the region. These are less productive than those found in rice cultivation in the country's flooded lowlands.

As of today, over 70% of Guinea Bissau is still forested, 45% of which primary forest. Guinea-Bissau's forests constitute an important carbon stock for West Africa: the total forest aboveground biomass (ABG) carbon stock in the region has been estimated at 96.93 Mt, with a mean forest AGB value of 65.17 Mg per hectare. Savannah woodlands in East Guinea-Bissau show lower average AGBs (Carreiras et al., 2012), but are important for conservation because of their spatial extension over the national territory (15,035 km² or 42%). The country is home to 620 species of amphibians, birds, mammals and reptiles (0.8% of which endemic) and over 1,000 species of vascular plants (1.2% endemic). In 2013, 61 species were considered as 'threatened species' under the IUCN Red List. Twelve species in this list (20%) are native species to Guinea-Bissau (IUCN, 2015).

In the rural parts of Gabú and Bafatá regions, pastoralists and small-scale farmers of different ethnics (Fula, Mandinga, other) have settled in the forest savannah thousands years ago, relying on shifting cultivation of sorghum, millet, maize, peanuts and sometimes rice and cattle raising (for milk as component of their diet). Cashew nuts are the main cash crop for >80% of rural households, which is either sold to traders or exchanged directly for rice when own rice stocks are low or production fails. Although permanent agriculture has increased in the region (Temudo et al., 2014), overgrazing, deforestation (annual rate at 1%) and soil erosion (especially under shifting cultivation) continue to exert pressure on regional ecosystems.

Itinerant slash-and-burn agriculture poses a substantial risk for sustainable land management in both Gabú and Bafatá regions. Fula and Mandinga, which are the most important ethnicities in absolute numbers in those 'Regions', routinely practice slash-and-burn agriculture to clear land for staple food production (sorghum, millet, corn or rice); but this practice is directly linked to ongoing land degradation, loss of soil nutrients and drying up

of springs, and affects the resilience of their cropping systems. In this context, promising market development for cashew nuts in the past two decades has led to an intensification of slash-and-burn practices in the project region as many farmers decided to participate in the commodity boom and clear forests near their villages to make room for cashew agroforests that show lower biodiversity compared to the traditional mix of croplands, fallows and forests. More recently, slash-and-burn agriculture is now used to clear older cashew orchards for cereal production in order to guarantee food production and security (Temudo and Abrantes, 2014, 2013). Otherwise, modern agricultural practices such as small-scale irrigation or animal traction for preparing soils are little disseminated.



Figure 8: Burning practiced by farmers to prepare fields in the project area



Figure 9: Field prepared with the practice of slash and burn



Figure 10: Burning fire entering the forest



Figure 11: Forest destroyed by the bushfires in the project area

Source : Global Lead, Sites works

Itinerant slash and burn agriculture (see figure above), hunting practices, honey and palm wine, extraction etc. cause bush fires with significant degradation of soil and destruction of forests. This results in shrinking the carbon sinks that are the forests and soils, reducing infiltration of rainwater with the corollary, soil erosion acceleration, flooding farmland in the rainy season, filling rivers and shallows by mud and sand (see figures below), draining soils in the dry season and the unavailability of water for irrigation.



Figure 12: Filling a river with mud and sand



Figure 13: Filling of arable land by sand

Source : Global Lead, Sites works

HYDROLOGICAL NETWORK

The country's hydrological network is large and complex, comprising rainwater resources, surface-water resources and underground-water resources, with significant stationary water bodies including lakes (such as the 35,000 ha Lake Cufada), inland valley depressions (*bas-fonds*), temporary water bodies (*vendus*) in the east, and aquifers. However, water access continues to be a main limiting factor for agricultural development in Guinea-Bissau's east region: tidal saline intrusion up to 175 km inland introduces salt water into aquifers which causes problems during dry season if extraction exceeds recharge rates. The low altitude of most parts of the country increases the risk of flood events near watercourses and coastal areas, particularly during and following the rainy seasons. Drainage in the interior of the country is problematic due to the limited permeability of many soils, exacerbating impacts of floods. Uses of perennial water courses are also very important to populations, but few freshwater courses in Guinea-Bissau are perennial, leading populations to rely on groundwater resources during the dry seasons. One exception is the Corubal river, the principal national surface water resource with average annual water volume of 130bn m³, whose rocky estuarine threshold protects the river from saline intrusion. However, the discharge rate of the Corubal is strongly seasonal, with its low at 8 m³/s in May (before rainy season) and 1,120 m³/s in September (end of rainy season). A second exception is the considerably smaller Geba river (annual water volume of 0.8bn m³) in eastern Guinea Bissau. However, the Geba suffers from water extraction upstream in Senegal for irrigation and further diverting due to dam construction, essentially rendering available dry-season volumes half of this total, exacerbating saline intrusion and threatening agriculture in east Guinea-Bissau. Both watercourses of the Corubal and Geba rivers follow through the project region.

It should also be noted that agricultural practices, the destruction of forests have strongly affected surface water resources by accentuating the phenomenon of erosion with result the silting up of watercourses in the area.

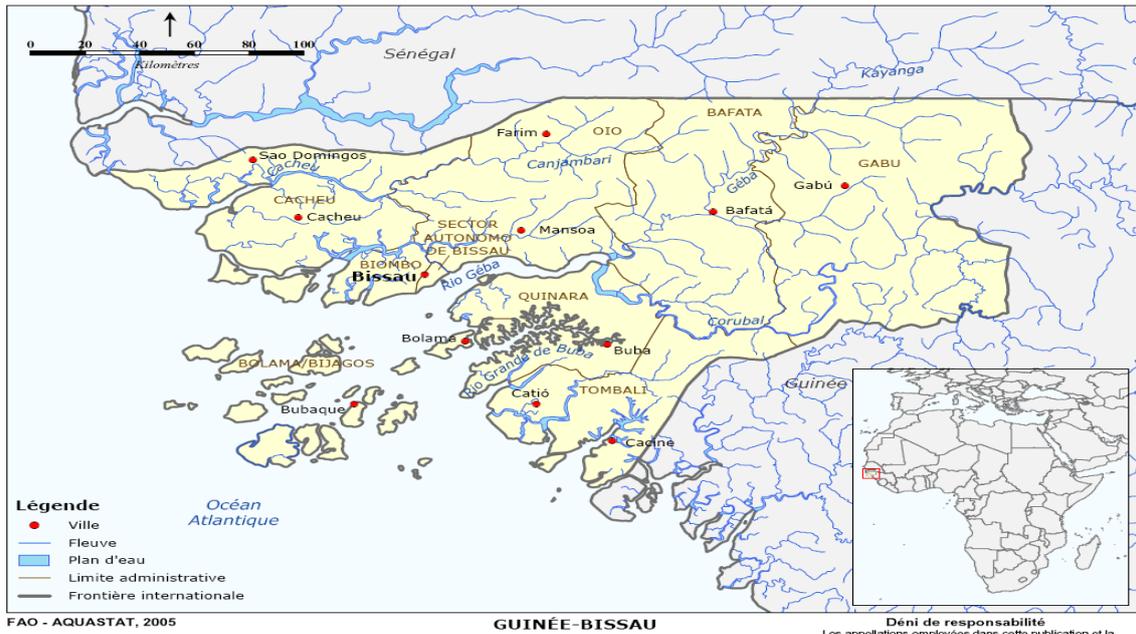


Figure 14: Surface Water network of Guinea-Bissau

Although the country has a major water system, the forests degradation reduces the retention capacity of the water by the soil and the forests. Reduction of forests and land degradation therefore reduce water infiltration into the soil with the consequent which is the unavailability of water to regulate rivers in dry season. In addition, heavy rains caused by climatic disturbances cause flooding. The result is a silting up and early drying up of the lowlands and watercourses, thus reducing the productive qualities of the soil.



Figure 15: Stream dried up early in the project area



Figure 16: Shallows flooded wells dried up early in the project area



Figure 17: Parched agricultural soil suffering water and wind erosion

Source : Global Lead, Sites works

FOREST, BIODIVERSITY AND PROTECTED AREA OF GUINEA BISSAU

As of today, over 70% of Guinea Bissau is still forested, 45% of which primary forest. Guinea-Bissau's forests constitute an important carbon stock for West Africa: the total forest aboveground biomass (AGB) carbon stock in the region has been estimated at 96.93 Mt, with a mean forest AGB value of 65.17 Mg per hectare. Savannah woodlands in East Guinea-Bissau show lower average AGBs (Carreiras et al., 2012), but are important for conservation because of their spatial extension over the national territory (15,035 km² or 42%). The country is home to 620 species of amphibians, birds, mammals and reptiles (0.8% of which endemic) and over 1,000 species of vascular plants (1.2% endemic). In 2013, 61 species were considered as 'threatened species' under the IUCN Red List. Twelve species in this list (20%) are native species to Guinea-Bissau (IUCN, 2015).

Guinea-Bissau currently has a network of six protected areas that occupy about 12.2% of the national territory.

The National Park of Orango (PNO): It is located in the south of the Bolama Bijagos archipelago in Guinea Bissau. It is one of the central areas of the Biosphere Reserve. It was created in 2000 by the Decree-Law No 11/2000 of 4 December 2000. Its area is 158,235 ha, of which 64 000 ha land. The terrestrial part is dominated by the oil palm (*Elaeis guineensis*), coastal shrublands and intertidal sand banks. The fauna is diverse and abundant. There are hippos (*Hippopotamus amphibius*) and crocodiles (*Crocodylus niloticus* and *Osteolaemus tetraspis*). The presence is noted from 5 species of marine turtles including green sea turtles (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), turtles olive ridley (*Lepidochelys olivacea*), loggerhead turtle (*Caretta caretta*) and leatherback turtles (*Dermochelys coriacea*). We also note the presence of the bushbuck (*Tragelaphus scriptus*), vervet (*Cercopithecus aethiops*), the humpback dolphin (*Sousa teuzsii*) and the bottlenose dolphin (*Tursiops truncatus*). This park is home to the manatee (*Trichechus senegalensis*), a threatened species in the world, the gray parrot (*Psittacus erithacus*) species rare and endangered in the region.

The Natural Park of "Tarrafes" do Rio Cacheu (PNTC): It is created by the Decree No. 12/2000 of 4 December 2000 and located in the northwest of Guinea-Bissau, in the administrative region of Cacheu. It covers an area of 88,615 ha, of which 68% are covered by mangroves. Thanks to its area, it is considered the largest continuous block of mangrove forest in West Africa. The mangrove is home to many migratory birds. Regarding mammals, we note the presence of bottlenose dolphin (*Tursiops truncatus*) and humpback dolphin

(*Sousa teuszii*). We also note the presence of hippopotamus (*Hippopotamus amphibius*), manatee (*Trichechus senegalensis*), and green monkeys (*Cercopithecus aethiops*) and harnessed Guib (*Tragelaphus scriptus*). Regarding reptiles we find crocodiles (*Crocodylus niloticus*).

The Natural Park of the Lakes Cufada (NCCP): It is established by Decree-Law No 13/2000, of December 4 and is located south of Guinea-Bissau, in the administrative region of Quinara. With an area of 89,000 hectares, this protected area is the largest fresh water reserve in the country. It is a Ramsar site since 1990 because of its importance from the point of view of the birdlife, including 203 migratory bird species have been reported. Note the presence of White Pelicans (*Pelecanus rufescens*) and others from Europe and the Arctic. The fish fauna including tilapia is very important for local people. Large mammals are also present in lakes, including the buffalo (*Syncerus caffer*). Hippos (*Hippopotamus amphibius*) are also present. It was identified 54 species of mammals and 11 species of reptiles. Concerning flora, there are 615 species of vascular plants including 577 species of Angiosperms and 8 species of pteridophytes.

The National Park João Vieira-Poilão (PNMJVP): It is established by Decree-Law No. 6-A / 2000 of 23 August 2000 and is located southeast of the Bijagos Archipelago. It has an area of 49 500 ha. Three species of sea turtles frequent the beaches of the park (the green turtle, hawksbill and olive ridley). The islands are home to sub-humid Guinean forests. *Elaeis guineensis* palm grove is the dominant plant formation. It is associated with other tree species, shrub and herbaceous. The mangrove is in the intertidal zone. These islands are the most important area for the reproduction of marine turtles in the West of Africa (it is estimated that in 2001 there were laying between 7000-30000 eggs per year for green turtles (*Chelonia mydas*)).

Community Marine Protected Area of Formosa Islands, Nago and Chedia (AMPComplexe UROK). It is created by Decree-Law No 9/2005 of 12 July 2005 and is located north of the archipelago of Bijagos covering an area of 54,500 ha. The group of these islands is part of the central zone of the Biosphere Reserve. The largest area is occupied by mangroves. sand benches and vases, and the many channels with shallow waters, are critical habitats for reproduction and growth of many species of fish and crustaceans. Formosa island group is the most important place of the archipelago for avifauna, making him the second most important site for migratory birds of the West Africa. It is in this environment that we find the large number of animals important from the perspective of biodiversity conservation, including manatees (*Trichechus senegalensis*), hippopotamus (*Hippopotamus amphibius*), crocodiles (*Crocodylus niloticus* and *Osteolaemus tetraspis*), turtles (*Chelonia mydas* and *Eretmochelys imbricata*), otters (*Aonyx capensis*), dolphins (*Sousa teuszii* and *Tursiops truncatus*).

The National Park Matas Cantanhez (PNC). It is located in the southwest of the country and has an area of 105,767 ha. The sub-tropical rainforest is the dominant and is the last vestige of this training in Guinea-Bissau. The vast expanse of mangrove favors the cultivation of rice, why Tombali region is considered the country's breadbasket. The park is a very important game, including the chimpanzee (*Pan Troglodytes verus*), despite its rapid decline in Africa. It also counts the buffalo (*Syncerus caffer nanus*), the roan antelope (*Hippotragus equinus*), black and white colobus (*Colobus polycomos*) which is rare, and *Colobus badius*. Among the species of sub rainforest encountered include, Sougué (*Parinari excelsa*) Eyoum (*Dialium guineense*) and Emien (*Alstonia congensis*).

Although the biological diversity of Guinea Bissau is important, it is now highly threatened. The main causes are, among others: (i) poor agricultural practices (shifting cultivation practiced at the national level made through the clearing of vegetation, bushfires, ect); (ii) logging, sometimes beyond the control of the competent authorities; (iii) the degradation of

natural formations due to the destruction of soil structure, water and wind erosion and poor land use; (lv) poverty is gaining more and more ground and forcing the population to survive, to use natural resources unsustainably. These protected areas are not located in the project area at Bafata and Gabu. There is animal's corridors in the south of these regions. However, the project sites don't have communication with the said corridors. The implementation of the project do not affect protected areas and corridors of animals. The following map shows the location of the protected areas of Guinea Bissau and the corridors of animals.

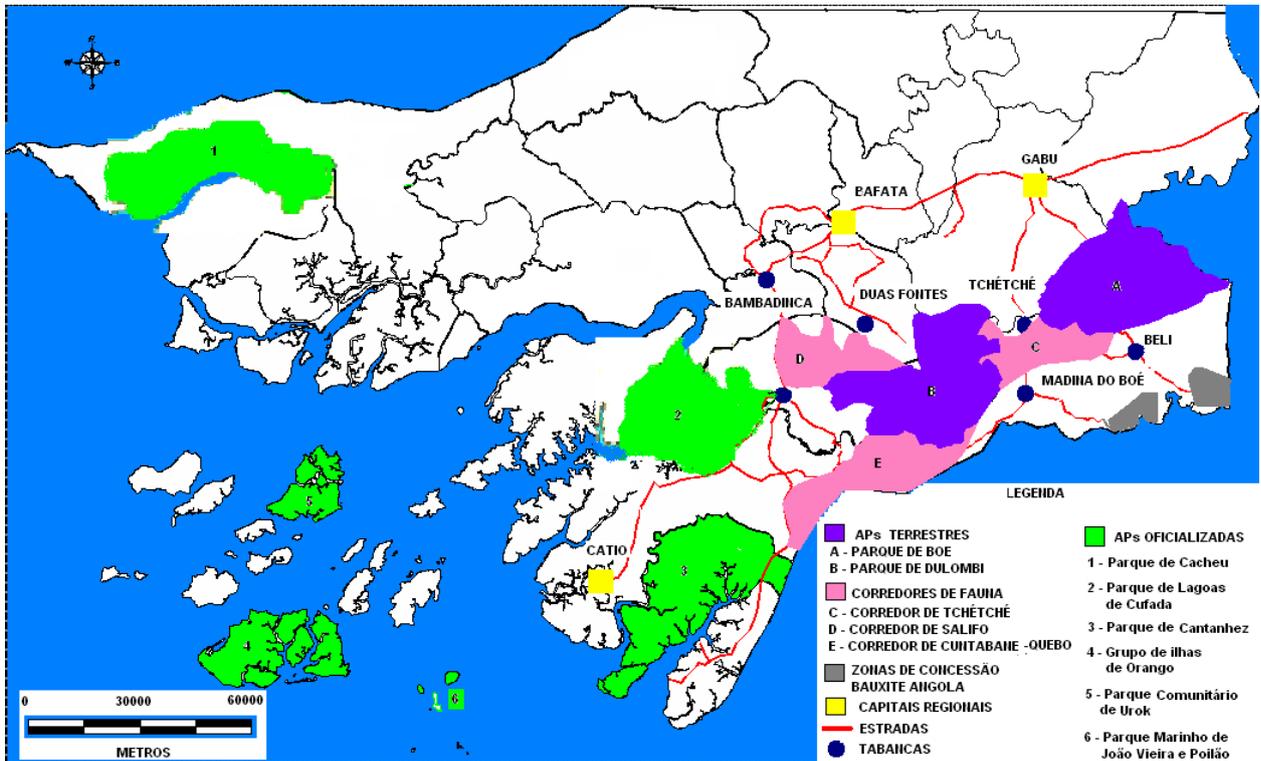


Figure 18: System of Protected Areas in Guinea Bissau

Source: UNDP Project Document 3650 Support for the consolidation of a PA system in Guinea Bissau's Forest Belt

CLIMATE CHANGE AND VULNERABILITY IN WEST AFRICA AND GUINEA BISSAU

➤ Climate variability and change

Guinea-Bissau has a typical hot, humid monsoon-like tropical climate, with two well-defined seasons. The rainy season is from mid-May to mid-November, with the dry season occupying the rest of the year. May and November are transition months between both seasons. Average temperatures in the rainy season range from 26°C to 28°C (30.5°C in April and begin of May), but are lower at <24°C during dry season when harmattan (dusty winds) may blow in from the Sahara. The coldest months of the year are December and January. Rainfall varies greatly regionally and seasonally, with overall rainfall reaching up to >1,800mm in the country's southern provinces, but only <1,200mm in the east. Historical observations show July and August as the rainiest months in Guinea-Bissau. Major droughts occurred in 1977, 1979, 1980, 1983, 2002, 2004 and 2013. The drought of 2002 affected an estimated 100,000 people which is more than any other climate-related disaster (including epidemics) between 1980 and 2010. High tides and torrential rainfalls in 2003, 2004 and 2005 destroyed makeshift housing and bridges in east Guinea-Bissau, forcing family farmers to abandon their houses (some permanently) and causing severe harvest losses. Floods of Geba and Corubal rivers' tributaries are particularly relevant in this respect (World Bank, 2015).

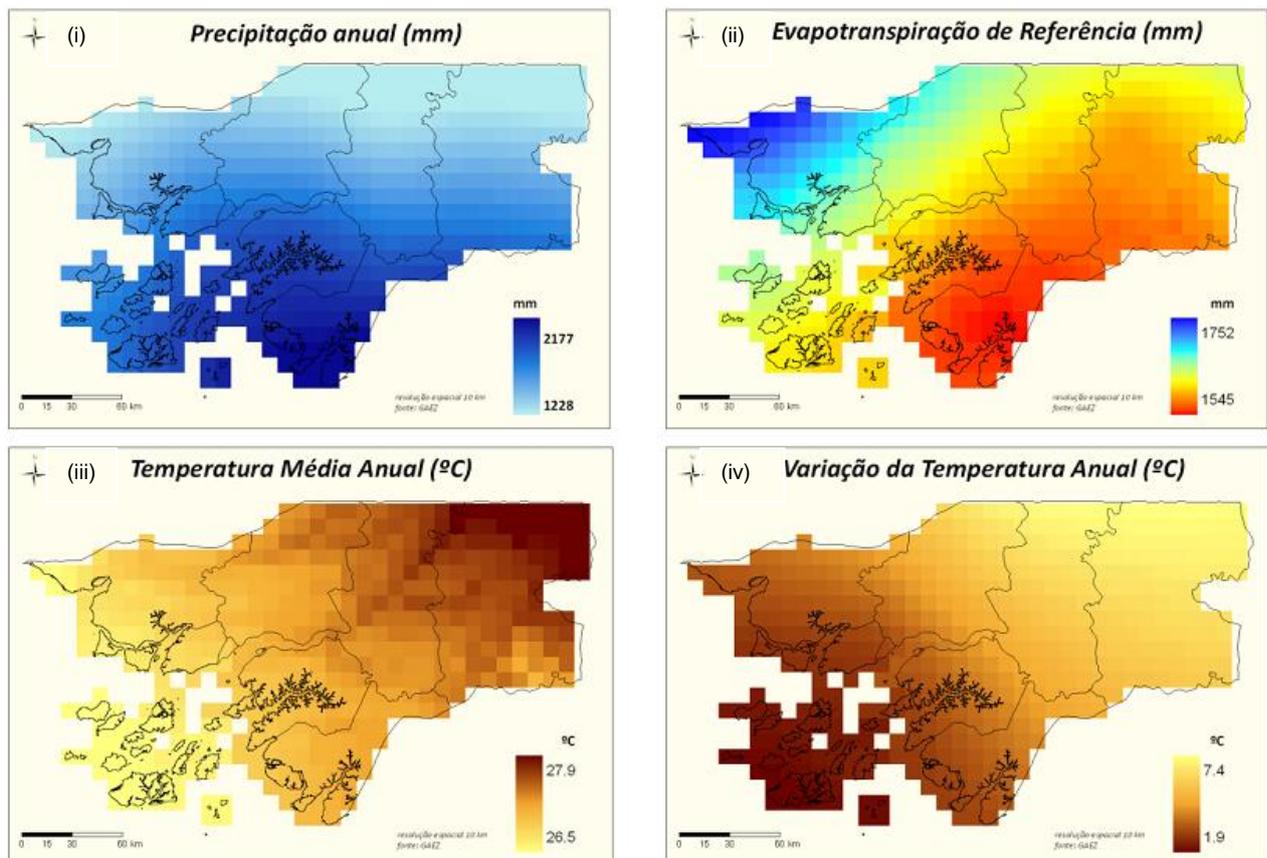


Figure 19: Climate in Guinea-Bissau: annual precipitation (mm) (i), reference evapotranspiration (mm) (ii), average annual temperatures (°C) (iii) and intra-annual temperature variations (iv), from upper left to lower right.

Source: SEAT/DGA (2013).

In comparison to other 'regions', Gabú and Bafatá show considerably (i) lower rainfalls, (ii) lower evapotranspiration, (iii) higher temperatures and (iv) higher intra-annual temperature

variability (Figure 20) (SEAT/DGA, 2013). Average high temperature between 1981 and 2010 at Bafatá Station (main observation unit for East Guinea-Bissau) was at 34.6°C (30,9°C to 39,3°C) and average low temperature at 20.5°C (16,0°C to 23,2°C). For the same time period, average precipitation ranged between 1000mm to 1500mm, with ~80% of the rainfalls concentrated in the monsoon months of July, August and September. During the dry December to March months average monthly rainfalls fall to 0,0mm.

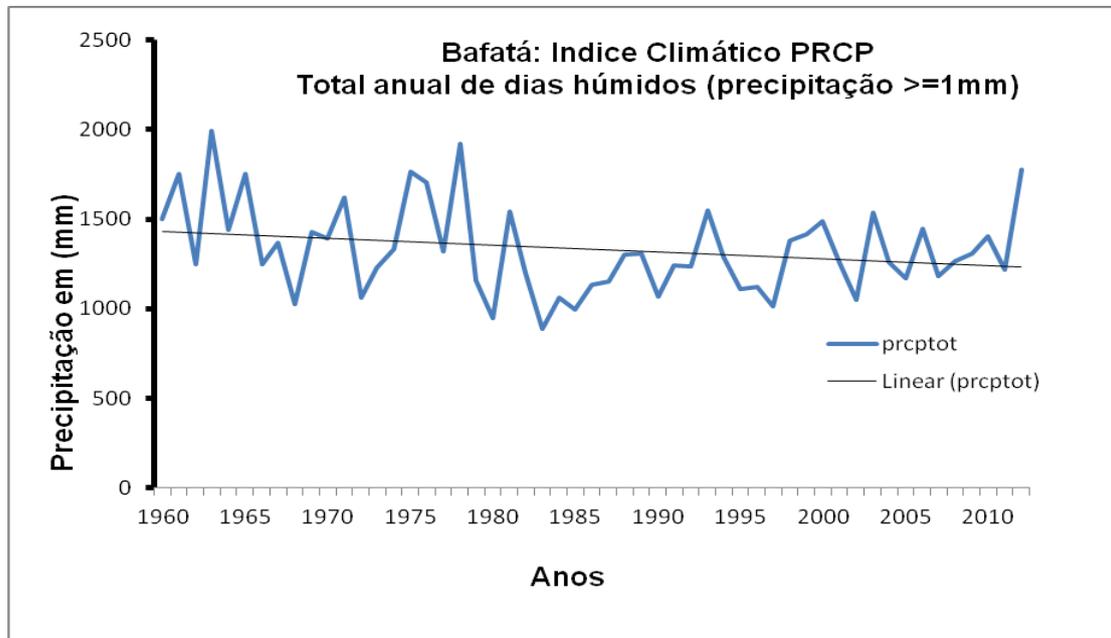


Figure 20: Total humid days per year (precipitation ≤ 1 mm), 1960-2010
 Source: INM-GB (2014)

According to data from Guinea-Bissau's National Meteorology Institute (INM-GB, 2014), several important changes in rainfall/humidity levels have been observed in the past decades. While the rainy season during the 1960s to 1970s usually started in the second half of May, observations now point at a later starting point in the month of June. There has also been a reduction in the total number of humid days per year: annual total wet-day precipitation (PRCPTOT) (precipitation ≥ 1 mm/day) shows a linear declining trend between 1961 and 2010 from ~1,500mm annual to ~1,250mm (Figure 20). This trend is indicative of a drier climate, and, most importantly, a higher susceptibility to drought in the region. These findings are confirmed by independent long-term (20 years) ethnographic studies in the project region: as related in Temudo and Abrantes (2014), family farmers find that more frequent poor cereal harvests are increasingly caused by a higher rainfall variability, particularly through longer dry spells. Higher frequency in pest and disease occurrence, as well as destructions of swamp rice field dykes by unusually high tidal waves are also observed by farmers in the region (Temudo and Abrantes, 2014).

The recent IPCC AR5 chapter on Africa (Niang et al., 2014) finds that current changes in mean annual temperatures and precipitation will continue to show effect over the whole African continent, independent of low RCP2.6 or high RCP8.5 emission trajectories, with climatic change on the continent to occur at a faster speed than anywhere else on the globe. In general, temperature projections for West Africa show a mean +3°C to +6°C increase until 2100 above the late 20th century baseline, with RCP4.5 at the lower range and RCP8.5 at the upper range (Niang et al., 2014). For the mid-century (2031–2060) mean warming is expected to reach of +2.8°C compared to 1961–1990 (Thornton et al., 2015). Unprecedented climatic conditions may occur both in the Sahel and tropical West Africa as early as 2040. The high level of uncertainty regarding these projections is largely due to low to medium confidence in the robustness of computed future rainfall change, both in amplitude and

direction of precipitation signals. Based on earlier CMIP3 GCMs projections, extreme rainfalls over West Africa and the Sahel zone nevertheless would increase until end of the 21st century (low to medium confidence). Of particular relevance is that Guinea-Bissau's highlands in the East may experience a higher number of days with extreme rainfalls in the monsoon season (Niang et al., 2014).

In general, higher temperatures and a higher frequency of droughts and floods will likely to become more important in the future. Water resources in dry regions such as Guinea-Bissau may be strongly affected by overall rainfall reductions due to higher than average surface drainage sensitivity. There is also evidence for a potential southward shift of the Sahel, Sudan, and Guinean savannah vegetation zones with potentially adverse consequences for the region (Niang et al., 2014). For example, projected changes in potential evapotranspiration (PET) and negative rainfall anomalies for the western Sahel might cause a virtual elimination of the region's growing season by 2041–2060. The western Guinean coastal region itself may suffer a 20% decrease in growing season days, differently to other parts of Africa where increases up to 5-15% can be expected (Cook and Vizzy, 2012).

➤ **Curent vulnerability to Climate Change**

Vulnerability to climate change depends on exposure of social systems (e.g. family farmers) or natural systems (e.g. ecosystems) to climatic events, their sensitivity to the (expected) impacts, and their capacity to respond and recuperate after an impact has occurred. These three dimensions – exposure, sensitivity and adaptive capacity – are formed not only by the magnitude and frequency of current or future climatic variability, but also a variety of factors that affect human systems, such as water access, infrastructure, political stability, market access, prices, availability health services etc. (Eakin et al., 2014; IPCC, 2014a; UNFCCC, 2010).

In this context, Guinea-Bissau's National Adaptation Programme of Action (NAPA) (Republic of Guinea-Bissau, 2006) identified the agricultural sector as the most vulnerable to climate change for a number of reasons: it is the dominant component of the GDP, the livelihood for a majority of the poor population depends on agriculture, with climatic change potentially causing significant damage to the sector. With decreases experienced in the duration of the rainy season (now limited to 5 months) and the overall volume of rain having led to a decline in production often associated with water shortage, acute droughts are identified as the most significant risk. However, increased winds and intense rainfall may also lead to loss of production (and stored crops) as well as periodic localized floods, either through destruction of dykes and rice fields or salinity intrusion from the sea. A reduction in the duration of cold periods may exacerbate heat stress on plants and animals. The NAPA further estimates that there has been a 20–30% fall in agricultural production with one third of the population of Guinea-Bissau being threatened by food insecurity. The shortfall in national cereal production, predominantly rice, is expected to rise to 75,000 tons per year, which would increase the need for imports.

Recent scientific evidence from the IPCC AR5 (IPCC, 2014b, 2014c) and other studies confirms this assessment for the West African region, and Guinea-Bissau in particular. Subsistence agriculture and food security are directly vulnerable due to both future, but also existing climatic and non-climatic stressors, such as existing lack of inputs (e.g. lack of irrigation or fertilizer application), infrastructure deficits and weak services. In assessing African corn yield data from 1961 to 2010, Shi and Tao (2014) find that a 1°C average temperature increase reduced corn productivity by >10% for 8 African countries, including Guinea-Bissau. Furthermore, droughts tended to worsen these impacts: a 0.5 decrease in the standardized precipitation evapotranspiration index (SPEI) led to >30% losses in 32 African countries, with Guinea-Bissau again included (Shi and Tao, 2014). Temperature

increases may also reduce crop cycle duration and create higher water stress for plants due to higher evapotranspiration demand, with PET also being a primary constraint on corn water usage in Guinea-Bissau (Estes et al., 2014).

Future median losses in crop yields are estimated at an average –13% for Guinea-Bissau, caused mainly by drier and warmer climate in northern West Africa. Importantly, potentially positive feedback effects for crop yield because of a higher CO₂ fertilization effect may not contribute to higher food security as many West African staple crops (corn, millet, sorghum, with the exception of rice) are C₄ crops which are less sensitive to higher CO₂ concentrations (Roudier et al., 2011). Another recent study projects a decline in sorghum yields in the order of 16–20% by 2031–2060, with agricultural output becoming more and more affected as temperatures increase (Sultan et al., 2014). Potentially higher rainfalls would have only limited impacts under these scenarios: already under a >2°C warming scenario any potentially positive effect on millet and sorghum yields would be cancelled out (Thornton et al., 2015). Livestock is also extremely vulnerable to climate change: under a RCP8.5 high emission scenario Aboveground Net Primary Productivity (ANPP) of the Guinea-Bissau's rangelands could decrease by a mean –87.9% until the 2050s, compared to a 1971–1990 baseline. In fact, of all African countries, only Gambia is projected to suffer higher losses in ANPP, which is closely linked to the profitability and productivity of pasture (Thornton et al., 2015). The incidence of crop and animal diseases or pests is also to be affected by a warming climate, as are climate-related damages to essential infrastructure (roads, storage, communication, electricity supply, etc.) and services (health, etc.), putting considerable additional risks on food security and agricultural production (Niang et al., 2014; Porter et al., 2014).

Further reasons for concern relates to climate change impacts on biodiversity, health, civil conflict and economic costs in the region. Habitat loss, environmental degradation and unsustainable agricultural practices already affect biodiversity and species in West Africa, but under increasing climatic stress amphibians in particular could become very vulnerable in semi-arid Guinea-Bissau (Carr et al, 2014). Higher rainfalls may make cholera collect more frequent in Africa, particularly where it is already endemic (Niang et al., 2014); This again includes Guinea-Bissau. There may also be a link between climatic changes and political stability: Burke and al. (2009) find a significant relationship between the occurrence of armed conflict in sub-Saharan Africa and increasing temperatures. This implies that warmer years would also increase the likelihood of civil conflict. Guinea-Bissau's coup d' état of 1998 has been specifically mentioned in this context (Solow, 2013). Finally, the economic damages caused by climatic change may be huge the national economy: according to a 2013 vulnerability assessment by Verisk Maplecroft (2013) Guinea-Bissau's economy is very vulnerable to economic output losses, second only to Bangladesh at global level.

➤ **Climate change projection**

Several climate models conducted at the national level generally predict a darkened future for the country⁵. These models, developed through the NCCCC and NAPA processes, suggest increased climate variability and climate-change-related shifts in temperature and rainfall in the future in Guinea-Bissau both in the short and long term.

Regarding temperatures, in the short term, ie by 2020, changes are already expected. Data from the country's Second National Communication on Climate Change (SNCCC)⁶ reports that both high and low emissions scenarios for climate models downscaled to Guinea-Bissau predict the average temperature to increase by about 1.0°C to 2020 under the different IPCC scenarios in relation to the average temperatures established for the period 1960-1991 (see

⁵ These models are ECHAM4, HADCM3, NCAR_PCM, CGCM2, GFDL-R30

⁶ The country's third National Communication on Climate Change is currently in preparation.

Fig 6a high emissions scenario and 6b low emissions scenario). All models predict year increase in national average temperatures of between 1.8 ° C and 3.3 ° C for the lowest and highest emission scenarios respectively, relative to 1961-1990 figures (see Figure a and Figure b)⁷.

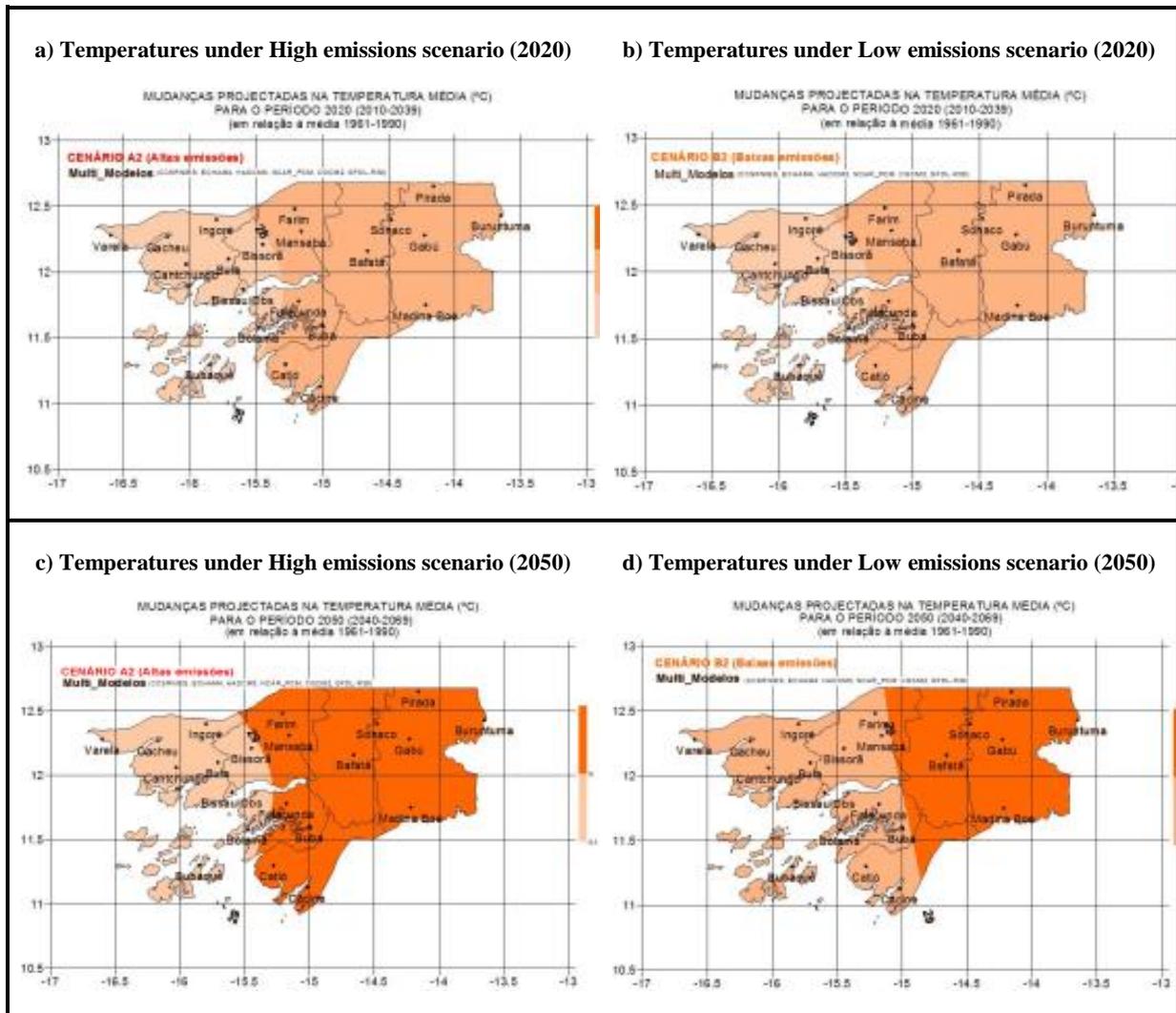


Figure 21: Projected Average Annual Temperatures (°C) to 2020 and 2050, downscaled from multimodels

Regarding rainfall, in by 2020, impacts on rainfall are more uncertain: most of the models expect precipitation to increase across the nation by 3.7-3.8% under future emissions scenarios, although one model shows a decrease in average annual precipitation by 2% (CSIRO) (see Figure 6a and Figure 6b; CSIRO model not shown). However, all the scenarios forecast irregularity in rainfall patterns implying challenges to existing agricultural practice. At the long term, by 2050, most global and regional models predict that the average of the annual rainfall in West Africa will increase by 3.8 - 4.1% in relation to 1961-1990 levels (see Figure 6 and Figure 6 d c), with the notable exception of the CSIRO model, which predicts up to 3.5% decrease in rainfall.

⁷ It should be noted that global emissions are currently higher than those assumed in the highest emission scenario, with implications for temperature increases to be towards, or potentially above, the higher emissions scenarios of the IPCC Fourth Assessment Report.

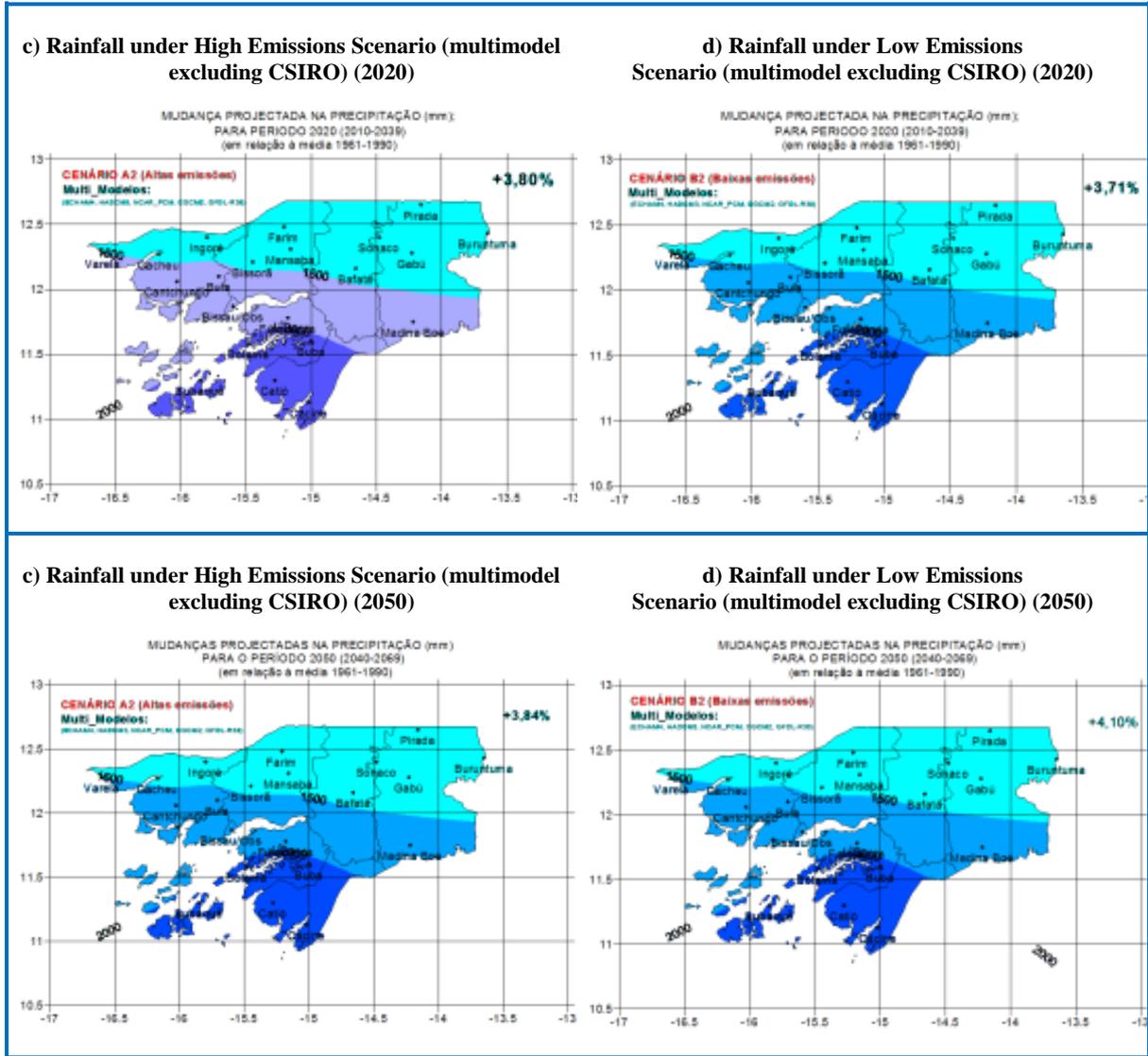


Figure 22: Projected Average Annual Precipitation to 2020 and 2050 downscaled from multimodels

It is important to note the observed precipitation patterns to date have shown a decline in precipitation, whilst most of these models show an increase in precipitation (except for the CSIRO model).

➤ **Future vulnerability of surface water resources**

Water resources of Guinea Bissau remain vulnerable to the effects of climate change. Data indicate that the rivers will experience a rate reduction exceeding 50% of the current average in places. This phenomenon of reduction will be common to all parts of the country but very marked for those on the 10th parallel north, which includes upstream of the Niger watershed. It is therefore anticipated that from 2050 to 2100, the rate of decline the Niger watershed in Guinea Bissau from 16 to 28% to the sensitivity of 2.5 ° C and 23-54% sensitivity 4.5 ° C. The main tributaries of the Niger watershed in Guinea Bissau undergo phenomena related firstly to the loss of vegetation cover and soil moisture and secondly to increased water erosion by rainwater and destruction of gallery forests.

Table 4: Projected change (%) rates of some rivers deadlines

	2000	2025	2050	2075	2100
Streams and station	sensitivity 1,5°C				
Milo ; Kankan	-2,27	-8,24	-18,25	-30,42	-43,72
Niger; Kouroussa	-1,49	-5,32	-11,79	-20,18	-29,91
Niandan; Baro	-0,82	-2,90	-6,48	-11,22	-17,17
Konkouré; Pt Télémélé	-1,51	-5,35	-11,77	-20,17	-29,89
Diani; Bac	-1,02	-3,44	-7,65	-13,27	-20,03
Streams and station	sensitivity 2,5°C				
Milo ; Kankan	-3,18	-11,60	-25,70	-41,79	-58,10
Niger; Kouroussa	-2,40	-7,86	-16,83	-28,28	-41,13
Niandan; Baro	-1,21	-4,45	-9,53	-16,30	-24,43
Konkouré; Pt Télémélé	-2,40	-7,86	-16,79	-28,27	-41,12
Diani; Bac	-1,28	-4,85	-10,71	-18,75	-27,93
Streams and station	sensitivity 4,5°C				
Milo ; Kankan	-4,32	-15,86	-33,94	-54,46	-72,83
Niger; Kouroussa	-2,78	-10,79	-23,01	-38,26	-54,17
Niandan; Baro	-1,50	-5,66	-12,63	-21,96	-33,53
Konkouré; Pt Télémélé	-2,80	-10,76	-23,00	-38,25	-54,18
Diani; Bac	-1,79	-6,76	-14,92	-25,77	-38,52

➤ Vulnerable socioeconomic groups

In Guinea Bissau, over 80% of the population lives and works in rural areas. The livelihoods of these populations are increasingly degraded. The negative impacts of human activities mismanaged in the country are exacerbated by climatic disturbances reinforcing the degradation and loss of vegetative cover of watersheds, the destruction of natural formations and gallery forests, silting up the beds and plains, the loss of animal and plant species, the decline in soil fertility. So, all socio-economic groups, dependent ecosystems and their resources to meet their subsistence needs, are vulnerable. The most vulnerable group consists of farmers who constitute the occupational layer the largest and poorest. In the hinterland, the decline in rainfall, drought, flooding and strong insolation cause, as appropriate, declining soil fertility and the crop yields, the spread of diseases and pests of plants and animals, water scarcity and increased risk of bush fires. In coastal areas, the intrusion of sea water on the continent causes flooding of rice-growing land and salinization.

Apart from farmers, ranchers and market gardeners are also very vulnerable. For breeders, climate disruptions lead to the depletion of forage species, the depletion of grazing areas, the increase of transhumance, the proliferation of episodic diseases and exacerbation of conflicts between farmers and herders. For gardeners, the decline in soil fertility, water shortage and the resurgence of diseases and enemies of plants are increasingly the cause of a counter performance of gardening.

ADAPTATION NEEDS IN EAST GUINEA-BISSAU

Current coping mechanisms of family farmers in East Guinea-Bissau are inadequate to protect rural livelihoods from increasing climatic stress. Two examples are pastoralism and permanent agriculture: temporary moving of cattle during times of droughts has augmented pressure on water and forest resources elsewhere, and an increasing number of families have reported to suffer violence and robbery while away from their home regions. In agriculture, strong reliance on cashew nuts for family income turns farmers vulnerable because yields have declined and world market prices have become more volatile. In particular, recently falling average cashew prices have increased food insecurity as the

exchange rates between rice and cashew changed: instead of receiving 3 kg of rice for 1 kg cashew between 2011 and 2012, farmers only received 1 kg of rice for 1 kg cashew in 2013 (WFP, 2013). Other coping strategies such as reduced food consumption below nutritional needs, sales of household assets in order to buy cereals, or acquiring rice through high interest loans given by cashew merchants (Temudo and Abrantes, 2014) also affect livelihoods negatively.

The Nairobi Work Plan (UNFCCC, 2010) recognizes the implicit relationship between climatic and social stressors when stating that adaptation can either include climate-proofing of existing socio-economic activities (by integrating future risk) or the expanding of adaptive capacity of activities or systems to deal with increased climatic variability and change. In both cases, potentially critical thresholds in existing climate risk management strategies are modified through adaptation in order to reduce vulnerability to climate change impacts, either via incremental, systemic or transformational changes (UNFCCC, 2010).

In practice, adaptation options for climate-smart agriculture – that is agriculture that sustainably increases productivity, resilience (adaptation), reduces or removes greenhouse gases (GHG) (mitigation), and enhances achievement of national food security and development goals (FAO, 2010) – focuses on practices to build resilience to existing risks and to changes in an evolving climatic and socioeconomic context (Meybeck et al., 2012). In this context, climate-smart agriculture adaptations include a variety of potential actions: implementation of climate forecasts (for crop risk management) or early warning systems, promoting behavioral change (e.g. through promoting efficient water use in times of droughts, or changing of planting dates), improving water access conditions (sustainable use of groundwater resources, increasing water storage capacities, rainwater harvesting, etc.), agricultural development (deficit irrigation, crop rotation practices, short cycle crops, use of drought-resistant seeds, measures to reduce soil erosion, cereal storage facilities or animal traction), livestock management (manure management, improved feeding or grazing management), biodiversity conservation (e.g. agroforestry to improve microclimatic conditions for livestock and to mitigate surface water runoff) or health interventions (FAO, 2010; Niang et al., 2014; Porter et al., 2014; Schaeffer et al., 2013; Thornton et al., 2015; UNFCCC, 2010).

In dryland regions adaptations are often autonomous and reactive to short-term motivations (Niang et al., 2014). However, in the context of Guinea-Bissau's resource-poor family farmers it is clear that few families have the opportunity uptake any set of more ambitious adaptation options mentioned above. Welfare and off-farm income have been identified as important indicators for autonomous adaptation (Thornton et al., 2015); both conditions which are notably absent in the majority of East Guinea-Bissau farmers. Other constraints for the adoption of adaptation options that increase the resilience or diversity of agricultural systems, or enhance food security and climate risk management are also frequent. For example, weather information for crop and livestock management may be unreliable or inaccessible, while improved feeding may prove as too costly for farmers (Thornton et al., 2015).

Supporting family farmer families in East Guinea-Bissau through strengthening of climate-smart agricultural practices may thus provide important benefits, both in terms of sustainable livelihoods and resilience to climate change. At the same time, delaying broader adaptation approaches is likely to increase overall costs in the future and lead to higher levels of vulnerability of the affected communities (Schaeffer et al., 2013; UNFCCC, 2010). Many LDCs, including Guinea-Bissau, have now developed their National Adaptation Programmes of Action to Climate Change (NAPAs) which identify priority adaptation projects. Next to climatic risk, these priority measures also address immediate social and environmental needs of communities. In this context, the UNFCCC has adamant in urging LDCs to carry out these projects soon as possible (UNFCCC, 2010).

In the past decade, Guinea-Bissau has reduced important information and data knowledge gaps required for impact, vulnerability and adaptation assessment. Positive contributions have come from the GEF/UNDP project “Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau” (00077229) (LDCF) which has started climate-smart agriculture pilot initiatives in 14 tabancas of the Gabú ‘region’. In this context, the present project proposes to scale-up identified climate-smart agriculture practices in East Guinea-Bissau, using the GEF/UNDP project as a starting point for mainstreaming adaptation into development planning and institutional capacity building.

SUMMARY OF THE RESULTS OF LESSONS LEARNED STUDY FROM THE LDCF PROJECT

So to avoid past mistakes and improve the performance of the new project, a study on the lessons learned from the project "Strengthening Climate Change Adaptation and Resilience in the Agrarian and Water Resources Sectors in Guinea-Bissau" (00077229) was conducted during the preparation of the full project. The objective of this study is to identify and analyze the relevant lessons learned from the GEF/UNDP LDCF project implementation, in order to support the Full Proposal development of the "Scaling up climate-smart agriculture in East Guinea Bissau" (GNB/RIE/Agri/2015/1). Specifically, the study aims to respond to these two questions raised by PCN reviewers of the Adaptation Fund Secretariat:

- Question 1: What have been the main achievements of the LDCF funded project at the end of the project, and has its implementation has resulted in opportunities to achieve higher cost-efficiency in the investments in the proposed project; and
- Question 2: How will the project make use of the lessons learned and best practices from the LDCF project?

Within the context of these questions, the lessons learned include the "identification and analysis of constraints, opportunities, and approaches to be considered for the new Adaptation Fund Full Project, focusing on all relevant aspects (technical, environmental and social, organizational, institutional, legal, financial, etc.) that enabled the implementation of project activities and the achievement of the expected results under the LDCF project".

Furthermore included are descriptions of best practices for adaptation to climate change in the Gabú LDCF project region, focusing on projects that have proven their adaptability to adverse effects of climate change and climate variability, soil management and appropriate management of pesticides.

This study on lessons learned is undertaken in support of the Full Proposal development of the project "Scaling up climate-smart agriculture in East Guinea Bissau" (GNB/RIE/Agri/2015/1). This report aims to answer the two questions below. It does neither constitute a final evaluation of the LDCF project nor a M&E report of climate-smart agriculture projects, and therefore does not give a complete validation of the project's development strategy or its intervention logic. Instead, this study can be seen as a rapid assessment of the LDCF project, based on a review of the project documents made available, a limited number of semi-structured interviews with the project team, and participant observation in short field visits.

Particular focus of this study is on responding to these two questions: (1) what worked in the project; and (2) what could be improved in the project. These questions are responded to both in terms of project design and formulation and at the project implementation level.

The summary of the report's findings are presented below (the detail report is presented in annex 3).

Quality and pertinence of the project process formulation:

The LDCF project was found to have a clearly defined institutional mechanisms and a logical theory of change. There are real doubts whether the LDCF field interventions are sufficient to turn agro-pastoralist production systems resilient against climatic stress, as well as whether the activities are sufficient to improve the participants' livelihoods. In particular, biodiversity services and pastoralists needs should be considered to a higher degree in order to contribute to vulnerability re-reduction in both Bafatá and Gabú regions.

Project indicators for the Adaptation Fund project proposal need to be designed more carefully in order allow for consistent M&E of the project.

Project relevance to the political context of Guinea-Bissau:

The LDCF project supported the relevant government policies and plans, including the country's Poverty Reduction Strategy (2011-2015) and NAPA priorities. But identification of project initiatives outside the government sphere had been insufficient, as remarked in the ongoing Adaptation Fund project review process. Therefore it is suggested that a thorough review of relevant projects in the project area should be undertaken for the Adaptation Fund full project proposal development in order to identify overlaps and possibilities for collaboration, including actors from international institutions and NGOs/CSOs. Part of this review has been done during Project Concept Note development, but should be updated at project start.

Risk management:

Identified risks and risk hypotheses were relevant and clearly identified, and risk management was appropriate under the circumstances. The Adaptation Fund project should update risk hypotheses from the LDCF project.

A continuous risk assessment system should be implemented in order to systematically identify and assess risks during project implementation, according to type (environmental, financial, operational, political, regulatory or policy), level (standard or critical), response category (emergency plan, monitoring or other), changes in risk (mitigated, stable, increasing, problem) and date of risk identification. Risks should be identified at local (field intervention), national (project lead unit) and communication between both levels.

Given that the scale and complexity of the Adaptation Fund project will increase compared to the LDCF project (geographically and in terms of financial resources) it is recommended that the project hires a specific technical expert (or team of experts) with proven expertise in risk management which would also improve building capacities in adaptive management in the project.

Project management structures and contribution to effective and efficient project development:

Overall, work management structures and PTAs (Annual Work Plan) were judged to be of good quality. However, the Project Steering Committee (PSC) did not have the role laid out in the PRODOC regarding LDCF project implementation and strategic guidance. These mechanisms should be redesigned for the Adaptation Fund project given the delays caused by this.

Training of the project team in technical, participatory processes, and project management should receive more attention from the start of the project to allow better serve beneficiaries. Project Management Unit personnel for the Adaptation Fund project should be recruited by call of application, should have experiences on the field in the project actions. Their technical capacities should be enhanced on adaptation, fiduciary, environment, social and gender standards.

Functionality of project partnerships established:

The LDCF project established relevant partnerships with national partners (through six partnership protocols) and regional and local government, but the agreements did not always result in concrete action by partners. Agreements should be maintained and strengthened where necessary. Partnerships with CBOs should be broadened in the new project in order

to ensure sustainability and a more effective replication and diffusion of activities and results. In this work with CBOs and NGOs will require strict supervision from the project team, both in technical and financial terms.

A positive example has been social mobilization through the Rural Climate Change Forum.

Adequacy of monitoring and evaluation mechanisms:

Monitoring and evaluation indicators were identified in the PRODOC. However, neither a socioeconomic and agroclimatic baseline (project start) nor a follow-up monitoring of interventions was undertaken. Because of this the contribution of the project to local (community) vulnerability reduction is impossible to verify. This is a clear 'information deficit'. As a consequence local interventions seem to have been decided upon largely through ad-hoc decisions by the technical team, but not scientific evidence. This 'information deficit' has two direct impacts: it (1) affects the capacity to obtain further financing in the future as positive impacts on livelihoods and vulnerability reduction by the interventions cannot be proven; and (2) field interventions are implemented without an empirically validated scientific evidence basis. It is therefore strongly recommended to develop a representative reference/baseline dataset and M&E system which covers relevant socioeconomic, environmental and agroclimatic data for both Bafatá and Gabú regions. M&E should include both possible participants and non-interventions groups in order to allow comparisons in productivity, resilience (adaptation), reduction or removal of greenhouse gases (GHG) (mitigation), and enhancing achievement of national food security and development goals. The data collected should be supported by existing/updated agroclimatic zoning information for both regions. This activity needs to be carried out at the start of the contract before field activities are carried out. The hiring of a dedicated international team of experts to develop this work is also strongly recommended, if possible in collaboration with national partners from university in order to build research capacity in Guinea-Bissau. This cooperation should also include BOAD and UNDP Guinea-Bissau as a key supporting actors.

Gender and equity dimensions have been incorporated into project activities relatively strong, but efforts should be made to better communicate links between discussions with women, their opinions, the activities developed together with them and possible outcomes, and the evaluation by women. Gender aspects should specifically also be incorporated into the M&E system. Gender sensitivity of community forest protection should be studied more closely, given that male household members are largely responsible for slash-and-burn agriculture.

Effectiveness of project implementation:

Actions for agriculture have been implemented not in integrated development approach, but in a dissated and unconnected manner at the village level. This should be altered towards a more integrated approach in a new project (see below). Actions for livestock and pastoralists have been extremely limited in face of the challenges faced by the sector. Water infrastructure needs to be better integrated into the subproject development at village level. Assigning a field coordinator (not existent in ongoing LDCF project) may also be necessary to fully coordinate field interventions.

Cost-effectiveness relationship of project in terms of time and budget:

Overall cost-effectiveness has been judged positively in mid-term evaluation, despite low overall density of subprojects in the field. Given the higher number of participating tabancas in Gabú and a high number of tabancas in Bafatá from the beginning on it is believed that the cost-effectiveness of the new Adaptation Fund project would be higher.

Project contribution to building of adaptive capacities of the beneficiaries:

The targeted population has been reached by the project, but it is recommended to allocate more resources to field interventions. Beneficiary selection should be based on stringent criteria to avoid mis-selection of ineligible candidates for subprojects.

On the relevance of integrating climate-smart pastoralism activities: Pastoral systems occupy large areas in Gabú in Bafatá regions under alarming land degradation and desertification rates. They are culturally, socially and economically appropriate for maintaining the well-being of dryland communities while providing for important ecosystem services and wildlife diversity. However, rangelands are becoming less available as local population and agricultural areas expand, with transboundary cattle herd migration becoming increasingly difficult due to stricter border controls. And pastoralism is also vulnerable to climatic change as drought periods and frequency increase in East Guinea-Bissau's regions. In this context, turning pastoralism resilient to climate change is integral to climate-smart agriculture (FAO, 2009). For adaptation and vulnerability reduction, the improvement of grazing practices has immense potential to improve productivity in livestock and agriculture while bettering rural livelihoods and food security, with additional benefits for agriculture via reduced soil compactation or rainfall loss (higher water source replenishment and water holding capacity through reduced surface water run-off and evapotranspiration, which increases water availability also during drought periods). Current planned activities are insufficient to provide these benefits: the LDCF project addressed livestock only through forage production and cattle vaccination. Therefore, the new Adaptation Fund project should include community-based rehabilitation of rangelands (including restoring of organic matter to soils), improved grazing management (including rotational grazing to decrease losses resulting from overgrazing), conversion from cultivation and native vegetation, sowing of legumes and grasses, and building of pastoralist innovation field school example such as in Uganda (FAO, 2011) as integral part of a vulnerability reduction strategy, with added benefits for rural incomes, food security and biodiversity. Pastoralists can be managers of these improved rangelands. This requires a proper work package of activities, including sociological work and technical assistance to herders in order to increase acceptance and knowledge in grazing management. Project coordination efforts would be needed to manage both agricultural and livestock work packages.

Several project activities such as contingency plans were not always found to be effective. These should be redesigned for a new project. Activities to reduce slash-and-burn agriculture and forest fires should be also integrated into the project given their long-term negative impacts on agriculture and livestock.

Sustainability of activities and the impacts achieved by the project, and replication potential:

Overall potential for sustainability is considerable. LDCF activities contribute to the socio-economic development of a region strongly hit by climatic extremes and change, while protecting the region's environmental resources and contribute to recuperation of degraded lands. Project ownership is often high. Communities are involved in all activities, either directly or represented through the RCCF or Environmental Vigilance Committees (CRA). Furthermore local communities were involved in the project design and seeking of solutions from the beginning of the LDCF project.

The project team should continue to seek establish cooperations in order to upscale investments into climate-smart agriculture and pastoralism throughout the project duration.

The new Adaptation Fund project is drafted to correct the weakness and up scale the good experiences of the LDCF project. These corrections and up scalings process refers to new activities in both original tabancas of the ongoing LDCF project and an additional tabancas in the 'regions' of Gabú and Bafatá, with total beneficiary target population for the new project

foreseen at approximately 54 000 people⁸ in East Guinea-Bissau.

⁸ The project will develop 1100 hectares hectares of which 100 ha for market gardening. Each household will occupy a plot of 0.25 ha. On average there are 7 people per household.

PROJECT AREA AND BENEFICIARY POPULATION

❖ Project area

The project seeks to scale the LDCF project activities. In this sense, and in order to expand the impact of the actions of the project for sustainable food security of the country, the Bafata region, bordering in the Gabu region in which the LDCF project activities will be put across, was retained. The project area covers the regions of Bafata and Gabu. Gabú region is located to the East of the country and capital is Gabú. It is limited to the North by Senegal.

Gabú region is located to the East of the country and capital is Gabú. She is limited to the North by Senegal, to the West by the Bafata Region, to the South and East by Guinea Conakry. Bafatá region capital is Bafatá and is limited to the North by Senegal, West by the region of Oio, Quinara and Tombali region south and to the East by the region of Gabu. These two regions form the Bissau-Guinean is.

The project will be implemented in the northern parts of these regions in the sectors of Sonaco, Pirada, Pitche, Gabù, Cuntoboel and Ganadu. The southern parts abound of protected areas and corridors of passages of the animals. The following figure shows the demarcation of the area of intervention of the project.



Figure 23: Demarcation of the area of the project

In terms of population, the Gabù and Bafatá regions account for 44.2% of the total population of Guinea Bissau (Gabù, 29.9% and Bafata 19.3%) according to the 2009 general census, ie a total of 406 492 inhabitants. With an annual growth rate of 2.5%, this population would have reached 483191 inhabitants.

In terms of climate, the Bafata and Gabú regions are subject to a Sudanian climate characterized by alternating a short rainy season (June to October) and a long dry season (November to May). The evolution of annual precipitation analyses show that over the past years, there will be a significant decline in rainfall (annual height and number of rainy days). This variability from one year to another and over the months, particularly at the time of the appearance of the first pluieset at the end of the rainy season and the maldistribution of these rains during the cropping cycles, makes random agricultural production. Monthly averages of temperature are substantially constant from one year to the other, and are between 24 ° C and 30 ° C. But, the maximum and minimum reach gaps in Bafatá, averages range from 300 to 390 C for the maxima, with absolute values of the order of 42 – 43 ° C (March - April) and between 15 and 23 ° C for the minima, and absolute values may fall up to 10 - 12 ° C (in December or January). The monthly average humidity is between 46 and 80%. An annual average of 62%.

In terms of soil, one meets tropical ferruginous soil that are generally associated with the breastplate or horizons gravillonnais, located in depth. The terraces are common and can flush, such as break in slope. Also: (i) of the lithosols associated with battleships and rocky outcrops (especially on both sides of the Cocoli); (ii) soil little advanced erosion, associated with battleships and dismantled gravillonaires horizons; (iii) soils little advanced filler, associated with alluvium or colluvium of sorts; and (iv) to George, pseudogley, valleys and depressions hydromorphic soils.

This area is marked by the destruction of vegetation cover by inversions, fires, shifting cultivation and exposure of the surface to the Sun and the rain. Reducing balance and threatens the current fertility of the soil. However, the productivity of the soil depends on the type of culture. Artisanal and industrial wood production is dominated by the domestic timber merchants and a large majority of the timber merchants is of illegal origin, some from neighbouring republics, with some national complicity. Most of the 'native' population directs their forest operations for the production of oil and Palm wine, construction materials, medicinal plants and collection of fruits with hard obsolete techniques, without any problems of rationality and conservation.

Agriculture represents an important value in the local economy. It is the basis of its development. It is mainly practised by most of the working population of these regions (about 80%), a practice necessary for the survival of families. Cultures are practiced in all three major ecological systems: trays, shallows and mangroves (South - Bafatá). Developed speculations are: (i) cereals including rice, which is the main staple food of the population (the rice is consumed by more than 90% of the population), corn, millet and sorghum. (ii) the tubers, (iii) vegetables; and fruits.

Farming is also practiced by most of the population of the regions nationwide family and differentiated according to the type of animals. Chickens are the production of the family, because it is easy to operate. The production of small and large ruminants, is dominated by the Fulani (majority inhabitants of those areas), in extensive form. Gabú region is considered to be the area that has the largest number of cattle, goats and chickens field, followed by the region of Bafata. The two regions hold approximately 66% of the cattle herd of the country.

These regions are confronted with phenomena related to climate changes that affect agricultural production and exacerbate food insecurity. On average 32% of rural households have cited drought / irregularity rains and flooding as the main shock has affected agricultural production and livestock. Food insecurity finds its place and poverty remains the daily. Food insecurity affects 14% of the population in Bafata and 15% to Gabu. Currently more than 70% of the population affected by poverty as, she compared to 64% in 2002. Malnutrition affects 6.8% of the population in these regions and remains higher than the average national which is 5.6%. Households in which the head is a woman or not educated are more

vulnerable. To deal with this situation of food insecurity, households are appeal to a number of survival strategies for food among other things: the reduction of the quantities consumed by adults; less preferred food consumption is also very intense. The reduction of the amount of food eaten during the meal; the reduction in the number of meals per day. These strategies not only to plunge people into a vicious circle where poverty, food insecurity and malnutrition are mutually.

❖ **Areas and villages of intervention**

Field work helped identify likely potential sites to host the project. The following overall criteria allowed to retain a non-exhaustive list of potential sites/villages:

1. Site not located on a reserve of fauna, in a protected and not adjacent to the major corridors of passages of animals area (confers figure 19);
2. Site which development will not cause a displacement of the population
3. Site, including the surrounding villages are identified vulnerable in terms of biophysical, climate and social risks;
4. Site is surrounded by villages of which there are at least 150 to 200 households if the area is between 25 and 50 ha and the less than 200 households if the area goes beyond 50 ha;
5. Not yet receiving similar support site and having not programmed for similar activities;
6. Sites with potential beneficiary villages close to each other in order to make flexible coordination of the actions on the ground and limit the costs associated with the management of the project;
7. Site with potential significant for the development of irrigation and easily convertible;
8. Area known for its strong potential in livestock including cattle with at least 2,000 heads;
9. Area known for its water deficit for feeding of livestock as well as for the consumption of the population;
10. Area which groups and/or the villagers are recognized as active people with a good organization

Based on these criteria, the potential sites presented in the following table were selected in order to predict at this stage different types of infrastructure can be installed as part of the project:

Table 5: Potential Sites and beneficiary villages Identified

<i>Region</i>	<i>Sectors</i>	<i>Sites</i>	<i>Geographic coordinates</i>	<i>Number of villages</i>	<i>Available area (ha)</i>
Gabù	Pitche	Bucuré Boboti	N 12° 20' 09,5" W 13° 42' 58"	5	100
		Copiro	N 12° 20' 33,7" W 13° 54' 42"	10	60
		Sago/Fulamori	N 12° 18' 33,8" W 13° 55' 59,7"	6	80
	Pirada	Soncocunda	N 12° 37' 10,7" W 14° 11' 18,1"	6	150
		Sissaucunda	N 12° 38' 17,5" W 14° 12' 30,6"	4	65
		Durbali	N 12° 20' 30" W 13° 43' 30,8"	3	60
		Sambataco	N 12° 28' 22,3" W 14° 10' 34,1"	7	50
	Gabú	Cumpaghor	N 12° 10' 30,3" W 14° 11' 19,8"	7	100
		Bada	N 12° 18' 37,1" W 14° 11' 19,6"	9	150
	Sonaco	Colicunda	N 12° 23' 49,6" W 14° 21' 02,2"	5	70
Bafatà	Contuboei	Madina Sara	N 12° 26' 14,3" W 14° 36' 42,2"	8	50
		Manatu	N 12° 28' 41,9" W 14° 34' 01,3"	11	120
		Galugada	N 12° 28' 09,4" W 14° 37' 25,5"	5	50
		Sanecunda	N 12° 33' 57,3" W 14° 43' 30,8"	7	60
		Suna Nhamabé	N 12° 27' 23,4" W 14° 46' 59,3"	8	75
	Ganadu	Cuncana	N 12° 21' 11,4" W 14° 43' 33"	3	50
		Pacua	N 12° 24' 07" W 14° 42' 44,3"	5	80
		Cantacunda	N 12° 25' 48,4" W 14° 47' 44,4"	7	150
	Total	6	18		116

To these sites are added sites partially developed under the LDCF project and which the present project plans to scale up. The latter totaled 661,761 ha (see table below).

Table 6: Sites partially developed under LDCF project

Region	Sectors	Sites	Number of villages concerned	Area (ha)
Gabù	Pitche	Bidigor	4	33,875
		Padjama	4	32,128
		Maghai	5	23,55
		Nhauar	7	172,55
		Loco Djeré	1	37,44
		Djiulem/Caufan	9	95,776
	Pirada	Sintchã Bothe	4	52,187
		Cantari	7	40,15
		Nuncadja	5	50,7
		Popodje		
		Cantacunda	7	44,275
		Copa Mangui	9	79,13
Total	2	12	62	661,761

It is to be noted that in the sectors of Pitche and Pirada, new sites have been identified to be developed under the Adaptation Fund project. The intervention in these two sectors as part of the new project, is justified by the fact that these sectors remain very vulnerable to climate change. According to the report of the joint mission of CILSS, FAO, WFP and the Government Bissau Guinean on evaluating neediness of the harvest 2016/2017 (November 2016), Pitche and Pirada sectors in the Gabù region are characterized by endemic lack of water and are considered structurally at risk of food insecurity and deserve special attention.

At the beginning of the project, a call for submission of subproject will be launched in the predefined area in order to keep a comprehensive list of recipient sites/villages.

❖ Different crops developed in the project intervention area

In the project area, main crops (the most important) and secondary cultures are distinguished. Food crops (rice) and cashew occupy first place followed by vegetables (tomato, pepper, cabbage, pepper, carrot...). In General, all of these cultures are made in association with others except for the cultivation of rice. Vegetables are also practiced but low percentage compared to cereals including rice according to the seasons and the agro climatic and soil conditions.

The speculations can be divided into groups as follows:

- vegetables whose main crops in the project area are: onion, tomato, cabbage, lettuce, squash, okra, melon and carrot. These speculations are mainly produced in the lowlands;

- roots and tubers whose main crops: cassava, sweet potato and potato. They are grown as well in the shallows on the trays;
- legumes consists speculation as groundnuts, cowpea and green beans;
- cereals whose main crops are lowland rice and upland rice, millet, sorghum, maize;
- spices and stimulants including chilli and pepper are the main crops;
- fruit with mango, lemon, banana.

❖ Choice of crops to be promoted

Under the project, the rice will be largment promoted in view of its place in the diet of households (90% of households consume rice). Given its low production for lack of resources to mobilize water irrigation and lack of technical support, households depend strongly on the market to stock up on rice. About 76% of the households depend on markets for access to rice during the peak of the lean season (August), 40% in November, 28% in December and 27% in January. The share of rice in food spending expenditures represents 52.3% for people in severe food insecurity and 29% for populations in moderate food insecurity. At the national level, the country remains heavily dependent on rice imports which were increased from approximately 40,000 tonnes in 2000 to 143.000 tonnes in 2010 (or 50% of the 2010 rice needs). Although the updated information is not available, the share of rice in the cereal deficit remains very high (see figure below). The intensification of this culture will reduce: (i) at the level of households, the dependence of the market; and (ii) at the level of the State, the decline in imports. It will help to make it available to the staple of households and reduce food insecurity and poverty.

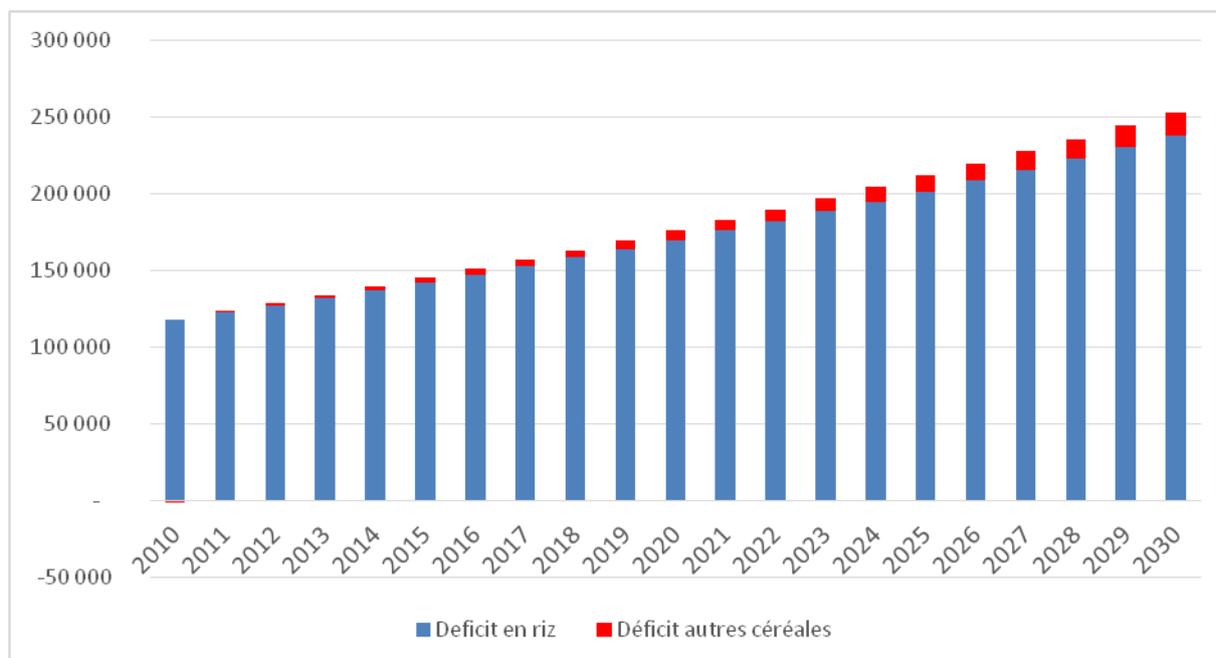


Figure 24: Share of rice in Guinea Bissau cereal deficit

Under the project, 75% of the 1,762 hectares to be developed under the project will be used for rice production (ie 1,320 ha). This choice is made taking into account the place of rice in household food. 90% of the population of Guinea Bissau consumed rice as the main food. The rest of the area (25%) will be destined for gardens namely potato.

As for livestock, 1,000 new hectares of pasture will be enriched with brachiaria and other plants feed, fertilizer and nutrient.

❖ **Beneficiaries population**

The populations of the villages around the selected sites will be the direct beneficiaries of the project. In Guinea Bissau, the women are the most farmers who cultivate rice and work in the gardens field. So, they will be the largest beneficiaries of the project. Beyond the technical and institutional capacity building, the project has:

- The rice production on 1362 hectares. Three (03) groups of 6 people or three households of 6 people will be installed on 1 ha of rice. Eighteen (18) people will thus be beneficiaries of the development of one hectare of rice, ie 24,516 beneficiaries of the 1362 hectares developed under the project
- Vegetable production with potatoes, tomatoes and onions in 400 ha. Seven (07) groups of 6 people or 7 households of 6 people will be installed on 1 ha of landscaped gardens. Forty-two (42) people will thus benefit from the development of one hectare of market gardening, ie 16 800 beneficiaries of the 400 hectares developed under the project.
- The production of forage on 1000 ha pilots. One (01) hectare of pasture pilot will be allocated by group of people or household of breeders of 6 people or 6 000 in all beneficiaries of this activity.
- The drinking water supply for livestock and population from 30 boreholes. Beyond the beneficiaries of the agricultural and livestock activities which are directly fed by the drilling of drinking water, 40 other households of 6 people not involved in the project, so 240 people by drilling water and 7 200 for the 30 boreholes will benefit from This infrastructures.

The following table summarizes the number of beneficiaries of the field activities of the project besides the beneficiaries of actions against bushfires which affect all villages.

Table 7: Number of beneficiaries of the project

Total number of beneficiaries of rice production	24516
Total number of beneficiaries of the vegetable production	16800
Total number of beneficiaries of pasture development	6000
Number of people not involved in the project benefiting from drinking water infrastructure	7200
Total beneficiaries	54516

■ OBJECTIVES OF THE PROJECT / PROGRAM :

List the main project objectives.

List the main objectives of the project/programme.

In the context of extreme vulnerability of family farmers to climate change in dry land East Guinea-Bissau, the overall objective of this project is *to strengthen practices and capacities in climate-smart agriculture in the project region and at institutional level*. Through the project's activities, food security and livelihoods are to be strengthened at household level while simultaneously increasing capacities in climate risk management and adaptation planning at all levels of governance. In particular, the project will solidify and expand the activities of GEF/UNDP-00077229 project "Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau" both in the 14 original tabancas in Gabú 'region' of that project while integrating an additional ~100 tabancas in the 'regions' of both Gabú and Bafatá into the project's scope of action, with a total beneficiary target population of approximately 37,000 people in East Guinea-Bissau.⁹

This ongoing LDCF project (00077229) aims to increase resilience to climate change through both immediate and long-term adaptation measures in development policies, plans, programs, projects and actions. Through outputs organized in three work packages/outcome indicators, the project is to contribute to livelihood security, including agriculture and forest resources, and maintenance of water resources in the face of a changing climate. The three outcome indicators include (1) Climate change risks and adaptation measures integrated into key national policies, plans and programs for water, agriculture and livestock management; (2) Small and medium scale climate change adaptation practices for water, agriculture and livestock management are demonstrated and implemented in the selected region; and (3) Lessons learned and best practices from pilot activities, capacity development initiatives and policy changes are disseminated.

The current project proposal will follow the existing intervention framework closely, putting emphasis on scaling-up successful initiatives and capacity building at all levels of governance.

Key achievements of the GEF/UNDP project "Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau" (00077229) include (i) a first identification assessment of key agencies involved in the management of climate risks; (ii) climate adaptation interventions at community-scale with capacity building, including 622 people trained on climate-resilient agricultural practices (crop rotation, terracing, intercropping, conservation of water and soils, etc.), introduction of three rice short-cycle varieties, introduction of forage crop for animal consumption, installation of 9 demonstration fields, 4 veterinary pharmacies, introduction of improved poultry, goat and sheep breeds (more resilient to heat stress), creation of a cereal bank, implementation of eleven seed banks, construction of eight waterholes and three wells, among other; (iii) implementation of a council on environmental monitoring and development of contingency plans in 10 villages, which were already put to test on the occasion of the recent floods in August-September 2015; (iv) establishment of the Rural Climate Change Forum (RCCF) for the project intervention area, which is composed of 23 members (4 of which female) from 14 villages, including ranchers and farmers; (v) 5 policy documents were

been revised with the integration of the dimension of climate change (the Charter of agricultural development policy, the Charter of the policy on livestock, the blueprint for water and sanitation, the document of the strategy of poverty reduction, the Development Plan of the Gabú Region including the development of Pitche and Pirada plan). In this the current project proposal can thus build on a solid intervention and institutional framework – both regionally and locally – for project implementation and capacity building, as well as build on existing lessons for precise adaptation interventions. This project proposal will solidify and expand upon on the key achievements obtained so far from the existing project.

The project will address key vulnerabilities in agriculture and water resources management, and thus contribute to immediate and longer-term development and resilience needs of extremely vulnerable farmers, with a particular focus on extremely vulnerable groups: women, elderly and children. As such, the project is in line with the recommendations of the UNFCCC Nairobi Work Programme (UNFCCC, 2010) and the best available scientific evidence on climate change impacts, vulnerability and adaptation in agriculture, water resources as well as food security (Niang et al., 2014; Porter et al., 2014).

In accordance with the initial scoping of vulnerability and adaptation needs the three specific objectives of the project are thus:

1. Develop technical and institutional capacity of government and civil society (private sector, local communities, NGOs) to address increasing climatic risk in climate change adaptation planning;
2. Enhance the resilience of existing agricultural productive systems and contribute to the diversification of production, including via implementation of climate-resilient water control and management actions to minimize risks from intense droughts and floods;
3. Promote knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning to other regions of the country, other countries in West Africa and to international climate change negotiations and fora, including the UNFCCC process.

COMPONENTS AND FINANCING OF THE PROJECT/PROGRAM:

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.

For the case of a programme, individual components are likely to refer to specific sub-sets of stakeholders, regions and/or sectors that can be addressed through a set of well defined interventions / projects.

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning	1.1.1 Socio-climatic vulnerability assessment for East Guinea-Bissau	1.1 Technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions enhanced	0.7M
	1.1.2 Assessment of technical capacity building needs of ministries and field operatives for adaptation planning		
	1.1.3 Formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources		
	1.2.1 Technical trainings on adaptative systems and organizational capacity building for identified target groups	1.2 Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, environmental, social and gender in practice (on-site) and adaptation planning	
	1.2.2 Technical assistance and rural extension for subprojects		
	1.2.3 Formulation/Update of contingency plans for climate-risk management		
	1.2.4 Support for farmers groups by the government technical experts for adaptation actions implementation		
	1.2.5 Capacity building to prevent forest fires		
2. Enhance the resilience of existing agricultural productive systems, including water control and management measures	2.1.1 Development of lowlands to maintain agricultural production in drought periods	2.1 Agricultural and livestock activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security	7.55M
	2.1.2 Construction of micro-dams for irrigation of rice, vegetable crops and livestock water supply		
	2.1.3 Rehabilitation/improvement of soil and pasture productivity and small-scale investments into agriculture inputs, machinery and tools		

	2.1.4 Construction of drills/wells and ramps for improved livestock and domestic water supply and market gardens development		
3. Knowledge management of lessons learned on climate-smart agriculture and adaptation planning	3.1.1 Knowledge management strategy developed	3.1 Sustainable climate-smart agriculture practices and management is disseminated in comparable regions of the country and other West African countries	0.150M
	3.1.2 Project website developed and active		
	3.1.3 Manual and other materials on best practices and measures for climate-smart agriculture are developed		
	3.1.4 Dissemination of results to other regions of Guinea-Bissau and West Africa		
5. Project/Programme Execution cost			0.798M
6. Total Project/Programme Cost			9.198M
7. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			0.781M
Amount of Financing Requested			9.979 M

Projected Calendar:

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

Milestones	Expected Dates
Start of Project/Programme Implementation	August 2017
Mid-term Review (if planned)	June 2020
Project/Programme Closing	June 2022
Terminal Evaluation	December 2022

PART II: PROJECT / PROGRAMME JUSTIFICATION

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

Component 1: Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning

Guinea Bissau has challenges in terms of the amount and quality of data and information as well as technical capacity to implement climate change adaptation. Despite progress through NAPA development, and an increasing number of scientific studies (see review in introductory section), important gaps remain with regards to climate impacts, socio-climatic vulnerability, and effectiveness of climate adaptation actions and planning. In this context, the project proposes a component for building technical and institutional capacity for climate change adaptation planning; both long-term perspectives on adaptive capacity building/policy development and near-term climatic risk management. Particularly this will include participative development of on-site agricultural and water-management adaptation actions and the development of contingency plans (e.g. flood protection) for climate-risk management. A further focus will lie on the strengthening of interactions between relevant actors for climate change adaptation: government, meteorological services, agriculture sector, research institutions, regional and national government, and the media and local and indigenous communities.

The expected outcomes of Component 1 include (i) technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions is increased; and (ii) farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, in practice (on-site) and adaptation planning. Both outcomes build upon the experiences from GEF/UNDP-00077229 project; therefore the planned capacity building modules will require mainly adequation of existing practices from that project, but not the design and implementation of entirely new modules.

Outcome 1.1.: Technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions is increased

In terms of component outcomes technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions is to be increased, while the target groups will be able to plan and implement climate-smart agricultural practices in the project region.

Output 1.1.1. Socio-climatic vulnerability assessment for East Guinea-Bissau

One of the outputs of the component 1 include an assessment of socio-climatic vulnerability in order to identify agricultural systems and communities most at risk. This will integrate field interviews, focus group meetings, data collection and intervention assessment compared to non-intervention cases (Chambwera et al., 2014) with medium- to long-term climate change downscaled GCM projections. The identified locations through this vulnerability assessment will form the main target for project interventions, including future possible projects.

The results of this study will help developer guide socio-climatic vulnerability assessment at the local level. The purpose of this guide is to allow a self-assessment of the vulnerability of areas/provinces, villages and households in the face of the climate. This self-assessment should take actions to adapt to the local level. This guide should be simple to use by actors at the level of local and easy to interpret. It will be translated into national and local languages. This guide, once approved, will be broadcast in other parts of the country.

Output 1.1.2. Assessment of technical capacity building needs of ministries and field operatives for adaptation planning

To further raise the technical capacity of the main governmental organizations involved, a training needs assessment will be carried out to identify required capacity developments for effective and efficient implementation of the project and adaptation planning capacity, with a focus on climate resilience in the agricultural and water sectors. This assessment will identify the specific needs of specific groups at both ministerial (Bissau) and field-level (regional governments, extension workers), and will be implemented through a range of technical training events. Possible topics are based on key identified vulnerabilities, may include: water management, control and conservation; best practices in climate-smart agriculture; basic GIS training for use in planning project interventions. The needs assessment will also consider possible linkages between traditional knowledge and scientific knowledge.

Output 1.1.3. Formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources

This activity concerns: (i) formulation of detailed intervention plan, (ii) formulation/update of policies, procedures and guidelines related to climate, and (iii) Development of monitoring and evaluation system document.

a. Formulation of detailed intervention plan

Once capacity has been enhanced, a detailed intervention plan will be developed across all those sectors involved. This will outline the key vulnerable locations, the proposed interventions on a site-by-site basis, the institutional framework and the lines of reporting and responsible contacts.

b. Formulation/update of policies, procedures and guidelines related to climate change

In order to prevent a possible lack of national policies and legislation on environmental and climate change adaptation needs, gender and natural resources sustainable management, the project will help to improve or develop, validate and approve national policies, procedures and guidelines to address these issues.

With regard to policies and plans, the project will proceed to the revision of the political forest management in the Bafata Regional Development Plan and development plans of the areas of intervention of the project, including the sectors of Sonaco, Contuboel and Ganadu. It will be introduced in these documents the problem of climate change and adaptation strategies with short, medium and long term actions.

With regard to the standards and guidelines, the actions to be taken include:

- Developpement/enhancing of guidelines on dams' security, people involuntary resettlement, land use, forest management, pest management, indigenous people, natural habitat, physical cultural resources, public participation in environmental impact assessment process and gender mainstreaming, pest and pesticides

management. The project will also help to develop certain principles of the Adaptation Fund namely: Equity and access, Gender Equity and Women's Empowerment, Marginalized and Vulnerable Groups;

- Preparation of national and local guidelines on the integration of the climate in sectoral policies as well as in projects/programs;
- Organization of workshops for the adoption of standards and guidelines;
- Dissemination of the standards and guidelines;
- Follow-up of the internalization and application of these standards and guidelines at the local and national level;

c. Development of monitoring and evaluation system document

A monitoring system will be developed through independent consultation. The consultant will be recruited to support the project team to the implementation of an effective system of monitoring and evaluation of the project. This system will include the ongoing assessment of adaptive actions on the sites and the reporting.

To allow the Project Management Unit to do a good project risk continuous monitoring and evaluation (political, strategic, financial, environmental and social, cultural risks, etc.), the capacity of the team will be enhanced on adaptation, fiduciary, environment, social and gender, etc. standards.

Outcome 1.2 Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, environmental, social and gender in practice (on-site) and adaptation planning

The following activities are planned to meet this outcome: (i) technical trainings and organizational capacity building for identified target groups ; (ii) technical assistance and rural extension for subprojects ; (iii) update of contingency plans for climate-risk management ; (iv) support for farmers groups by the government technical experts for adaptation actions implementation; (v) capacity building to prevent forest fires.

Output 1.2.1 Technical trainings on adaptive systems and organizational capacity building for NGOs and identified target groups

a) Training of NGOs for producers technical and organizational support

According to available information, an experiment was carried out in Guinea Bissau in the Gabu region through a rural development project in Eastern Guinea Bissau. The project was closed in 1996. It included a pesticide, fertilizer and agricultural equipment management activity. During that time, only the executives of the State were responsible for the implementation of the project. No NGO was involved in the management of agricultural inputs and equipment. With the relocation of documents in the ministries and movements of the state executives, no trace is found of the reports of the said project. In addition, NGOs organization and participation was missing in the LDCF project, which represents one of the project weaknesses. The present Adaptation Fund project wants to correct the weakness by putting in place a good organization. Given that no concrete experience has been achieved in the field at national level to serve as an example, training will be organized for local NGOs to build capacity to support beneficiaries in the implementation of the project. This training

will allow the NGO that are recruited by call for candidacy between the NGOs trained, to ensure better organization of the producers in management committees as well as an autonomy of these committees to effectively carry out their mission after the closure of the project.

b) Strengthening the technical capacity of producer groups

Technical trainings for identified target groups in topics related to climate-smart agriculture will be conducted.

The project will organize for the farmer's groups, practical training on various topics. In this sense the producers will be trained on the following agricultural practices:

- The Zai technique, a technique that allows to retrieve soil degradation;
- The transversal tillage, a technique that limits the flow of water losses;
- Rotation and association of cultures;
- Management of water and infrastructures of irrigation;
- New system of intensive production of rice (SRI);
- Fertilizer and pesticides use;
- Management of pastures;
- Seed multiplication;
- Etc.

Training will be organized in the intervention areas. These courses will be in the first and second year of project start. An evaluation is conducted at the end of training to measure the degree of assimilation of beneficiary groups. These courses should lead to the establishment, in every village or planning area, management committees. The various training courses will be implemented by government and non-governmental actors. Good practice guides or manuals will be designed in the form of box of tools. The local languages (creole, Mandinga and Peulh) will be used according to the village, for a better understanding by farmers and for a greater ownership of the shares.

c) Strengthening the organizational capacity of beneficiaries

During the consultation phase, the farmers have expressed the need to strengthen their organizational capacity for better management of the adaptive actions. In this context, the project will seek to better organize the beneficiaries to develop and focus on interactions with organizations and farmers groups with villages at which management is often too heavy. Women, youth and men already working individually on the areas planned for development will be encouraged to organize themselves into groups. Capacities building will focus on: (i) the establishment of farm groups, (ii) management and operation of groups; (iii) the technical, organizational and financial groups.

The NGO trained and recruited by the PMU will organize the beneficiaries in management committees and build the capacities of the members to carry out their various missions. The committees will be:

- the Perimeters management committees with four subcommittees: (i) the Seed subcommittee, (ii) the Plowing subcommittee, (iii) the Irrigation Infrastructure Management subcommittee, and (iv) the Fertilizers and pesticides subcommittee;

- the Management committees of the water works to supply water to population and livestock;
- the Pasture Management Committee.

d. Strengthening technical capacities on integrated pest and pesticide management

The project will organize capacity-building sessions on integrated pest and pesticides management for actors involved in the project. The capacity building will be focused on alternatives to pesticides as agronomic, cultural, mechanical and biological control. These are the techniques or actions that are taken into account in crop development to prevent pest outbreaks and avoid or greatly reduce the use of chemical pesticides (alternatives of chemical pesticides use are presented in integrated pest management approach at the page 123 of this document). The capacities building on integrated pest and pesticides management will concern at least the following institutions and individuals: Regional Directorate for Plant Protection, National committee of pest and pesticide management (CNGP in French)¹⁰; Regional Directorate for Environment and Sustainable Development, Regional Directorate for Agriculture, Regional Directorate for agriculture water infrastructures management, representative of the Governorate of the Region, Competent Authority for Environmental Assessment (AAAC in French) , Regional Directorate for Public Health, National Laboratory for Agrarian Research (INPA in French), Members of Perimeters' Management Committee, NGO's representatives in charge of the supervision of the beneficiaries on sites, the PMU and the presidents and administrators of the perimeters will be trained on the integrated management of pests and pesticides-

This training will be conducted by an Expert very experienced in the FAO integrated pest and pesticides management in the Africa's subsaharian countries. This expert will be recruited by the PMU under the supervision of the Implementing Entity on the basis of a shortlist of Experts recommended by the FAO office based in Rome (Italy) and or in West Africa in Accra (Ghana).

At the end of the training sessions, a box of integrated pests and pesticides management tools will be made available to the beneficiaries, the DPV, the PMU, the CNGP and the Regional Directorate for Agriculture for appropriate integrated pests and pesticides management actions.

For the integrated pest and pesticides management and others sustainable activities in the project framework, the project will strongly collaborate with the regional offices (CILSS in Ouagadougou (Burkina Faso, AGRHYMET in Niamey (Niger), EMPRES-FAO (Prevention of major pests upsurges in West and Northwest Africa)) involved in sustainable agriculture development.

Output 1.2.2 Technical assistance and rural extension for subprojects

Technical assistance for implementation of activities of the subprojects will be carried out under this output. The technical assistance integrates sharing, demonstration and implementation of climate-smart agriculture management techniques, including livestock. Particular focus is on training agroforestry and conservation agriculture methods that reduce soil disturbance, focus on retention of crop residues and other surface cover, promote crop rotation and seed control, therefore stabilizing production and income as well as reducing environmental pressures. Small-scale market development and efficient water use will also

¹⁰ The National pest and pesticide management committee (CNGP) is set up in Guinea Bissau by the Article 11 of Legislative Decree No. 7/2000 of 24 August 2000. This committee is composed of members from such structures as the environment, health, agriculture, farmer organizations and customs.

be included in the training programs. The rural extension team will integrate specialists for each of the project's key areas, including agriculture and water resources.

Field extension officers will furthermore provide to seasonal forecasts to the communities and help farmers to use the information properly to increase productivity and food security. Forecasts will be presented before the rainy season, and will include an evaluation of previous seasonal forecast as well as possible harmonization with traditional forecasts. Farmers in each tabanca will be trained in using rain gauges to keep a record of rainfalls to identify possibly changing rainfall patterns in the community, as well as to identify the best possible planting days. The project will also engage in training of young men and female to undertake smaller maintenances of project infrastructure, thus also contributing to local capacity building and empowerment.

Output 1.2.3. Formulation of contingency plans for climate-risk management

The project's contingency plans are planned to cover extreme weather events and their impacts, particularly floods. A general contingency plan will be elaborated for the project. After their validated, the contingency plan will be adapted at each intervention site. 21 contingency plans will be adapted. Each contingency plan will be updated by field extension officers in direct collaboration with each community. Participation of women and other vulnerable community members will be particularly promoted.

The technical capacities for a better operationalization of these contingency plans will be conducted. Two workshops will be organized (one in Gabù and one in Bafatà). This will be done by the Civil Protection Division. They will bring together the local services of the intervention regions, the famers groups and the local administrative authorities.

Output 1.2.4. Support for famers groups for adaptation actions implementation

Participative development of on-site agricultural and water-management adaptation actions, where the precise adaptation strategy choice will be made by the communities themselves – following the example from the World Bank's approach and that of others, which do not specify activities before workshops, NGO projects and a typology list of activities that could be discussed at community level during the project. Adaptation actions will thus be detailed once the project starts.

- Support by the government technical experts

Farmers groups and breeders (men and women) will also be trained on the techniques of production of organic fertilizers and briquettes of excrement of livestock. At least 200 farmers will be trained in this technique. Every breeder will produce on average 1.5 tons of organic fertilizer. This action will reduce the need for chemical fertilizers utilization and the operating costs of the landscaped perimeters.

The project will enhance capacities of the beneficiaries on dissemination and strengthening of climate-smart agriculture practices; risks related to slash-and-burn agriculture management; irrigated agriculture interventions; use of agroforestry methods; crop rotation; soil fertility maintenance and higher soil moisture retention; etc. Theses activities will be conducted with the support of Agricultural and hydraulic decentralized technical services.

To ensure that the adaptation, environmental and social and gender dimensions are adequately taken into account and thus ensure the implementation of the environmental

project and social management plan, it is necessary to strengthen the technical and institutional capacities of the State services which will be involved in the implementation of the project. These include deconcentrated services in charge of the environment, agriculture, livestock, plant protection, forestry, hydraulics. The training workshops will be organized on site led by the PMU, which has a Climate and Environmental Capacity Building Officer in collaboration with the Competent Environmental Assessment Authority (AAAC). An environmental monitoring program will be established and will focus on monitoring, supervision, mid-term evaluation and annual assessment.

It should be noted that the perimeters development will require the use of pesticides to prevent and control crop pests. These products pose risks to the environment and human health. It is therefore necessary to strengthen the capacities of producers in the application and management of pesticides in order to minimize these risks. In order to do this, the project will first develop a guide to good and manage fertilizers and pesticides. These guides will be elaborated in the first year of the project and will be followed, if necessary, according to the observed changes. Good practice guides or manuals will be designed in the form of box of tools. The local languages (creole, Mandinga and Peulh) will be used according to the village, for a better understanding by farmers and for a greater ownership of the shares. In the second year during which the sites can be developed after construction of the structures, training on good agricultural practices preserving the environment and methods and techniques for managing pests, pesticides and fertilizers will be organized in the areas housing the villages of the project. Thesetraining will focused on: (i) information on the risks and health and safety advice. (ii) basic knowledge on handling and risk management procedures; (iii) the wearing of protection and security equipment; (iv) the risks associated with the transport of pesticides; (v) procedures for handling, loading and unloading; (vi) the storage of pesticides in farm; (vii) the management of packaging and used pesticides; (viii) the management of cases of accidental application of pesticides; (ix) the outline of the process of treatment and operation; (x) health and safety in relation to operations; (xi) the emergency measures and emergency pesticides poisoning; (xii) the maintenance of the equipment. These activities will be conducted by the Plant Protection Service in collaboration with the Competent Environmental Assessment Authority (AAAC).

- Proximity support by site facilitators or animators

To ensure efficiency in the implementation of the adaptation actions of the project, daily support will be provided to the farmers by the project through facilitators or animators¹¹. These animators who have a good command of the promoted farming practices, will be in constant contact with producers in the field to ensure adequate resilient practices implementation. In addition, they will help for collecting data of the project on the sites (the actions taken, the problems occurred, the benefits, the needs for the next step, etc.). These data will be transmitted to the national coordination through the regional technical coordinators for the purposes of the development of quarterly and annual reports. This will allow to measure the degree of adoption practices and progressive appropriation of the promoted resiliences techniques during project implementation.

Output 1.2.5. Capacity building to prevent forest fires

¹¹ These will be recruited in the areas of interventions based on the CV after a call for applications. A total of 15 animators will be supported the producers in the implementation of adaptation actions.

The project will engage in capacity building for rural forest fires; namely in (i) organizing rural fire brigades, (ii) train them to combat forest fires that endanger agricultural production and biodiversity in the project region, (iii) provide them with tools to do so, (iv) sensitize fire brigades on good practices to avoid fire, and (v) train fire brigades to sensitize rural populations (including coal miners, palm wine producers, hunters, breeders, farmers, etc..) before any drought season on fire risks and good practices to avoid them. This part of the project will include the development and dissemination of simple rules, such as avoiding smoking in forests, good practices for palm wine production (which requires fire) or teaching hunters to build low-risk fires while in the forests. Finally, forest fires will also be covered by the project's contingency plans for climate risk management. The project will also enhanced the capacity of the committees of vigilance of fire at the regional level. Exchanges will be organized between fire vigilance committees to share their experiences in this area. The composition of these committees will be reviewed for active involvement of women.

Still in the sense of contributing to forest protection, the project will organize sensitization for local communities on sustainable management of forest resources. Within the project, it will be organized awareness campaigns to communities based on importance of forests in the fight against climate change and the improvement of their living conditions. The aim is to encourage a strong involvement of local communities in forest management and to help them to become the main actors for forest protection. Indeed, forest resources can not be sustained if rural communities are not directly involved in its management and are not aware of their use and benefits they can derive. The project has, through awareness change operating modes of forest resources. Thus every village will be organized twice a year for an awareness of the people including coal miners, palm wine producers, hunters, breeders, farmers, etc. The sensitization will be conducted by NGOs under the supervision of fire brigades and others services relevant the forest protection. These will be NGOs working in the forest protection and which will be selected on the basis of predefined criteria.

To overcome this output, the technical and organizational capacities of Rural Climate Change Forum (RCCF) and Environmental vigilance committees for better operationalization will be enhanced. Rural Climate Exchange Forum (RCCF) and Environmental Vigilance Committees (CRA in portugese) are committees that have been set up to promote exchanges related respectively to the climate and the environment. These two committees are complementary and trained actors of the sectors of agriculture, water, farming, forestry, representatives of the local population especially vulnerable groups. The RCCF and CRA are platforms for Exchange, sharing of information and experiences in various areas including climate. However, in view of the technical and financial shortcomings, their interventions are very limited. The project includes support to the RCCF and the CRA for their better operationalization.

Component 2: Enhance the resilience of existing agricultural productive systems, including water control and management measures

This component focuses on household-/village-level interventions in climate-smart agriculture practices in order to minimize damages from climatic change and variability, as well as to contribute to agricultural and rural livelihood development. In this, the project is to take advantage of 'windows of opportunity' for adaptation: for example, agriculture in the country is still largely organic, and relies on farmer's own seeds for cultivation. Agro-ecological approaches thus have a high potential, including in national adaptation strategies or policy design. While component #1 serves as a key input for pre-selecting project sites, all field activities of project implementation will be carried out in this component.

Table 8: Simulated mean benefit for different crop management adaptations

Management option	Cultivar adjustment (n=56)	Planting date adjustment (n=19)	Planting date and cultivar adjustment (n=152)	Irrigation optimization (n=17)	Fertilizer optimization (n=10)	Other (n=9)
Benefit (%) from using adaptation	23 (6.8, 35.9)	3 (2.1, 8.3)	17 (9.9, 26.1)	3.2 (2, 8.2)	1 (0.25, 4.8)	6,45 (3.2, 12.8)

Source: Porter et al. (2014). Difference between the yield change from baseline for the adapted and non-adapted cases. N represents the number of estimates used for each adaptation. The numbers in parentheses are the 25th and 75th percentiles.

The table above is taken from the IPCC AR5 chapter on food security and food systems (Porter et al., 2014) and summarizes the mean impact of different adaptation actions on increasing crop yield/reducing climatic impacts on crop yields. While the exact impacts are site-specific, the table shows that small-scale incremental or systemic adaptations such as planting date adjustment and/or cultivar adjustment can be very effective for promoting climate resilience.

With regards to water resources the problems with agricultural water management in dryland East Guinea-Bissau are becoming more severe due to climate change. The problems involve drought (acute and seasonal) as well as inundation and flooding of villages and swamp rice fields due to intense periods of rain. Saline water intrusion (more frequent due to sea level rise) is a potential further problem: it affects the existing rice crop as rice is not halophytic, thus leading to losses or a decline in harvest, but more importantly it can also salinize the soil limiting future production. This process can lead to abandonment of rice paddies, displacement of farmers and their families and threats further mangrove destruction to create new paddies. In summary, different approaches to make water control and management more resilient to the future climate changes are required; from water management techniques to the construction of mini-water retention and small reservoirs to preserve water and agricultural production to drainage dykes and channels to minimize flooding damage on crops and other infrastructure.

Under this component, one outcome is expected.

Outcome 2.1: Agricultural and livestock activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security

Planned interventions will be at the farm, or a small farming community level. All interventions undertaken will focus on principles of climate-smart agriculture, i.e. contributing to productivity, resilience and adaptation, climate change mitigation as well as food security and other development goals.

The project will intervene on sites that are being exploited by the population using traditional techniques. On these sites, rice and vegetable crops, the main ones being potatoes, tomatoes and onions, have traditionally been developed in the rainy season. There is no crop or any activity on these sites in the drought season (see the photos below). These sites are abandoned during the dry season and producers are waiting for the next rainy season for a new agricultural campaign if the conditions permit it. In the case of early flood, the producers lose their site for the crop year and are waiting for the next year.

To avoid the disruption of the activities of the producers in rainy season, the construction of water infrastructure and the perimeter facilities will be made in the dry season. The dry season covers the period from November to June. During the implementation of the project, the PMU will arrange for companies recruited to carry out the work comply with the farming calendar.

Thus, no expropriation, relocation of producers or disruption of the livelihood activities of the producers will be undertaken. On the contrary, the farmers will benefit from the extension of the areas exploited, the water availability, the improvement of soil quality, the support for the acquisition of quality fertilizers and pesticides and the protection of the areas against silting and flooding to improve crop yields and agriculture production.



State of the sites of the producers in the drought season

This outcome aims to develop among others: (i) 1362 ha of irrigated rice, 400 ha of gardens with potatoe, Tomato, Onion, etc. The production of the rice and vegetables will be used to secured the rice needs for 41 316 persons; (ii) 1000 hectares pilot pasture for 1000 breeders groups of 6 persons or 1,000 families of breeders of 6 persons (i.e 6000 beneficiarries) ; and (ii) 30 drillings for domestic and livestock water supply (1200 other households, i.e 7200 persons, outside the beneficiarries of the irrigation and livestock activities, will benefit these water supply infrastructures).

In fact, Guinea-Bissau's Second National Communication to the UNFCCC (SEAT/DGA and Republic of Guinea-Bissau, 2011) and NAPA (Republic of Guinea-Bissau, 2006) highlight the relevant plans and policies for agricultural development and water resources management, where the construction of small-scale water retention considered as an important adaptation activity to increase resilience of cropping systems. The National Plan of Agricultural Investment (PNIA, 2013) further promotes the adoption of integrated water resources management (IWRM). Existing land use or water management plans (national or regional) currently do not cover downstream harm of small scale water retention. It is frequent that traditional legislation that is not documented but used by the heads of the villages is applied. Identification of environmental conflicts, their mediation or possibilities for compensation are regulated in the Land Law (5/98, 1998) and Water Code (5a-92, 1992). In particular, the Law on Environmental Impact Assessment (EIA) (10/2010) rules that projects with expected significant adverse impacts on the environment do require the application of an EIA. This document needs to provide for a clear analysis of environmental impacts and risks, comparison of alternatives and mitigation action, including in non-technical language.

Downstream harm small-scale water retention are potentially covered through the EIA Law but there are no universal methodologies available per project type that could be applied (see National Plan on Environmental Management, PNGA). In this background the project will work together with the Service responsible for the hydraulic efficiency of the construction of rural infrastructure as wells and mini-water retention in order to develop respected standards for prevention of downstream harm in Guinea-Bissau. These standards will be based on the environmental and social safeguards, including gender mainstreaming policy, of the West African Development Bank (BOAD) and GEF as well as relevant national environmental and social regulations. Traditional authorities will be involved in projects, not limited to land management.

Based on initial scoping studies (see Part II.H), review of climate change adaptation literature, and lessons learned from project GEF/UNDP-00077229 the following activities of adaptation are currently being considered for implementation:

- Development of lowlands to maintain agricultural production in drought periods ;
- Construction of mini-dams for irrigation of rice and vegetable crops. While these are more 'costly' items and likely not feasible in each and every village, many villagers see this as a potential major improvement in the quality of life. The project will take care that villagers will take ownership of the mini-dams and be sufficiently organized to secure their maintenance;
- Rehabilitation of soil and pasture productivity before planting through agro-hydro management, including small-scale investments into machinery and tools (e.g. tractor, fuel);
- Construction of drillings and ramps for supplying livestock with water. This will take into account development needs while taking extreme climatic conditions into consideration.

Output 2.1.0: Support for subprojects ESIA realization, APD, DAO, supervision and control of works

Each of the sites selected for development will be subject to an environmental and social impact assessment. The environmental and social impact assessments of the subprojects will be conducted by consultants recruited by the PMU. These ESIA's will be conducted in accordance with the Adaptation Fund's ESP. The subproject environmental and social due-diligences are been describe under section III.A.

The project will also provide support for the realization of APD¹², tender documents for the implementation of the project and supervision activities for sites development works. The control of the site development work will be entrusted to a specialized Company/Consultant, following a call for applications on the basis of a shortlist. The Terms of Reference will be prepared by the PMU and validated by the implementing entity (BOAD). Supervision will be provided by the PMU, which will report to the BOAD. The BOAD will carry out a field mission to ensure the proper execution of the works of sites development and water infrastructures.

Output 2.1.1: Development of lowlands to maintain agricultural production in drought periods

This activity concerns: (i) Development of lowlands in the framework of the adaptation fund project; and (ii) Scaling up of partially developed sites within the old LDCF project.

¹² Etudes d'Avant Projet détaillées in french.

2.1.1.1. Development of lowlands in the framework of the adaptation fund project

There is two type of lowlands in the framework of the adaptation fund project: the lowlands in the downstream of the micro dams which will be built to control the flood and to maintain water need of the vegetables in drought periods and the simple lowlands without micro dams on which the planning will help to evacuate the excess water in rainy season and control silting. This type of development consists of: (i) the construction of dikes; (ii) the Dikes for protection against erosive action; and (iii) work related to the Protection of the slopes against silting. For this type of simple development, rice is irrigated by flooding plots through dikes and bunds constructed along contour level. The land is carefully leveled at the level of each parcel which size does not exceed 250m². The different components are:

- **Dikes**, which have the function to allow an early water supply of the portions, ensure the necessary level of water storage and the independent management of the water used for irrigation in the different portions of the same perimeter. These dikes are placed perpendicularly to the direction of the water flow and are confectioned with and important component of clay in order to obtain a good constancy and resist the water flow and infiltration;
- **Dikes for protection against erosive action**, which have the functions of impeding the sand that results from the continuous erosive process in the lateral slopes from arriving to the valley, contributing to the conservation of the physical characteristics of the soils in the valley and contributing to the reduction of the silting up by weeds. They are placed in margins of the perimeter and in the separation between the slope and the valley. The trenches that result from the excavation upstream from these dikes will collect and conduct runoff water from the hydrographic basin to the collectors or drainage channels, equipped with a discharge structure every 200 m, in cases where there aren't thalwegs/affluent, for this purpose. These dikes are positioned perpendicularly to the direction of the water flow and are confectioned with and important component of clay in order to obtain a good constancy and resist the flow and infiltration. The materials and working conditions must be determined in a way that enables the construction of homogenous layers of a maximum thickness of 20 cm, spread, moisturized and compacted, completely in each layer;
- **Downstream water regulation channels**: Channels will be built to direct continuously the water to the downstream.
- **Protection of the slopes against silting**: The silting up of valleys by sand is part of the problems for the development of the production of rice. It contributes to the reduction of the capacity of the soil to retain water, in changes in its physical structures and productivity. The protection of slopes has become more and more a requirement for the conservation of valleys. This project will include activities for the ordering or improvement of the surrounding slopes of the rice production perimeter in order to avoid, in long term, the silting up by sand. The actions will consist of the creation of a green coverage area of specific trees, of at least 30 m of width per plantation (fruit trees, medicinal trees, service woods, firewood, forage plants, nutritional plants such as Moringa). The implementation of these activities could be entrusted to the beneficiaries under the technical supervision of the Directorate General of Water and Forests. The Project, through this Directorate General, would be responsible for supplying seedlings and monitoring the reforestation process.

A total of 1000 hectares of lowlands will be developed. The technical characteristics of the structures, the details of construction and the type of hydraulic infrastructure required for the development will be defined based on detailed hydrological and hydraulic studies.

2.1.1.2. Scaling up of partially developed sites within the LDCF project

As part of the LDCF project, micro dams was built (see figure below).



Partial view of micro dam (with a downstream water drainage channel) built in Bajocunda at the end of 2016 to control flood and used like a bridge

14 sites making up 662 ha were partially ordered.



Partially ordered lowlands within the LDCF project

However the exploitation of the ordered areas was hampered by the lack of internal ordering of the improved perimeters. The interventions in these sites will consist of (i)

ordering of the perimeters through the construction of portioning dikes and irrigation channels and; (ii) protection of the improved perimeters against the silting by sand.

- **Portioning of the perimeters:** Will consist of ordering the portions of 250 m², isolating and transporting the irrigation water of the plantations. The portioning dikes will have the function of facilitating the retention, the distribution and management of the irrigation water in the portions, slowing down the rainfall water runoff, ensure and regulate the water levels in the portions and enable the independent management among the portions.
- **Protection of the slopes against silting:** this activity will be carried out as described under the item 2.1.1.1.

Downstream water regulation channels are built with the micro-dam to direct continuously the water to the downstream.

Output 2.1.2: Construction of micro-dams for irrigation of rice, vegetable crops and livestock water supply

To combat flood and drought, micro dams for water storage will be constructed to preserve water, by sustainable manner, within the agricultural systems. The micro dams will be built on selected low lands under flood prone areas. The constructions will use simple technology. This will ensure that the project beneficiaries (local farmers) are able to manage post-project repairs and maintenance after the project is completed. In addition to these water storage facilities, simple irrigation systems will be designed to maintain the required moisture level in the fields/paddies. The infrastructures design will ensure an appropriate spreading of the water on the surfaces (plots) to ensure the development of the crops and improve yield.

A total of 20 micro-dams will be built. The technical characteristics of the structures, the details of construction and the type of hydraulic infrastructure required for the development will be defined based on a detailed hydrological and hydraulic studies.

2.1.2.1: Construction of micro-dams

Taking into consideration the characteristics of the potential sites pre-selected during the preliminary field studies, these infrastructures will be used to promote: irrigation and livestock water supply.

The infrastructures consists of: (i) the retention dikes construction; (ii) the excavation of the basin; (iii) Protection of the slopes against silting.

- **Retention dikes:** These are hydraulic structures that will have two main functions, which are (i) retaining water and flooding the portions of rice production upstream and (ii) serve as a roadway for the connection of two or more located on the margins of the valley. The landfill for the retention dike will result from the excavation of the irrigation channel, placed in layers to create this dike. These dikes are built with an important component of clay in order to obtain a good constancy and resist the flow and infiltration. They will be compacted manually, in a way the enables them to resist the pressure exerted by the water flow. They must be installed perpendicularly to the runoff water flow direction, that is, perpendicularly to the collector. The exact position and shape of construction will be determined during the execution by the beneficiary, with the assistance of a technician/topographer. For retention dikes that will also serve as a roadway the landfill material will be lateritic clay and may, eventually, have a clay nucleus and its landfill must be compacted, with the help of machinery, at 90%

Optimum Protor Normal (OPN). Special attention must be given to the compaction of the nucleus to ensure that it will fulfill its functions afterward. The height of these dikes must not exceed 2 m.

- **The Basins:** The construction of the storage basins consist of the excavation and transportation of the material, compaction and protection of slopes and ramps. These structures have the function of increasing the volume and time of storage. In order to facilitate the access to the water, the basins are equipped with access ramps and to help orient the cattle in their movements, the ramps are equipped with wired fences;
- **Downstream water regulation channels:** Channels will be built to direct continuously the water to the downstream.
- **Protection of the slopes against silting:** this activity will be carried out as described under the item 2.1.1.1.

2.1.2.2. The construction of simple irrigation systems

The purpose of this ordering type is to: (i) adjust the water level in the perimeter; (ii) drain excess water during heavy rains; (iii) distributing water in plots, and (iv) irrigating plots during the rainfall deficit.

The development involving partial control consists of : (i) the construction of the collectors or drainage channels; (ii) the installation of aqueducts and/or PVC tubes; (iii) the construction of the structures of discharge or distribution; (iv) the construction of irrigation and/or drainage channels; (v) the construction the retention dikes or main dikes; (vi) the construction of dikes for protection against erosive action; (vii) the construction of downstream water regulation channels; (viii) the construction of the portion dikes; (ix) the construction of compartmental dikes; and (x) protection of the slopes against silting activities.

These infrastructures will aim, as appropriate, to: (i) reduce the level of flooding in the paddy field and drain surplus water during heavy rains; (ii) regulate the water level in the perimeter; (iii) distribute the water in the plots and encourage spreading, as well as maintaining a water slide in the basins; (iv) channeling water to the villages and lands downstream. The development should be designed so that it can irrigate rice throughout the vegetative period, evacuate critical floods during heavy rains, avoid flooding and maintain a water supply cultures. The role of each facility is described below:

- **The collectors or drainage channels:** They will have the functions of enabling the drainage of the ordered or improved perimeters and the spill-over of floods. They must be designed in order to serve the entire ordered perimeter. They have a trapezoidal section and the material obtained from the excavation will be placed in both margins to create dikes. These two dikes will be designed to be used as a way to access the portions, facilitate the mobility along the collector as well as resist floodings and overflow.
- **The aqueducts and/or PVC tubes:** They are placed in the collector below the retention dikes and must enable the evacuation of the floods. They are equipped with devices that control the water level upstream, shaped similarly to a floodgate. They have the functions of maintaining the water level high when the floodgates are closed. The dimensions of the aqueducts and/or number of tubes depend on the volume of water to be spilled-over. The tubes are installed perpendicularly to the retention dikes.
- **Structures of discharge or distribution:** These are relatively simple structures in terms of construction and usage, having the main function of contributing to the supply of the water demanded by the plants. Usually, these structures are used in valleys that present a considerable longitudinal inclination. These structures enable

the elevation of the irrigation water levels in the collector and the deviation of the runoff water to irrigation channels or even directly to the portions. They also have the function of keeping the water level high when the floodgates are closed.

- **Irrigation and/or drainage channels:** These are earthen channels that result from the extraction of soil for the construction of dikes in portions, according to the project, having the main function of conveying the flow taken by the discharge structure, next to the portions and/or facilitate the spill-over of the exceeding rainfall water;
- **Retention dikes or main dikes:** These are hydraulic structures that will have two main functions, which are (i) retaining water and flooding the portions of rice production upstream and (ii) retaining water and flooding to regulate water supply for the villages and lands in the downstream of the perimeters. The landfill for the retention dike will result from the excavation of the irrigation channel, placed in layers to create this dike. These dikes are built with an important component of clay in order to obtain a good constancy and resist the flow and infiltration. They will be compacted manually, in a way that enables them to resist the pressure exerted by the water flow. They must be installed perpendicularly to the runoff water flow direction, that is, perpendicularly to the collector. The exact position and shape of construction will be determined during the execution by the beneficiary, with the assistance of a technician/topographer. For retention dikes that will also serve as a roadway the landfill material will be lateritic clay and may, eventually, have a clay nucleus and its landfill must be compacted, with the help of machinery, at 90% Optimum Proctor Normal (OPN). Special attention must be given to the compaction of the nucleus to ensure that it will fulfill its functions afterward. The height of these dikes must not exceed 2 m.
- **Downstream water regulation channels:** Channels will be built to direct continuously the water to the downstream;
- **Dikes for protection against erosive action,** which have the functions of impeding the sand that results from the continuous erosive process in the lateral slopes from arriving to the valley, contributing to the conservation of the physical characteristics of the soils in the valley and contributing to the reduction of the silting up by weeds (see more description of dikes for protection against erosive action characteristics under the item 2.1.1.1.);
- **Portion dikes,** placed in the divisions of the portions, they have the function of facilitating the retention, distribution and management of irrigation water from the portions, slowing down the runoff of rainfall water, ensuring and regulating that water levels in the portions and enabling the independent management in the portions. These dikes are built with an important component of clay in order to obtain a good constancy and resist the flow and infiltration. The exact position and shape of construction will be determined during the execution by the beneficiary, with the assistance of a technician/topographer.
- **Compartmental dikes:** These dikes are placed perpendicularly to the direction of the water flow and are confectioned with an important component of clay in order to obtain a good constancy and resist the water flow and infiltration. Positioned perpendicular to the levee dikes, their function is to allow an early water supply of the portions, ensure the necessary level of water storage and the independent management of the water used for irrigation in the different portions of the same perimeter.
- **Protection of the slopes against silting:** this activity will be carried out as described under the item 2.1.1.1.

Output 2.1.3.: Rehabilitation/improvement of soil and pasture productivity and small-scale investments into agriculture inputs, machinery and tools

The activities to contribute to the improvement of the quality of the soil, the agricultural yield and the pasture will be conducted under this output. It is: (i) sensitization/Education about the harms of slash and burn agriculture practice on soil fertility and crop yields and dissemination and strengthening of climate-smart agriculture practices; (ii) Support to access improved, resistant and short cycle seeds ; (iii) Support to groups for the acquisition of quality fertilizers and pesticide ; (iv) support for the production of forage for livestock (Cultivation of brachiaria, moringa, fruit trees, etc,) and increase organic manure production; (v) support for the acquisition of equipment/facilities of production and development of products for demonstration.

2.1.3.1. Sensitization/Education about the harms of slash and burn agriculture practice on soil fertility and crop yields and dissemination and strengthening of climate-smart agriculture practices

Marginal land use profitability and ongoing land degradation cause severe problems for farmers, perpetuating the poverty cycle and exhausting natural resources. Current itinerant slash-and-burn agricultural practices in the project region are connected to soil erosion, loss of soil nutrients and drying up of springs, and have a negative effect on productivity of rice and other crops. The project will address risks related to slash-and-burn agriculture through four integrated strategies: (a) focus on irrigated agriculture interventions, which will directly reduce pressures on land clearance, and therefore necessity to practice slash-and-burn agriculture; (b) use of agroforestry interventions, where farmers know that they cannot practice slash-and-burn agriculture in such fields or orchards; (c) dissemination and strengthening of climate-smart agriculture practices. This particularly includes agroforestry and conservation agriculture methods, i.e. methods which minimize soil disturbances, utilize retention of crop residues and other surface cover, and promote crop rotation. While the focus of these measures is to contribute to stabilization of production and incomes, there are also important benefits to be realized with regards to reducing slash-and-burn agriculture and forest fires: (i) by creating buffers against drought impacts (through higher soil moisture retention); (ii) by recomposition of soil fertility; (iii) through lower fallow periods, thus directly reducing needs for slash-and-burn agriculture; and (iv) the possibility to work on any given cultivated field for much longer periods than would be possible under slash-and-burn agriculture (due to soil fertility maintenance and higher soil moisture retention).

The project will support the groups in the ploughing through mechanized during the first two years of the start of production means. This will make the soil easier to plow in the coming years through animal traction and the use of small tillers.

2.1.3.2. Support to access improved, resistant and short cycle seeds

Adequate access improved seeds increase agriculture yields. In the project area the producers do not have access to quality and certified seeds. This has implications for agriculture yields. The average agricultural yield is 600 kg / ha on average in current practices and traditional seeds.

The project will introduce in collaboration with the National Institute of the agrarian research (INPA), the improved seeds of rice with yields ranging from 5 to 6 t/ha on average and for others improved seeds. To ensure the availability of improved seeds the project will sign a Memorandum of understanding with the INPA for the provision of the improved seed, at the start of the project. The INPA will support the project in the development of improved seed banks and in the training of the groups on these seeds multiplication techniques while ensuring the ownership of the activities by the producers. Producers will continue to produce the seeds improved in the following years on their plots with the close monitoring of the INPA. One to two seed banks will be built in each provincial area of intervention. In areas already containing seed banks, these will be strengthened to meet the needs of producers.

2.1.3.3. Support to groups for the acquisition of quality fertilizers, quality pesticide and crops conservation

Access and use of good quality fertilizers and pesticides increase agricultural production. In the project area the access of producers to quality and certified fertilizers and pesticides is limited. This has implications for production. Thus, in the first year of development, the project will support agricultural groups that do not have sufficient resources to acquire fertilizers and pesticides. Their acquisition during the next crops campaigns will be supported by producers who have already made profits in the first crop year. To ensure that the groups will continue to source quality pesticides and chemicals fertilizers, the PMU will bring producer groups into contact with fertilizer and pesticide supply structures. The project will support the farmer's crops conservation initiatives.

2.1.3.4. Support for the production of forage for livestock (Cultivation of brachiaria, moringa, fruit trees, etc.) and increase organic manure production

Gabu and Bafata regions are home respectively 47% and 19% of the livestock of Guinea Bissau (for a total of 66%). However, the drought and the lack of forage limit the development of this livestock during the dry season in these parts of the country. The result is the migration of farmers to the South of the country and the conflicts between breeders and farmers. So, the project will provide support to farmers in the production of brachiaria, a fodder plant adapted already experienced by the LDCF project in the Gabu region. The project will support the installation of brachiaria fields in each area of intervention at the rate of 10 hectares of pasture for pilot group of 50 heads of beef or 200 heads of small ruminants. Breeders will be trained on the production of the brachiaria techniques. These first brachiaria fields will produce seed for sowing from the rest of the pasture. Others forage and nutrients species will be tested namely moringa and other legumes to improve soil quality and health of livestock. Altogether, 1,000 hectares (100 units of 10 hectares) of pasture will be developed and 100 sheds will be built in each area to keep forage.

Grazing conducted in these fields will help to improve the soil that will be available for agriculture after three to four years. The rotation will be opted in the development of these fields of grazing. These actions will help to increase the production of manure to reduce chemical fertilizer requirements. In fact, the farmers and breeders groups whose capacities have been strengthened on the production of manure from livestock excrement (output 1.2.4), will produce organic fertilizer to substitute the chemical fertilizers and reduce the need for these in agricultural production. This will have a strong impact in the preservation of soils.

The project will support the breeders' groups for their specialization in the production of brachiaria seeds and its expansion in order to sustain the actions of the project in each area.

These activities will be conducted with the support of private structures or NGOs who support their evidence in this area.

2.1.3.5. Support for the acquisition of equipment/facilities of production and development of products for demonstration

The project will support groups for the acquisition of materials and equipment for production and development of products. This was a request from beneficiaries during public consultations for the preparation of the Full project. Thus, the project will be available to groups of producers of tillers, the weeders, threshers and the hullers. Demonstrative title, 20 tillers, 1000 weeders and 20 hullers will be acquired. In addition, 60 farmers or groups of farmers practicing agriculture (farmers) will be supported for the promotion of culture with oxen and ploughs. The horse in harness culture will help to transport crops with carts.

Farmers groups and breeders groups financed in this framework will have to repay the costs of facilities in-kind (products) or species. Repaid funds will be reinvested in the project for the purchase of other equipment in case the tests will be conclusive or the development of other activities for the extension of the areas. A contract will bind the project and groups for this purpose.

The material and equipment acquired by the beneficiaries, will be leased to other beneficiaries, if possible.

The PMU will ensure that the beneficiary groups of these materials and equipment chosen on a competitive basis. Only well motivated and well organized groups will be beneficiary.

2.1.3.6. Support for the adaptation of the cultural calendar to climate disturbances

The project will work with weather services for reliable information to better plan agricultural production in relation to climatic changes. Support on site will be provided to farmers by the technical departments of meteorology. A Memorandum of understanding will therefore bind the project to the National Directorate of meteorology of Guinea Bissau. In order to have data rainfall specific areas of intervention and better plan agricultural campaigns, 120 rain gauges will be acquired and installed in the project area.

2.1.3.7. Support for the analysis of the quality of soil and water

Monitor soil and water quality will allow better planning of adaptation actions and preventing declining yields and certain diseases. Thus, the quality of soils and waters will be followed by technical services of the State namely by the Competent Environmental Assessment Authority (AAAC) and the national laboratories. Thus, the project will bring support for the AAAC in the acquisition of equipment for analysis and follow-up of the soil as well as water quality.

Output 2.1.4. Construction of drills/wells and ramps for improved livestock and domestic water supply and market gardens development

The problem of drinking water supply arises in the villages identified in the intervention regions of the project. The pricing of creeks as abridges also causes enormous problems for livestock farmers to catch livestock water. This forced them to head south in search of water and forage. Enormous losses are recorded and conflicts arise between breeders and farmers of off-season. Also, the project proposes to carry out actions to co-benefit water supply for

populations, livestock and for development of gardens. The actions envisaged are: (i) construction of drills/wells; and (ii) construction of ramps to access Corubal River.

2.1.4.1. Construction of drills for improved livestock and domestic water supply and market gardens development

The project will carry out human-powered drilling to improve the availability of drinking water in villages and develop market gardens.

As far as market gardens are concerned, 20 wells will be built to promote the development of 100 hectares, at least, of market gardeners. Crops with nutritional value will be developed according to local soil and / or climatic characteristics. This include, among other things the following speculation: tomato, onion, potato, pepper, cabbage, carrot, eggplant, okra, sweet potatoes, spinach, pepper, the cucumber.

Regarding domestic water supply, 10 drills will be built with drinking troughs for livestock. The Geotechnical studies will be conducted after drills realization.

2.1.4.2 . Construction of ramps for improved livestock and domestic water supply

This development consists in the construction of ramps to facilitate Corubal River access for livestock and population. Construction consists of excavation, transportation of the excavation, in the protection of the embankment, compaction and the protection of the ramp. And to guide the flocks, the ramps will be protected by barriers of steel wire. The project is planned to build 5 access ramps to the Corrubal River for livestock and domestic water supply. Specifications, construction details and plans type of ramps will be defined by detailed technical studies.

Component 3: Knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning

The objective is to develop and operationalize a system of communication and knowledge sharing for the adoption of good agricultural practices climatque resilient to change to support food sécurité in Guinea Bissau and West Africa.

Outcomes of component #3 will thus be (1) adoption of sustainable climate-smart agricultural practices and risk management in comparable regions of Guinea-Bissau, contributing to resilience and development needs in those regions.

Outcome 3.1: Sustainable climate-smart agriculture practices and management is disseminated in comparable regions of the country and other West African countries

Output 3.1.1: Development of knowledge management strategy

In order to guarantee visibility of the project results a knowledge management strategy will be developed. Lessons learned will be of interest to Donors, Government, civil society and vulnerable populations. Knowledge sharing and learning will count on a project knowledge management strategy, with communication products tailored for different target groups (including hard copies, electronic form), alternative communication means such as community theatre, radio and story-telling, project website, technical reports and documents on lessons learned to UNDP's Adaptation Learning Mechanism (ALM) and other relevant platforms, hands-on study visits and annual RCCF meetings to join and share experiences

with Gabú and Bafatá farmers. The project will target existing institutions and fora (e.g. RCCF, inter-ministerial committees) and contribute to the strengthening of subproject replication under GEF/UNDP-00077229, thus contributing to increased capacity in adaptation practices and policy in the focal area of climate-smart agriculture and resilience.

The project will also establish a program of outreach and dissemination of radio programs on topics related to climate change, gender and HIV/AIDS, to the rational management of natural resources. Awareness campaigns will be conducted twice per year in each beneficiary village.

The radio broadcasts will expand the impact of the project scope. The project will include in the knowledge dissemination strategy, community structures at the local level.

If necessary, training will be given to the Member of the PMU especially the head of communications for better internal and external communication of the results and lessons learned from the project.

Output 3.1.2: Developpement and animation of project website

To facilitate access to project information by the public, a website dedicated to the project will be created. The results (outputs, outcomes and impacts) and lessons learned from implementation and the various reports will be shared/disseminated on the project website. This site will be animated by a set of actors.

In addition to this website, a platform of exchanges will be created to allow the various actors to participate in the discussions relating to climate change and fast actions that can mass.

Output 3.1.3: Development of manual and other materials on best practices and measures for climate-smart agriculture

The core dissemination product from the project will be a manual of practical and concrete best-practice in climate resilient agriculture. Various versions of the Manual will be produced, both technical and non-technical, in Portuguese, French, English and local languages (creole, mandinga, peulhs), as well as smaller summary briefing sheets/tools box/calendars on relevant thematic topics. The manual will be disseminated through the project website and a suite of workshops at the national and provincial level. In addition dissemination will take place across the West Africa region through workshops and dissemination of hard copies. The project team will further interact with national media outlets (newspaper, internet, radio, etc.) to make the public aware of climate risks and adaptation needs. Scientific publications with regards to impact assessment of components #2 is also planned. Finally, the project results will also be shared through international fora on climate change (including, in particular, UNFCCC).

Output 3.1.4: Dissemination of results to other regions of Guinea-Bissau and West Africa

The lessons learned are used to strengthen climate-smart agriculture in Guinea-Bissau. Interesting results and new lessons are expected from result the implementation of the project regarding (i) climate-smart agriculture, and its linkages to climate adaptation, water resources management, sustainable use of natural resources, and buffer against drought impacts; (ii) managing climate risk through contingency plans (contingency plans for crop and livestock management, seasonal forecasts for adapting planting calendars, protection against impacts from extreme weather events, such as flash floods or forest fires – i.e. contingency plans that both protect interventions carried out under Component 2 as well as contingency plans to protect human life directly against adverse impacts from extreme weather events); and (iii) mainstreaming of adaptation into development planning, taking into

consideration that this project is the continuity of a pilot project at national level (GEF/UNDP-00077229). Reflections will also include (iv) identified project weaknesses in order to propose new solutions for new beneficiaries of other projects.

Note that the knowledge dissemination to other West African countries will be based on internet communication and website information.

Given that communication channels with other West African countries have already been established through GEF/UNDP-00077229 project this new focus will only have limited impact on the project's outreach activities.

B. Describe how the project / program provides economic, social and environmental benefits, particularly in the most vulnerable communities and vulnerable groups within communities, including gender considerations. Describe how the project / program will avoid or mitigate negative impacts, in the respect of the environment and social policy of the Adaptation Fund.

East Guinea-Bissau is a dryland region which is extremely vulnerable to climatic change and variability. Family farmers' coping mechanisms in Gabú and Bafatá 'regions' (temporary nomadism, reduction of food intake, cashew as only cash crop, selling of household assets, migration to cities, etc.) are insufficient even under current climatic variability (dry and wet seasons) and extreme events (droughts, inundations, etc.), and given their scarce assets (economic, financial, education, etc.), an autonomous uptake of sustainable water and agriculture technologies and practices (i.e. climate-smart agriculture) which would permit them to improve their livelihoods is highly unlikely in absence of the project's interventions.

In this context, the project's components will provide economic, environmental and social benefits to the communities in Gabú and Bafatá, particularly to farmers more at risk.

Environmental benefits

With respect to environmental sustainability, the project will reduce pressure on forest resources, deforestation and soil erosion through promotion of agro-ecological practices and 'environmental vigilance committees' (both implemented successfully under GEF/UNDP project 00077229) which monitor illegal deforestation, overuse of forest resources (e.g. hunting) or pollution of the environment, among other. These actions are particularly important in the context of forest resources sustainable management in the eastern hinterlands of Guinea-Bissau.

- Sustainable management of resources forestry

Activities to protect the perimeters through reforestation, bush fire control activities through the establishment and training of fire brigades, the fight against slash-and-burn agriculture, sensitization of people on the protection of forests are all activities that will enable the protection and sustainable management of forest resources.

- Sustainable management of water resources

The implementation of the water mobilization infrastructure and the technical and organizational support that will be provided by the project in the management of the perimeters will be beneficial for the sustainable management of water resources in the project areas.

- Improvement or maintenance of the quality of the soils

The implementation of soil conservation activities, the promotion of organic fertilization, awareness-raising for the reduction of slash-and-burn agriculture, the practice of livestock stabling, the promotion of the best cultivation techniques for soil conservation erosion-control and silting of perimeters activities, reforestation, etc. will improve the quality of the soil.

- *Protection of water and soil resources through the improvement of producers' capacity in the management of pesticides and chemical fertilizers*

Excess dosage, poor storage, poor knowledge of the persistence of pesticides or its accidental release into the environment may lead to infiltration of the active substance into soils, surface and subterranean waters. The various trainings and advisory support that will be provided to producers under the project will certainly strengthen the capacities and practices of producers on the plot of efficient and effective management of fertilizers and pesticides. This will preserve the environment including water and soils resources.

Socio-economic benefit

Economically, the interventions aim to improve and stabilize income from agricultural activities through diversification of income streams to farmers, with secondary economic benefits in the near- to mid-term through the strengthening of both 'regions' economies. Socially, the main benefits will be to stop the displacement of people, both by reducing susceptibility to extreme events, as well as through decreased need to move cattle herds temporarily due to low feed availability (caused by climatic events and/or overgrazing); reduced loss of livelihood security caused by extreme events or overall annual climatic variability would be an additional social benefit of the project. Specifically, the positive socio-economic impacts associated with the implementation of the project include (i) increased capacity of stakeholders for the development and implementation of resilient approaches to the adverse effects of climate change; (ii) job creation; (iii) contribution to food security; (iv) Improvement of women's incomes and development; (v) Improving the nutritional health of populations; (vi) Improvement of farmers' production and incomes; (vii) reducing the phenomenon of exodus and strengthening the family ties; (viii) improvement of community life; and (ix) contribution to the social organization of the community.

- *Enhance the capacity of stakeholders for the development and implementation of resilient approaches to the adverse effects of climate change*

The project is a smart agriculture project that aims to reduce the vulnerability of agricultural systems against the adverse effects of climate change in the areas of intervention. The capacity-building activities of the stakeholders (producers, civil society and government agents), programmed within the framework of the project, will improve the capacities of all these actors in initiating and implementing approaches resilient to climate change.

All activities in the project component #2 will be developed jointly with the rural villagers and their representative institutions in order to create a shared understanding on climate adaptation; including the assessment of concerns and needs of the most vulnerable communities as identified under component #1. The team will initiate activities using diagnostic and rural planning techniques common in rural extension activities (PRA and RRA).

These capacity-building actions will also benefit women and young people by offering them a privileged opportunity to participate in a lucrative activity on a par with men and to improve their level of organization and involvement in decision-making.

- *Creation of jobs*

The activities related to the complementary studies, the construction of hydraulic structures (~ 15 % of the construction cost which is over 800 000 USD), the capacity building by the consultants, the salaries of the PMU which allow 654 000 USD, soil preparation, tillage and many other activities are likely to promote direct employment, mainly made up of local labor. Indirect jobs will be created along the procurement of fertilizers and commercialisation of agricultural products.

- *Contribution to food security*

The project will contribute to reducing risks related to food insecurity. Through the development of irrigated perimeters by water mobilization infrastructures for optimal irrigation, technical advisory support to producers, support for improved seed acquisition, dissemination of adapted cropping techniques, the project improves production both quantitatively and qualitatively. In the case of rice cultivation, agricultural yields will increase from 0.6 tonnes “without project” to 4 tonnes “with project”. Other yields will increase from 10 tonnes to 25 tonnes for potatoes, from 8 tonnes to 23 tonnes for onions and from 8 tonnes to 24 tonnes for tomatoes. This will greatly reduce the food insecurity of beneficiaries.

Implementation of the project will increase the availability of rice as the main food of the population, potato, tomato and onion per the values mentioned in the tables below:

		Without project	With project	Added value with adaptation actions
Rice (1362 ha)	Yield (tonne / ha)	0.6	4	3.4
	Production of 1362 ha (tonne)	817.2	5448	4630.8
Potato (200 ha)	Yield (tonne / ha)	10	25	15
	Production of 200 ha (tonne)	2000	5000	3000
Tomato (100 ha)	Yield (tonne / ha)	8	23	15
	Production of 100 ha (tonne)	800	2300	1500
Onion (100 ha)	Yield (tonne / ha)	8	25	17
	Production of 100 ha (tonne)	800	2500	1700

The project will therefore generate a substantial gain in agricultural production, and thus contribute to enhancing food security.

- *Women, children and the elderly improvement*

Women, children and the elderly are frequently amongst the more vulnerable of the poor. Women in rural Guinea-Bissau are responsible for 55% of agricultural production, with their role especially important in the dry season when they focus on garden produce. There is further evidence that programs focused on women improve food security of their family more directly than those focused on men (Asian Development Bank and FAO, 2013). However, despite their important role in agriculture and for food security, gender issues are little considered in Guinea-Bissau’s policy considerations. In the villages, their participation may be limited/suppressed where elders or religious leaders opine directly against women participation due to conflicts with traditional religious laws. The project team is aware of

these problems, and will openly encourage women empowerment at all stages of the project; this includes (i) discussing the need to integrate women into projects with village elders and other leaders; (ii) opening subproject grants for women's associations for small equipments acquisition, i.e; (iii) strengthening their role in the relevant institutions on climate change in the region (particularly the Rural Forum on Climate Change – see section III); and (iv) promote their participation in broader land and water management issues which are traditionally led by male members of the tabancas. A mobilization of women was noted during the public consultations for the preparation of this full project. It's to be noted that, the women are more involved in the cultivation of rice, the main food consumed by the 90% of the population in the project area.

- *Improvement of the nutritional health of population*

Diversification of production and improved yields will contribute to improved nutrition among beneficiaries. As a reminder, the means developed by farmers to cope with the lack of food are among others, the reduction of several meals, consumption of less preferred foods, reduction of food dishes of adults for the benefit of children. With the project, the latter will feed properly and they will be able diversify their food.

- *Increase in producers' incomes*

The increase in market gardening production should make it possible to improve the incomes of producers. The following table summarizes the expected revenues for the implementation of the project.

	Rice	Potato	Tomato	Onion	Total
Operating income with project (USD)	2 159 860	1 942 800	752 520	699 240	5 554 420
Operating income without the Adaptation Fund project (USD)	26 754	1 160 680	292 340	292 340	1 772 114
Value added to the project through implementation of adaptation Measures (USD)	2 133 106	782 120	460 180	406 900	3 782 306

This smart agriculture climate project will be cost-effective. The agriculture component can benefit from \$ USD 5 554 420 per year, considering the assistance of the Adapt Funds (AF). Without the project, this benefit is \$ 1 772 114 per year. Thus, the contribution of a climate-smart action for agriculture is 3 782 306 USD per year.

- *Reduction of the phenomenon of exodus and reinforcement of the family ties*

Migration and rural exodus represent a characteristic of population dynamics in North-eastern Guinea Bissau. This mobility during the dry season contributes to meet the basic needs of rural households. Thus, the development of irrigation as envisaged by the project will make it possible to curb mobility (migration and rural exodus), to restore the economic system in the beneficiary zones and to bring about a substantial qualitative improvement in living standards, and therefore place agricultural activity as a means of combating poverty, controlling migratory flows and preserving the family ties.

- *Improvement of community life*

The current context, characterized by the gradual disengagement of states, the implementation of the decentralization process, the empowerment of civil society and the

strengthening of the role of the private sector, offers the rural world new perspectives and opportunities to participate in the definition of policies, strategies and projects and their implementation. For this reason, the activities of farmers' organizations are very diverse. They concern the development of agro-pastoral production, market gardening, fruit-growing, marketing and handicrafts, exploitation and processing of forest products, actions to manage natural resources and protect the environment. Thus, the interventions of the project will create a full involvement of farmers' organizations and thus allow the development of community life which is one of the key elements of the sustainability of all the actions planned within the framework of the project.

- *Contribution to the social organization of the community*

The impacts of the project on socio-cultural organization include:

- strengthening local farmers' groups or organizations;
- the social and institutional support that developed sites will induce;
- the establishment of management committee;
- strengthening capacity of farmers.

NGOs to be selected as partners for local implementation will have solid experience in these techniques, having used them with local communities in the area as they developed 'local tabanca development plans' during the last few years. Principles to be considered for local interventions will include, among other:

- Encouragement of participants to take responsibility;
- Respecting the diversity of the tabancas;
- Promote full participation;
- Reconciling different interests; and
- Involving multidisciplinary approaches and teams (on the project's technical side).

At national level, the Project Management Unit (PMU) should also pursue the inclusion of qualified women technical personnel into the project team. As such, the project is to make an important contribution to women empowerment in Guinea-Bissau, not limited to the project region.

In order to mitigate and/or avoid negative impacts and to improve positive impacts, specific indicators on key economic, social and environmental variables will be integrated in the results-framework, therefore assuring compliance with the Adaptation Fund's Environmental and Social Policy (ESP). These indicators are to be monitored and evaluated regularly throughout the project, and will be reported to the PMU in order to prevent violation. Field teams and PMU will regularly interact with the relevant persons and institutions in the project region and tabancas to resolve any possible conflicts.

C. Explain how the proposed project is a cost-effective or provide a cost benefit analysis.

Vulnerability to climate change is multi-faceted; this is why additionality to a socioeconomic baseline scenario is hard to prove. Furthermore, there are limited options for Bafatá and Gabú farmers in terms of alternative actions to build climate resilience in their agriculture and water resources management. The project thus proposes a combination of strengthening rural livelihoods with integrated climate risk managed that take into account local development needs of the communities. Such incremental and/or systemic adaptations are being proposed and carried out by various international institutions, and follow the

UNFCCC's recommendations on adaptation projects for LDCs (UNFCCC, 2010). While most of these adaptation projects currently address climate variability and not precisely future climate change, they follow clearly the adaptation concepts and planning related to recent UNFCCC and World Bank conceptions – particularly no-regret and low-regret strategies, and avoiding mal-adaptation (Adger et al., 2007; Barnett and O'Niell, 2010; Heltberg et al., 2009; UNFCCC, 2010).

All project interventions target the most vulnerable communities in the project region, some of whom have already been displaced, who produce considerable amounts of the countries' staple food crops and where the most vulnerable sector as identified in the NAPA is important in economic and social terms. Total investment of pilot activities will likely be around US\$200–250/inhabitant (based on GEF/UNFP project 00077229 preliminary estimates). As a matter of comparison, an adaptation project at community level run by the NGO Practical Action spent about \$150 per inhabitant in Pakistan, although population was more densely spaced in sites targeted and the project had a shorter duration. In a country like Guinea-Bissau, with rather high transaction costs and low pre-existing investments in rural areas, \$200–250/inhabitant in the Gabú and Bafatá region over a five-year period is quite reasonable, and the proposed adaptation measures (component #2) are deemed cost-effective. Furthermore, in order to assure effectiveness and efficiency, both costs and benefits of the particular technological interventions will be assessed at household and community-level before implementation (see Chambwera et al., 2014).

The proposed approach integrates urgent rural development needs (food security, income generation, sustainable use of natural resources, etc.) with climate risk management. While investments in small-scale infrastructure (e.g. irrigation or small dams) and technical assistance are necessary, but not sufficient for allowing rural populations to adapt sustainably to climate change, project outcomes (resilience) of this proposed project are nevertheless conditional on those investments. This is highlighted in Guinea-Bissau's Second National Communication to the UNFCCC (SEAT/DGA and Republic of Guinea-Bissau, 2011) and NAPA (Republic of Guinea-Bissau, 2006).

Planned actions and activities for this project proposal have been selected because of their cost-effectiveness. This is highlighted in the mid-term evaluation of the LDCF project (Quesne and Jandi, 2013) on which this present proposal is based. Four points support this argument: (1) it is found that the LDCF project appropriately addresses the priorities, institutional and structural needs identified in governmental institutions vis-à-vis the objectives and vision of national and regional policies, and vis-à-vis the needs and expectations of grassroots communities; (2) the thematic intervention are relevant for the project region of Gabú (14 villages) which identified as extremely vulnerable in terms of climatic and social aspects with low to very appropriate technology adoption (15% to >50%); (3) the logical intervention framework of the LDCF project – in the context of multiple stressors, climatic and non-climatic – is evaluated as clear and well-articulated with clear institutional responsibilities and a clear theory of change supporting this framework; and (4) financial and human resources are evaluated as being appropriately utilized for each LDCF project component. Therefore, evaluation concludes that "In view of the different activities funded and benefits and the level of achievement of expected effects [...], it is not clear that additional results could have been achieved with the same level of financial resource" (Quesne and Jandi, 2013, p. 32). This means that each work package in itself has proven to be cost-effective in terms of envisaged outputs.

In this background, the mid-term report of the LDCF project specifically recommended further extension related to dissemination and appropriation of modern farming techniques, improved water management, adoption of breeding techniques in villages in the project region. With regards to cost-effectiveness two important points are related to the distances between the villages which are quite large: (i) the operational difficulties for the project team,

because the distances are quite long and it may therefore be difficult for the project team to cover the 14 sites with the means currently available to it; (ii) challenges for the dissemination and replication techniques and results of the project. The 14 villages being fairly remote, it is difficult for the project to get a critical mass of producers and farmers who have adopted the technology promoted and can thus disseminate within the region and the country. It would be wise that the approach of the new project to focus its interventions in neighboring villages which have not been affected by the LDCF project to achieve a critical mass of beneficiaries able to disseminate the acquired (Quesne and Jandi, 2013). The project proposed to the Adaptation Fund aims to address this concern by increasing the number of beneficiaries and tabancas, therefore decreasing cost per unit. In addition this proposal proposes to add small scale water retention, fire prevention and other relevant activities related to climate-smart agriculture in order to increase resilience and improve living conditions of farmers in Gabú and Bafatá. In order to keep transaction costs related to project implementation and technical assistance within safe limits, the project sites in Gabú and Bafatá 'regions' will be within maximum 6 hours travel of one another, and within 4 hours of Gabú administrative center. This means that efforts can be focused, and technical assistance can be located within a reachable distance (as opposed to being located in Bissau). For this the project team will apply, among other, remote sensing/GPS tools to minimize operational costs and therefore achieve higher cost-efficiency in the proposed Adaptation Fund project.

Other possibilities to achieve higher cost efficiency that arose from the LDCF project focused on further minimizing risks of "bad financial governance and corrupt practices" which could lead to a reduction in planned funding for each of the activities in the LDCF project. The positive mid-term evaluation for the LDCF project (Quesne and Jandi, 2013) noted that UNDP has provided all procurement and disbursement processes from November 2011 to June 2013. Based on this information, the risk of "bad financial governance and corrupt practices can lead to a reduction in planned funding for each of the expected effects" was evaluated as "virtually nil". Ongoing procedures to minimize fiduciary risk in the context of the current political and institutional situation in Guinea-Bissau will thus be continued in a potential Adaptation Fund project. Annual procurement plans will be utilized to speed up administrative and financial procedures. In addition, the policies and procedures of the West African Development Bank on compliance and to fight frauds and corruptions will be implemented for this project. A clear manual of procedures will be prepared to manage these risks.

The needs and priorities identified during group discussions with the beneficiaries found that many tabancas and/or families still lack basic agricultural equipment (no huller for rice, mills for maize or for millet), are inadequately covered in terms of their water resources needs, without basic health in some villages, very low access to contextualized education, etc. An Adaptation Fund project could effectively reduce these and other problems in Gabú and Bafatá Regions while simultaneously reducing vulnerability to climatic variability and change.

The LDCF project alone could not cover the needs of participating communities. Other projects and programs (see following section D) deal with emergency food provision, biodiversity conservation, or agricultural development, however, not in an integrated and transversal approach such as through the LDCF project. Currently there are no other projects and programs in Guinea-Bissau that cover risk reduction at the level of the LDCF project – scaling up existing activities can thus provide extremely valuable lessons for climate adaptation planning and climate-smart agriculture in the country.

Alternatives to this project proposal were discussed with potential beneficiaries in both Regions: (1) a support project for the production and local distribution of agricultural equipment; and (2) a support project for seed production that are more resistant to climate variability and change (to be developed in partnership with the Institute of Research on the

Adaptation of Rice). While relevant in terms of their activities, discussions led to the finding that such activities could be better developed in separate accompanying projects for which funding will be sought. Participants from the LDCF project, as well as the mid-term evaluation of the same project, found that an extension in scale and (more limited) scope of the LDCF project would provide most immediate benefits in a cost-effective manner to a significant population in extremely vulnerable Bafatá and Gabú Regions.

To ensure that the investment costs are used cost-efficiently, regional and/or international tenders will be launched. National Partners who performed satisfactorily under the GEF/UNDP-00077229 project will be allowed to participate in those competitions. The Project Management Unit (PMU) could be authorized to practice a national preference in case domestic companies demonstrate in their proposals the same technical skills and competitive prices equal to those of regional and international companies. Each company interested in submitting a tender will be required to use local workforce and interventions by community-based-organizations (CBOs). With regard to purchases of materials, the PMU will consolidate on markets and launch international calls. The prices to be applied will be those of materials delivered to site, i.e. including transportation costs. Purchases will be made at national level if prices prove competitive. The project also proposes to broaden the choice of providers from CBOs for small activities to ensure competitive costs, durability of interventions, and more effective dissemination of activities and results.

It should be noted that this project follows the country's NAPA's adaptation priority list, which already considers cost-effectiveness as a key concern for the prioritization of measures. The measures are furthermore linked to recent UNFCCC and World Bank concepts such as no-regrets and low-regrets strategies for adaptation. The project is an adequate response to the priorities needs of Guinea Bissau presented by the National Determined Contribution (NDC). The specific project interventions will follow a ranking of costs and benefits, including inputs needed (e.g. labor, materials, finances, time) and positive outcomes (e.g. increased income, increased livelihood security, better flood/drought protection). Underlying needs or demand for the activity, level of familiarity with, and acceptability of activities (including attention to differing responses by gender) and environmental benefits will also be considered.

Alternative analysis

Three alternatives are considered: (i) Alternative 1: Without project; (ii) Alternative 2: Development of a classic project without climate change resilient actions; And (iii) Alternative 3: Development of the current project "Scaling up climate-smart agriculture in Guinea Bissau".

Alternative 1: Without project

The alternative without project means not doing the Adaptation Fund project. In this case, farmers will remain vulnerable to climatic changes as long as possible. Agricultural yields will continue to decline. The production will remain low and food insecurity and poverty will gain more ground in connection with population growth.

Indeed, the current situation is marked by early floods and droughts, which limits the efforts of farmers. Agricultural techniques have remained rudimentary; producers cannot deal with these phenomena of climate change.

Without the project, sites will remain exposed to floods, the silting up due to the erosion of the land upstream. The forests will remain prey to bush fires during the dry season, and their ecological and environmental importance will decline. The lack of water to irrigate crops during dry periods will remain and the rate of food insecurity may increase.

Regarding livestock, the alternative without project means that livestock remain exposed to the lack of drinking water and fodder in connection with recurring droughts. Transhumance in search of fodder and water will increase. Loss of livestock and conflicts between farmers and

herders during transhumance could increase. Lack of water for livestock watering will continue and water-related diseases may increase.

The alternative without project is environmentally, economically and socially unsustainable. It does not allow the achievement of a sustainable economy because the country will be obliged to put in place in the medium term emergency programs to rescue the populations in these regions. These programs from a financial point of view will cost the country and the donors more than the project under development to have the same results.

Alternative 2: Development of a classic project without resilient actions on climate change

This alternative is to implement a project that does not include resilient actions on climate change. Such a classic project may concern: (i) the development of the sites without infrastructure of mobilization of water, (ii) a simple development of the sites without flood protection actions and the silting up of the sites; (iii) development of the trays with Wells; (iii) the development of the sites without actions of capacity building of producers on adaptation techniques;

This alternative is less costly but will not produce convincing results. In view of the topography and the effects of climatic disruptions, which are manifested in irregular rains, the lowlands where the crops develop are flooded during the rainy season and dry up during the dry season. This phenomenon is coupled with the erosion and transport of sediments that sand the shallows. This limits the development of these lowlands. This alternative therefore does not solve the problems faced by the populations.

Alternative 3: Development of the current project

With the project of the adaptation fund, a series of activities will be implemented in order to deal with the main issues related to the vulnerability of populations to climate change and strengthen the capacities of actors to undertake beyond the adaptation of small and medium scale actions. These activities concern :

- socio-climatic vulnerability assessment for East Guinea-Bissau;
- assessment of technical capacity building needs of ministries and field operatives for adaptation planning;
- formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources;
- technical trainings on adaptative systems and organizational capacity building for identified target groups;
- technical assistance and rural extension for subprojects;
- formulation/Update of contingency plans for climate-risk management;
- support for famers groups by the government technical experts for adaptation actions implementation;
- capacity building to prevent forest fires;
- Development of lowlands to maintain agricultural production in droughtperiods
- Construction of micro-dams for irrigation of rice, vegetablecrops and livestock water supply
- rehabilitation/improvement of soil productivity and small-scale investments into agriculture inputs (seeds, fertilizers, pesticides quality), machinery and tools;
- construction of drills/wells and ramps for improved livestock and domestic water supply and market gardens development;
- development of knowledge management strategy;
- creation and operating of the project website;

- development of manual and other materials on best practices and measures for climate-smart agriculture; and
- dissemination of lessons learned to other regions of Guinea-Bissau and West Africa.

These activities will contribute to achieving environmentally, economically and socially sustainable development. At the environmental level, activities to protect the perimeters through reforestation, the establishment of infrastructures for water mobilization and soil conservation will help to preserve the environment, notably forest resources, water resources and maintenance of the quality of the soils. In economic terms, the project activities allow the creation of jobs, the improvement of farmers' production and incomes, the improvement of women's incomes and their development as well as the improvement of the level of life of target areas. At the social level, the project promotes the reduction of the phenomenon of rural exodus and the strengthening of the family fabric, improving food and nutritional health of populations, poverty reduction and the strengthening of community life.

The following table shows the analysis of the various alternatives:

Table: Alternatives Analysis

	Alternative 1: Without project	Alternative 2: Development of a classic project without climate change resilient actions	Alternative 3: Development of the current project "Scaling up climate-smart agriculture in Guinea Bissau".
At the environmental level including the resilience of populations and livestock to the adverse effects of climate change	<ul style="list-style-type: none"> - Flooding of sites - Silting of erosion of upstream land. - Bush fires during the dry season - Land degradation - Reduction of agricultural productivity. - Destruction of soil quality - Increase vulnerability to the adverse effects of climate change 	<ul style="list-style-type: none"> - Soil erosion - Flooding of crops during rainy season - Silting up of the underworld due to sediment transport - Water deficits during the rainy and dry seasons - Drying of the gutter during the dry season - Degradation and destruction of soils - Low agricultural productivity - Release of atmospheric co2 from bush fires 	<ul style="list-style-type: none"> - Building resilience of people and livestock against the harmful effects of climate change - Protection of the underground flood, silting and drought - Sustainable use of the highlands - Improving and maintaining the quality of soils - Sustainable management of water resources - Sustainable management of forest resources - Protection of water resources and soils through improvement of the capacity of producers in the management of pesticides and chemical fertilizers
At the economic level	<ul style="list-style-type: none"> - Increase in expenses related to the acquisition of food - Diminishment of labor workforce - Pauperization of populations especially women and young people - Strong dependence on the external market for food - Unsteadiness of Trade 	<ul style="list-style-type: none"> - Low improvement in the incomes of farmers, including women and young people - Increase in expenses related to the acquisition of food - Diminishment of labor power - Pauperization of populations especially women and young people - Strong dependence on 	<ul style="list-style-type: none"> - Improvement of women's incomes and their development - Improved income for producers - Development of the internal market in food - Support for the acquisition of improved seeds - Extension of adapted cropping techniques

	Balance	<ul style="list-style-type: none"> - the external market for food - unsteadiness of Trade Balance - Exit of foreign currency 	<ul style="list-style-type: none"> - Improvement of agricultural yields
At the social level	<ul style="list-style-type: none"> - Lack of jobs - Food Insecurity - Nutritional Diseases - Rural exodus - Transhumance - Deterioration of the family ties - Lack of drinking water - Lack of organization of peasants - Conflict between farmers and ranchers in the use of water and space. 	<ul style="list-style-type: none"> - Low job creation - Poor improvement of farmers' living conditions - Low Poverty Reduction - Food insecurity - Persistence of nutritional diseases - Persistence of transhumance - Persistence of rural exodus - Lack of drinking water - Persistence of conflicts between farmers and ranchers in the use of water and space 	<ul style="list-style-type: none"> - Strengthening of the farmers' organization - Better involvement of farmers in decision-making - Job creation - Improvement of the living conditions of peasants, including women and young people - Poverty reduction - Food Safety - Diminishment of nutritional diseases - Reduction of transhumance - Reduction of rural exodus - Availability of drinking water for the population and livestock - Reduction of conflicts between farmers and ranchers in the use of water and space
At the financial level	<ul style="list-style-type: none"> - Exit of foreign currency to finance the purchase of food - Funding for emergency food programs. - Increase in farmers and state debt 	<ul style="list-style-type: none"> - Persistence exit of foreign currencies to finance purchase of food - Funding for emergency food programs. - Increase in farmers and state debt 	<ul style="list-style-type: none"> - Reduction of foreign exchange exit to finance the purchase of food - Reduction of farmers and state debt - Availability of financial resources at the farmers' level to refinance agriculture and livestock.

In concrete terms, the Adaptation Fund project, if implemented as planned, enhances the resilience of beneficiaries to climate change risks. The project's activities make a substantial contribution to the production of cereals, particularly rice, which is the fundamental food for households and vegetable food. It will improve access to drinking water for people and livestock and will help to sedentarize herds of livestock and the development of pastures and hay. The production of organic smoke can increase with the sedentarization of animals. This added to the fight against bush fires and the intensification of irrigated agriculture will make sustainable the production of food and improve the nutrition of the populations.

This smart agriculture climate project will be cost-effective. The agriculture component alone allows beneficiaries to achieve a profit of \$USD 5,554,420 per year, taking into account the assistance of the Adaption Funds (AF). Without the project, this benefit is \$ 1,772,114 per year. Thus, the contribution of a climate-smart action for agriculture is 3 782 306 USD per year. This represents about 37% of the Adaptation Fund's investment of USD 9 979 000 (see table below). This table is the summary of the different operating account of the project (see detail in annex 13).

Table 9: Operating result according different crops

	Rice	Potato	Tomato	Onion	Total (USD)
Operating results with Project (USD)	2 159 860	1 942 800	752 520	699 240	5 554 420
Operating results without the assistance of the Adaptation Funds (USD)	26 754	1 160 680	292 340	292 340	1 772 114
Gain from project with assistance of the Adaptation Fund (USD)	2 133 106	782 120	460 180	406 900	3 782 306

The Crops production gains with Adaptation actions implemented in the framework of the project is 9091140 kg per year (see table below).

Table 10: Crops production

	Rice	Potato	Tomato	Onion	Total
Crops production with the project (Kg)	4 358 400	4 500 000	2 160 000	1 966 500	12 984 900
Crops production without the Adaptation Fund project (kg)	653 760	1 800 000	720 000	720 000	3 893 760
Crops production gains with Adaptation actions implemented in the framework of the project (Kg)	3 704 640	2 700 000	1 440 000	1 246 500	9 091 140

If we consider that the deficit in rice per inhabitant is 54,6 kg (i.e. 38,22 USD per year, as per surveys on food security and vulnerability of rural households) and that the purchasing price of imported rice is 350 FCFA (0,7USD) per kg, then the project contributes to food security through the application of adaptation measures by providing and securing the rice need for 98 961 inhabitants.

To ensure sustainable food security in the country, it is highly recommended to replicate the project in other regions and sectors of the country.

D. Show how the project / program meets the national and local sustainable development strategies, including, if appropriate, national and local development plans, strategies for poverty reduction, national communications, action programs for adaptation to climate change or other instrument, if any

The National Communication to the UNFCCC, the National Adaptation Programme of Action (NAPA), the Nationally Determined Contributions (NDC) and the National Poverty Reduction Strategy Paper (PRSP) are the principal national development/climate change documents linked to this proposal. The country's Second National Communication on Climate Change (SNCCC) reports that both high and low emissions scenarios for climate models downscaled to Guinea-Bissau predict average temperature to increase by about 1.0°C to 2020 under different IPCC scenarios in relation to the average temperatures established for the period 1960–1991. Different to the country's first Communication to the UNFCCC, the SNCCC now highlights the role climatic variability for vulnerability, thus calling for the strengthening of current climate risk management strategies and integration of development needs.

The NAPA (Republic of Guinea-Bissau, 2006) has been instrumental in analysing and prioritising the country's key pressing climate change problems and establishing the foundation for this project. Key results related to this proposal are that (i) the economy is largely dependent on agriculture, whose activity relies on rainfall intensity and regularity, and where cashew is the predominant crop, contributing with 62.6% for the GDP in 2004; (ii) that a large part of population depends vitally on the direct exploration of natural resources for its survival, (iii) a lack of infrastructure in East Guinea-Bissau's regions; (iv) that the country faces difficult economic and social conditions, characterised by extreme poverty and a high unemployment rate; (v) very fragile soils, exposed to rain-driven erosion (vi) expansion of agricultural production associated to forest felling and slash-and-burn practices (itinerant agriculture); (vii) bad soil occupancy, due to a lack of agricultural zoning; (viii) an accelerated destruction of forests, estimated at 30,000-60,000 ha/year, with negative effects on current sequestration capacity estimated at 11,288,401 atmospheric CO₂, (ix) a relatively high rate of population growth (2.05% nationwide, and 4% in the capital, Bissau); (x) water-related problems; (xi) outdated and/or ill applied legislation, or even not applied legislation; (xii) weak or non-existent intervention capacity on the part of institutions; (xiii) absence of protection rules and norms against climate risks linked to the construction of infrastructure; and (xiv) the very precarious nature of traditional housing (made of mud and covered with straw).

The NAPA's project priority list is shown in Table 3. This project principally NAPA priority #1, although for a slightly different region, as per explicit recommendations by national stakeholder involved in the consultation process during this project's development. The project also combines and/or integrates elements of priorities #2 (water supply in Gabú and Bafatá), #6 (impact assessment on producers), #7 (small-scale irrigation), #10 (food security) and #13 (short-cycle production of animals) in the project region in East Guinea-Bissau. Note that the project outlines listed below do not address the central aspect of capacity building on climate change, nor the need to mainstream climate change into national policy and awareness raising. The NAPA prioritisation is also gender-blind. For these reasons, the NAPA priorities in Table 3 were used as a basis for the decisions but not as a blueprint to be used unquestioningly; this takes into account that the knowledge on climate change adaptation and 'windows of opportunity' for action have considerably changed in the years since NAPA publication in 2006. The missing regional focus on Bafatá (5 projects) and particularly Gabú (1 project) 'regions' within NAPA prioritiation would be partially corrected under project implementation.

Table 3: NAPA priorities in Guinea-Bissau

Order of priorities	Project denomination	Geographical intervention zone
1	Support diversification of production and food	Southern provinces
2	Improvement of water supply in rural zones	Other, Bafatá and Gabú 'regions'
3	Capacity building in prevention and protection of mangrove Bolanhas against high-tide invasion	Southern and northern provinces
4	Observatory for mangrove monitoring and evaluation	Northern and southern provinces
5	Monitoring of coastal area erosion	Northern and southern provinces
6	Assessment of impact of climate change in producers' sectors	Nationwide
7	Promotion of small-scale irrigation in Geba and Corubal rivers	Bafatá and Gabú 'regions', other
8	Prevention of natural catastrophes	Nationwide
9	Protection, conservation and enhancement of fishing and coastal resources	Coastal areas
10	Integrated system of information on food security (SISA)	Nationwide
11	Environmental education and communication in coastal areas	Coastal areas
12	Rehabilitation of small perimeters of mangrove soils for rice growing in Tombali, Quinara, Bafatá and Oio	Bafatá 'region', other
13	Support to production of short-cycle animals	Bafatá 'region', other
14	Reforestation of degraded areas	Bafatá 'region'
Total		

Source: Republic of Guinea-Bissau (2006).

In its quality of Non Annex I Party of the United Nations Framework Convention on Climate Change (UNFCCC), also as a Least Development Country (LDC) and Small Independent Developing State (SIDS), Guinea-Bissau has developed its Nationally Determined Contributions (NDC). This NDC is a reference document for actions in the field of climate resilience in the country. It is inspired on the second generation of the National Poverty Reduction Strategy (PRSP II) aligned with the National Strategic Plan – TERRA RANKA 2015-2025. All these have mainstreamed the priorities of the National Action Plan for Climate Change Adaptation (NAPA, 2006).

The NDC identified the following needs:

- Capacity strengthening has a direct effect on improving decision-making and planning for comprehensive risk management for both public and private actors regarding events associated with climate variability and change in the sectors of forest, water and energy, agriculture and livestock, health, fishing and civil protection.
- Promoting research for development, regional and international exchanges to improve applicability of knowledge acquired by Guineans.

The 2006 National Poverty Reduction Strategy Paper (PRSP) highlights government instability, mismanagement of public funds, and structural constraints in the economy as key issues, including little diversification of income sources, low internal resource availability, weak human capital and lack of private sector dynamism. The PRSP's strategy focuses on a broad spectrum of issues to address these endemic problems, including instigating good governance, battling corruption, improving human rights, building institutional capacity and human resources, and increasing agricultural and fishing productivity alongside improving

environmental protection. In addition, the PRSP points to an increasing involvement of well-informed NGOs and participation of a strong civil society, which can be mobilised to improve social and economic conditions. The present project is therefore in line with the key PRSP recommendations.

How project activities fit with wider local or regional development plans and regional change (government, local NGOs, community and autonomous initiatives such as local small businesses) is a key concern for this project. In this context, the project follows key recommendations of Guinea-Bissau's NAPA, 2nd Communication to UNFCCC (Republic of Guinea-Bissau, 2006; SEAT/DGA and Republic of Guinea-Bissau, 2011), and NDC 2015 as well as those of relevant national strategies and plans along the lines of good agricultural management, improved water management and poverty reduction. For example, the Poverty Reduction Strategy for Guinea-Bissau (PRSP) integrates the agricultural sector's strategies into account in its fight against poverty, while the Charter for Agricultural Development aims to (i) guarantee food security, (ii) increase and diversify agricultural export, (iii) ensure rational management and preservation of agro-sylvo-pastoral resources, and (iv) to improve living standards of rural populations. This includes the dissemination of practices such as promotion of low-cost irrigation systems, production diversification, construction of micro water retention and small dykes for water retention, extension of short-cycle seeds, use of adapted varieties less demanding in water and resistant to prolonged drought periods, etc. The project also contributes to the Gabú and Bafatá sector regional development plans, which focus on livestock and agriculture development. In particular, the integration of climate change adaptation may provide key input to those plans which currently only consider actual climatic variability.

Table 11 gives overview on important plans and strategy papers in Guinea-Bissau and important issues in relation with this project proposal.

Table 11: Guinea-Bissau plans and strategies related to this project proposal

Scale	Name	Key objectives	Important issues in relation with the project proposal
National	Second Poverty Reduction Strategy Paper	<ul style="list-style-type: none"> • Short-cycle seeds • Dissemination of varieties less demanding in water and resistant to prolonged drought periods 	<ul style="list-style-type: none"> • Agricultural development for poverty reduction and increasing food security
National	National Agriculture Investment Plan (NAIP)	<ul style="list-style-type: none"> • Increase in hydraulic works, including construction of micro water retention and small dykes for water retention 	<ul style="list-style-type: none"> • Livestock development and increasing animal feed quality
National	Letter of Agrarian Development (including Letter of Livestock Development, 2011)	<ul style="list-style-type: none"> • Promotion of low-cost irrigation systems • Production diversification • Improvement of grazing fields through introduction of plants with high nutritional quality and greater production potential, especially leguminous species • Promotion and strengthening of production of short-cycle animals (goats and sheep) 	<ul style="list-style-type: none"> • Water resources management • Lack of climate change adaptation integration • Setting up of an Early Warning System against climatic risks
National	National Strategy for Protected Areas and	<ul style="list-style-type: none"> • Protect biodiversity and 	<ul style="list-style-type: none"> • Activities promote

Scale	Name	Key objectives	Important issues in relation with the project proposal
	Biodiversity Conservation (2014-2020)	reduce pressures for soil erosion and other land degradation	sustainable use of natural resources in agriculture and livestock
National	National Action Program on Fight against Desertification (under discussion)	<ul style="list-style-type: none"> Control sustainable use of natural resources in protected areas (PA) Reduce slash-and-burn agriculture More generally: promote sustainable use of biodiversity in affected areas 	<ul style="list-style-type: none"> Project pilots aim to avoid exceeding carrying capacities of local ecosystems through adoption of sustainable practices Reduce pressures for desertification and deforestation
National	National Environmental Management Plan (PNGA)	<ul style="list-style-type: none"> Identifies key environmental deficits that call for the implementation of new nation-wide programs, including in the areas of (1) combat against land degradation; (2) a water supply and management program; (11) and climate and prevention of disaster risk 	<ul style="list-style-type: none"> Proposed project supports the strengthening of transversal activities in the areas of climate-smart agriculture, and thus can contribute to the development of the PNGA
Regional	Gabú and Bafatá Regional Development Plans	<ul style="list-style-type: none"> Development of agricultural activities and livestock creation 	<ul style="list-style-type: none"> Framework for implementing small-scale interventions on agricultural development, livestock and water resources management Highlights importance of climatic conditions for production
National, Gabú	Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau	<ul style="list-style-type: none"> Integration of climate change adaptation into development planning Small and medium scale climate change adaptation practices for water, agriculture and livestock management Capacity development on climate-resilient agriculture at local, regional and national scale 	<ul style="list-style-type: none"> Built the framework for promoting adaptive capacity and increase the agriculture and water sector's resilience to climate change, linking rural development and water resources management with climate adaptation
National	Forest Master Plan and Forest Law	<ul style="list-style-type: none"> Setting-up of conservation units, especially in fragile ecosystems Promotion of local conservation and development initiatives Reforestation using endemic species 	<ul style="list-style-type: none"> Sets national framework for biodiversity conservation and sustainable use of natural resources Conservation agriculture and agroforestry Lack of climate change adaptation integration
Regional	Support for the Consolidation of a Protected Area System in Guinea-	<ul style="list-style-type: none"> Consolidation of protected areas (PAs) in the Forest Belt Initial assessment of climate 	<ul style="list-style-type: none"> Identified key risks for agriculture and water resources in project region

Scale	Name	Key objectives	Important issues in relation with the project proposal
	Bissau's Forest Belt	change risk on Guinea-Bissau's biodiversity	<ul style="list-style-type: none"> Highlights importance of reducing pressures from slash-and-burn agriculture
National	National Water Code	<ul style="list-style-type: none"> Rehabilitation, renewal and extension of water infrastructure Improving knowledge on water resources and sustainable use thereof (training) Integrated management of water resources (IWRM) Preparation of legislation on slash-and-burn agriculture 	<ul style="list-style-type: none"> Sets framework for integrated approaches towards water resources management Puts slash-and-burn agriculture in the spotlight of policy discussions
National	Water Master Scheme		
National	National Health Development Program II and other	<ul style="list-style-type: none"> Reducing child mortality Research programs on climate and health 	<ul style="list-style-type: none"> Importance of food security for health Improve understanding on climate-sensitive diseases

The activities proposed to be implemented under this project respond to the needs identified by the NDC. The interrelationships between the needs of the NDC and the activities of the project are presented in the following table :

Table 12: Interrelation between Guinea Bissau needs identified by NDC and project activities

Needs identified by the NDC	Project activities that meet the needs identified by the NDC
Capacity strengthening has a direct effect on improving decision-making and planning for comprehensive risk management for both public and private actors regarding events associated with climate variability and change in the sectors of forest, water and energy, agriculture and livestock, health, fishing and civil protection.	<p>The project proposed, among other things, the following activities to meet the needs of the NDC:</p> <ul style="list-style-type: none"> - Output 1.1.1. Socio-climatic vulnerability assessment for East Guinea-Bissau - Output 1.1.2 Technical capacity needs assessment for ministry and field operatives - Output 1.1.3 Formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources - Output 1.2.1 Technical trainings on adaptative systems and organizational capacity building for NGOs and identified target groups - Output 1.2.4 Support for famers groups by the government technical experts for adaptation actions implementation - Output 1.2.5 Capacity building to prevent forest fires - Output 3.1.3 Manual and other materials on best practices and measures for climate-smart agriculture are developed. <p>All these activities will strengthen the capacity of the actors and that of the country in different sectors.</p>
Promoting research for development, regional and international exchanges to improve and improve	<ul style="list-style-type: none"> - Output 2.1.3 Rehabilitation/improvement of soil and pasture productivity and small-scale investments into agriculture inputs, machinery and tools. This activity

applicability of knowledge acquired by participants.	includes the introduction of improved seeds with the collaboration of the National Institute for Agronomic Research (INPA), - Output 3.1.1 Knowledge management strategy developed - Output 3.1.4 Dissemination of results to other regions of Guinea-Bissau and West Africa
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It is important to note that the present project proposal has synergies and complementarities with other relevant recent or on-going programs in agriculture and water management in the planned target regions of Gabú and Bafatá, not limited to adaptation to climate change. These synergies and complementarities occur in the following domains: (i) improvement of technical and institutional capacity of stakeholders; (ii) increase of agricultural productivity and food security; (iii) construction of water infrastructure; (iv) management of natural resources; and (v) diversification of crop production.

In the domain of (i) improvement of technical and institutional capacity of stakeholders, the proposal project enter in complementarity with:

- *Rural and Agricultural Sector Rehabilitation Project (PRESAR)* supported by the African Development Bank. PRESAR's three objectives include the strengthening of rural organizations' capacity to support small-scale farmers and infrastructure in several Regions of Guinea-Bissau, including Bafatá and Gabú;
- The *Intensification and Valorization of Local Agricultural Products* project (DIVA) from 2008-2011 (US\$ 1.500.000). Carried out with support by the Italian Government in both Bafatá and Oio regions, the project helped in the capacity building of producers and their institutions;
- UNJP/GBS/301/PBF *Gender Promotion Initiative* (until 2015) with a US\$ 146,796 budget aimed to improve economic security and women's rights including in rural areas, investing in initiatives that ensure their economic and social empowerment through small-scale business activities; promotion and protection of women's rights and strengthening of organizational capacity of coordinating institutions;
- The *Local Governance and Income Generating Activities* support project was financed by the Dutch government from 2010-2013 with US\$200,000. The project aimed to improve governance by local communities and them in developing income-generating businesses and activities that would contribute for the improvement of their living conditions. Measures included micro-credit for agricultural and livestock production, provision of agricultural training, and technical assistance to prepare community plans.
- UNDP/GEF *National Capacity Self-Assessment* (2009-2011) made important progress in assessing the national capacity to implement the Rio Convention and developing a Strategy and Action Plan for Capacity Building on Environment Management, points that have directly contributed to the LDCF project development.

In the domain of (ii) increase of agricultural productivity and food security the proposal project has synergies and complementarities with the following projects:

- Several initiatives coordinated by the UN's Food and Agriculture Organization (FAO), including the International Fund for Agricultural Development (IFAD). FAO is implementing a number of projects, programs and initiatives that support Guinea-Bissau in the implementation of the Charter for Agricultural Development Policy, its action plan and what is part of the National Program of Food Security. FAO has projects in the whole country and also in the two project regions. It is worth mentioning two particular interventions: (1) The Food Security Project, which targets

- a number of policy, structural and on-ground interventions to address the now recurring issue food security in Guinea-Bissau; (2) Project for diversification and intensification of agriculture and valorization of agricultural production;
- GCP/RAF/461/SPA *Strengthening Capacity of ECOWAS for Effective Comprehensive Africa Agriculture Development Program* (CAADP). Implementation in West Africa (until 2015) aimed to improve the food security and nutrition situation in West African States and concrete progress of ECOWAS Member States towards achieving the UNMDG1, measured by increased and sustained agricultural growth in line with the six percent CAADP annual agricultural growth target (US\$4 million);
 - TCP/SFW/3402 *Support to Policy Initiatives for the Development of Livestock/Meat and Dairy Value Chains in West Africa* (end 2014). The project with a US\$ 500.000 budget aimed to subsidize the creation of a suitable environment for the development of value chains for livestock and livestock products to achieve food security, poverty reduction and reduction of dependency on food imports. A successful implementation of the project would contribute also to integration of livestock producers into markets, job creation, improvement of living standards and sustainable increase of livestock production and productivities. The envisaged impacts of the project were in line with the objectives of ECOWAP. The project impact is also in line with the objectives of MDG, FAO's Strategic objective B and the Priority Area 1 of FAO Africa;
 - WB/EU Emergency Project for Food Production (2009-2012) with an approximate budget of \$9 million, and other recent/ongoing emergency programs. The mentioned project sought to assist the recovery of 5,000 hectares of mangrove soils and lowland continental soils for rice growing and vegetable production. The aim was to increase rice production and reinforce food security at community level;
 - UNDP's *Community-Based-Organizations' Support Project* in Gabú Region (OCB) (2008-2012). This project was financed from UNDP core funds for \$1.5 million and its implementation extended from 2008-2012. The project was active in the Gabú region and wanted to support several local community-based-organizations' members to develop agrarian production (crops and livestock) for their self-sufficiency, thus improving their food security;
 - Project for agricultural production in urban and peri-urban areas which includes the (i) development of operational plans for the improvement in short-cycle animal husbandry in the wildlands (including Gabú and Bafatá regions), (ii) implementation of micro-projects for breeding, processing and marketing of animal products, and (iii) development of partnerships with private sector and support services (until 2016);
 - Several other programs (e.g. by the Ministry of Agriculture) aim to retrieve former production values for cashew nuts and rice, with a particular focus on women's integration in the production chain. Further initiatives focused on community development and rural rehabilitation in Guinea-Bissau.

Regarding to the domain (iii) construction of water infrastructures, the proposal project has strong links to the following programs and projects:

- The Rural and Agricultural Sector Rehabilitation Project (PRESAR) which is implemented by the Ministry for Agriculture and Rural Development of Guinea-Bissau (MADR) with support from the African Development Bank. PRESAR three objectives include the reorganization and rehabilitation of water and agrarian structures.
- The proposal project also enters in synergy with the Program of Work of the General Directorate for Water Resources (DNGHR). Within the framework of the Sub-Regional Program to Fight against Poverty, the Government of Guinea-Bissau has been receiving significant finance for water resource management, as a member of UEMOA (the West African Monetary Union) and from OMVG (the Basin Organization for the Management of the Gambia River). One of wwo interventions are particularly relevant to mention: (i) UEMOA's Rural Hydraulics Program in Guinea-Bissau, under

which a total 300 water points are foreseen to be built, 50 of which are in the Gabú Region, plus a community capacity strengthening program on self-sustained water point management, including sensitization and training in hygiene and basic sewerage; (ii) Integrated water resource management for the hydrographical basins of river Kayanga-Geba, financed through a grant, within the framework of African Water Facility, under which it is foreseen that an Integrated Water Management Plan for the Kayanga-Geba basin will be prepared, as well as the financing of studies for the exploration of basin's irrigation potential with respect to the part of the various river that flows into Guinea-Bissau. The Kayanga-Geba basin is located in the same sites selected for this project application (project running until 2017).

With regards to biodiversity conservation, as fragmentation and pressures on natural resources increase throughout West Africa, areas such as Guinea-Bissau's Forest Belt have become important refuges for threatened species, providing also important national and transnational biological corridors and migration routes for large mammals in the region. In this domain of (iv) management of natural resources principal complementarities are with these projects and programs:

- The UNDP/GEF Project SPWA - *Support for the Consolidation of a Protected Area System in Guinea-Bissau's Forest Belt* project which supported the consolidation of protected areas (PAs) in the Forest Belt through establishment of an interlinked protected area system containing of two inland PAs (Boé National Park, Dulombi National Park) and three biological corridors (Tchetché, Cuntabane-Quebo, and Salifo), located at the junction of Gabú, Bafatá and Tombali 'Regions' in central south Guinea-Bissau. Furthermore, the project supported preliminary assessments on primary threats to biodiversity, including its root causes; undertook a detailed stakeholder analysis for PA implementation; and carried out an initial assessment of climate change risk on Guinea-Bissau's biodiversity. This latter study highlighted potentially disastrous impacts on land, water, and forest resources, with strong relevance for rural livelihoods across the entire Forest Belt region. This project builds on the findings of the GEF/UNDP-3650 project in that it (i) targets key root causes identified (persistent rural poverty, weak institutional capacity and lack of coordination among authorities) through small-scale productive interventions and mainstreaming of adaptation into development planning; and (ii) reduces potential environmental pressures on the Forest Belt via conservation agriculture and agroforestry (including positive impacts via reduced slash-and-burn agriculture). In cases where project beneficiaries are located near or around the Forest Belt, rural extension and capacity building components will be used to incentivize beneficiaries to prevent deforestation and overuse of natural resources. Potential subprojects near the project belt will be shortlisted as soon as the project starts in order to allow for timely implementation of these actions.
- UNDP/GEF *Sustainable Land Management Project SLM*. With a total budget of less than \$0.5 million, the long term aim of the project is to contribute to the recovery of degraded land through institutional and individual capacity building. It is doing so by integrating sustainable land management issues into national development strategies, completing the National Action Plan to Combat Desertification (PAN/LCD), reinforcing, harmonizing and integrating the institutional, technical, organizational and legal capacities in the policy for SLM.
- The Rural and Agricultural Sector Rehabilitation Project (PRESAR) which is supported by the African Development Bank. One of the objectives of PRESAR focuses on capacity building in integrated natural resource management and land management at the level of villages.

Regarding (v) diversification of crop production this proposal enters in complementarity with:

- The *School Horticultural Activities Support Project* which is developed in collaboration with World Food Program (WFP). This project targets, among other, 50 schools in the Gabú region and aims to diversify and intensify of agriculture as well as valorization of agricultural production.
- The *Intensification and Valorization of Local Agricultural Products* project (DIVA) from 2008-2011 (US\$ 1.500.000) which also focuses on the intensification and diversification of agricultural production in Guinea-Bissau.

Regarding livestock production, this project will enter in complementarity and synergy with the Green Climate Fund/BOAD project « Strengthening livestock resilience to drought in Guinea-Bissau (US \$ 10 millions) » identified and which is currently in the process of formulation. The project aims to increase the resilience of livestock production to the adverse effects of climate change in north-eastern and north-western of Guinea Bissau.

Although the Adaptation Fund project is a scaling-up of the LDCF project, and has addressed the issue of livestock, the contribution of the project to meet the resilience needs of livestock has been weak in relation to the population demand and the needs of the livestock sub-sector. In fact, during the public consultations carried out as part of the preparation of the Adaptation Fund project and during the validation workshops, the population raised problems and concerns related to the livestock sector and strongly requested support for the development of this sector in the face of recurrent droughts and resource management conflicts, particularly from transhumance. In fact, the majority of farmers do not have the means to mobilize water for livestock. Only 23% of livestock have access to drinking water, and this tends to decrease with the increase in livestock. Conflicts between herders and farmers in the management of natural resources are then frequent. During the dry season, transhumance, considered as a solution to escape the loss of livestock, mobilizes young people, children and adults throughout the season. Pastoral trails or transhumance corridors are not definitely defined and grazing is done without rules, leading to negative impacts on agriculture, water and natural resources followed with conflicts that sometimes affects the safety of populations. These concerns have been mentioned in Table 15 of Section H. PART II of this full proposal.

It is therefore during the public consultations and preparatory workshops for the Adaptation Fund project that exchanges between members of government, farmers, farmers, NGOs and local traditional enterprises led to the identification of the Project "Strengthening Resilience of Livestock to Drought in Guinea-Bissau". The project was selected as a priority to be financed by the Green Climate Fund. It is included in the working program of the Green Climate Fund and the BOAD as an implementation entity. It aims to achieve the resilience of livestock in the face of the drought that continues with the lack of water and lack of forage especially in the North and East part of the country which house 86% of the national herd.

This pilot project intends:

- mapping the areas most affected by lack of grazing and water in the dry season;
- to identify conflicts between livestock breeders and farmers on the paths taken by pastoralists and their livestock for transhumance;
- strengthen the national legal and strategic framework for transhumance management;
- sensitizing breeders and farmers on the coordinated management of water, land, forest and other ecosystems;
- gradually stabilize livestock breeders through the development of grazing and the establishment of hydraulic infrastructure for livestock watering (this stabilization will begin with this project and will continue gradually with future projects.) ;
- define the pastoral routes and transhumance corridors, along which hydraulic infrastructures (water reservoirs and drilling with human power) will be installed. It will also be introduced along these courses of forage species.

The GCF project is not a scaling-up of the Adaptation Fund project. It is identified to strengthen livestock resilience actions in areas not covered by the Adaptation Fund project and to limit livestock migrations, which is a source of conflict between livestock breeders and producers. If implemented, it will allow livestock in areas not covered by the Adaptation Fund project not to migrate to areas of the AF project in search of grazing and water.

The project will be implemented in administrative sectors other than Píche, Pirada, Gabú, Sonaco, Contuboel and Ganadu which are already covered by the present AF project. The intervention areas of the GCF project will include, among others, the following sectors: Bissorã, Farim, Mansaba, Mansôa, Nhacra in the region of Oio, the sectors of Bafatá, Bambadinca, Galomaro, Xitole in the region of Bafatá and the sector of Boé in the region of Gabú.

The present GCF project is currently under development and will take at least 18 months to be approved by the Green Climate Fund Board. Its implementation will start at the earliest in 2019 or 2020.

If the implementation of this Adaptation Fund project begins in 2017, it is possible that within two years, prior to the implementation of the GCF project, lessons learned from experiences related to: (i) capacity building of breeders, public service workers, NGOs and Associations; (ii) management of pasture; (iii) availability of water for livestock watering; and (iv) the management of water reservoirs for flood control, can help better plan, manage and monitor the GCF project.

The two projects will therefore not be implemented in the same areas (administrative sectors) at the same time and will not present any overlap but could be complementary.

Table 13 below summarizes the key overlaps and potentials for synergies between the present project proposal and other relevant initiatives in agriculture and water management in Guinea-Bissau, and puts these overlaps in context with the expected outcomes of this proposal. What becomes clear is that climate resilience and adaptation are yet little integrated in development projects in the country, highlighting the importance of this present proposal.

Table 13: complementarities and synergies of the proposed project and with other initiatives in Guinea-Bissau

Expected outcomes of this project	<i>Possible complementarities and synergies with the activities of similar projects and programs implemented in Guinea Bissau:</i>					
	<i>(i) UNDP/GEF National Capacity Self-Assessment; (ii) UNDP/GEF Sustainable Land Management Project SL; (iii) Project against poverty. Local Governance and Income Generating Activities Promotion Support Project; (iv) The UNJP/GBS/301/PBF Gender Promotion Initiative; (v) UNDP's Community-Based-Organizations' Support Project in Gabú Region (OCB); (vi) UNDP/GEF Project SPWA - Support for the Consolidation of a Protected Area System in Guinea-Bissau's Forest Belt; (vii) The WB/EU Emergency Project for Food Production; (viii) The TCP/SFW/3402 Support to policy initiatives for the development of livestock/meat and dairy value chains in West Africa; (ix) GCP/RAF/461/SPA Strengthening Capacity of ECOWAS for effective Comprehensive Africa Agriculture Development Program (CAADP) Implementation in West Africa; (x) Rural and Agricultural Sector Rehabilitation Project (PRESAR); (xi) Project for diversification and intensification of agriculture and valorization of agricultural production; (xii) The School horticultural activities support project; (xiii) The Food Security Project and (xiv) Program of Work of the General Directorate for Water Resources (DNGHR); (xv) GCF/BOAD project : Strengthening livestock resilience to drought in Guinea-Bissau</i>					
	Improvement of technical and institutional capacity of stakeholders	Increase in productivity and food security	Construction of water infrastructure	Management of natural resources	Diversification of crop production	Livestock resilience
Increased technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions	X					
Family farmers, development professionals, and government experts have integrated knowledge on climate-smart agriculture, in practice (on-site) and adaptation planning			X	X		X
Agricultural and livestock activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security		X	X		X	X
Sustainable climate-smart agriculture practices and management is adopted in comparable regions of the country and West Africa, and disseminated to other West African						

countries, contributing to resilience and development needs in those regions						
International negotiations on climate change adaptation recognize and integrate new knowledge on climate-smart agriculture in LDCs in their policies and practices						

Otherwise the project's objectives have strong linkages to the Second National Health Development Plan of Guinea-Bissau, as well as the Millennium Development Goals (MDG) to eradicate extreme poverty and hunger, reduce child mortality, and ensure environmental sustainability. Finally, the project is also in concordance with the 'regional' development plans of Gabú and Bafatá and related documents which highlight the importance of livestock and agriculture in their economy and call for further actions to strengthen these sectors against climatic extremes such as droughts or floods. Water management is also discussed extensively in both 'regional' plans.

E. Describe how the project / program meets relevant national technical standards, where appropriate, such as environmental assessment standards, building codes, etc., and complies with environmental and social policy of the Adaptation Fund

The project will comply with all relevant standards in the areas of agriculture, water resources, small scale water retention, and natural resources management, and small infrastructure, as well as environmental and social standards.

The project is in compliance with the national environment and social regulations, the E&S principles of the Adaptation Funds and with the Environmental and Social Safeguards of West African Development Bank (BOAD), which are aligned with GEF's and World Bank's Environmental and Social safeguards.

The current proposal complies with relevant standards in Guinea Bissau such as:

- The Land Law (5/98, 1998);
- Water Code (5a-92, 1992);
- The Law on Environmental Impact Assessment (EIA) (10/2010);
- The Framework Law on Protected Areas (3/97, 1997);
- The Basic Law of the Environment (1/2011) and the Forestry Law (5/2011);
- Second Poverty Reduction Strategy Paper;
- National Agriculture Investment Plan (NAIP) ;
- Letter of Agrarian Development (including Letter of Livestock Development of 2011);
- National Strategy for Protected Areas and Biodiversity Conservation (2014-2020);
- National Action Program on Fight against Desertification (under discussion);
- Forest Master Plan and Forest Law;

- Water Master Scheme;
- National Health Development Program II.

One important problem that continues is that local customs and law are often distant from existing legislation. A second important problem is a lack of legislation, as in environment and in the water sector, that defines the property of hydraulic structures, rights and obligations of users and state and especially governs the principle of recovery of utility costs (tax on water and wastewater) (Guinea-Bissau, 1998). The Direcção Geral de Florestas e Fauna (DGFF) is responsible for application of the Water Code (5a-92, 1992) and technical norms on execution of other hydraulic works, and also applies taxes and fees exist for selling of forest products, felling of trees, illegal chase, prevention of slash-and-burn agriculture etc. But low enforcement of existing legislation strongly affects adherence and compliance to standards in the sector of agriculture, water and natural resources management, and small infrastructure.

Guinea Bissau is a state member of the BOAD. Since 2013, BOAD has strengthened its environmental and social safeguards to comply with the requirements of GEF. The list of operational policies and guidelines and applicable procedures in this area of this project proposal is attached. Moreover, based on the Environmental and Social Management Framework (ESMF) carried out for the full proposal, national policies and regulations will be enhanced or drafted, disclosed and implemented at national and local level to fill gaps caused by deficiencies of standards in the sectors of agriculture, water, natural resources management, small infrastructure, environmental and social management.

In response to conflicts between local customs and law, the proposed project will develop a strategy with relevant institutional partners and RCCF to ensure that relevant standards are understood by project beneficiaries and applied at project level (Eg prevention of illegal burning or hunting) by the village authorities and the beneficiaries themselves. This strategy will be based on presentations to village councils, women's associations, development of small textbooks, etc.

Conflicts between local customs and the relevant right to this project request will be identified by the relevant local and regional authorities and government agencies (water resources, forestry, other) and RCCF. On the other hand, the project will help to improve or draft, validate and approve national guidelines on water retention / dam safety, involuntary resettlement, land use, management Forestry, pest management, indigenous peoples, natural habitat, physical cultural resources, public participation in the process of environmental impact assessment and gender mainstreaming. The project will also help to develop/improve principles of the Adaptations Funds as: Equity and access, Gender Equity and Women's Empowerment, Marginalized and Vulnerable Groups.

Six (6) partnership protocols which were signed by the LDCF project team with relevant institutional partners in the areas of water resources management, small infrastructure, environmental and livestock and agriculture will support this process. These partnership protocols include:

1. The Directorate General Agriculture, particularly for training activities and dissemination of improved agricultural techniques, and studies of irrigation schemes shallows;
2. The Directorate General of Livestock, especially for training on hygiene, health and animal feed and livestock vaccination campaigns;
3. The General Directorate of Water Resources (DGRH), including water resources management activities and construction of boreholes and wells in villages;
4. The National Institute of Meteorology (INM) as part of the rehabilitation and equipment of the meteorological station Bafatá, construction and equipment of the meteorological station of Gabu, the establishment of 4 stations Pirada assistants,

- Buruntuma, Canquelifa Chih-Chih and the establishment of a rainfall station in each of the 14 villages targeted by the project, and the strengthening of INM staff capacity;
5. The National Institute for Agronomic Research (INPA), for improved seed development activities of rice production and the provision of improved seeds; and

It is planned to expand upon existing partnerships and develop further partnerships (e.g. DGFF) in the AF proposed project.

For planning and construction in the water, agriculture and livestock existing benchmarks will be utilized for dimensioning infrastructure works (e.g. wells, small-scale water retention, and small-scale dams). Annual average gross needs for irrigated crops in the dry season are roughly evaluated at 7.000-8.500 m³/ha, and at 3.500-7.000 m³/ha for rice during its phenological cycle. Unit water requirements for animals on average are estimated at 25 l/day/head for cattle, 5 l/day/head for sheep, 7 l/day/head for goat, 5 l/day/head for pigs, 0.2 l/day/head for chicken (DGRN, 1998). Concerning village water management existing standards on construction of new water points will be followed. This includes the necessity of hydrological and feasibility studies (socio-economic, demand, capacity, existence of public interest), administrative authorization processes, the constitution of village water management committee, information to the public, health education and periodic monitoring, with inclusion of stakeholders. Specifically water points will need to be constructed within a 500 m diameter from the village, but not in the village in order to avoid pollution risks. Furthermore it is ruled that the community retains ownership of the land around the water point and that any activities or constructions within a radius of 25 m around the waterhole which could threaten water quality (latrines, water troughs or washing and laundry) are prohibited.

The Adaptation Fund's principles and the National standards required by the Government of Guinea Bissau, including environmental impact studies, laws and regulations related to water, land management as well as guidelines for the agriculture and irrigation codes have been taken into account.

Table 14: National texts applicable to the project and correlation with AF's principles.

AF principles	Corresponding national standards	
	National text enacting the standard	Standard
<i>Compliance with law</i>	Law No. 1/2011 of 2 march 2011 constituting framework law on environmental	Article 2: This law has the objective of defining the legal basis for the use and proper management of the environment and its components, for the materialization of a sustainable development policy of the country
	The Environmental Assessment Act approved by the Government, at the session of the Council of Ministers of 19/03/08	This law is a fundamental preventive instrument of environmental policy. It enshrines the promotion of sustainable development, balanced management of natural resources, while ensuring the protection of the quality of the environment, contributing to the improvement of the quality of life of the man.
<i>Equity and access</i>	Constitution of the republic of Guinea-Bissau, adopted in 1984 and amended in 1991, 1993, 1996	Article 24: All persons are equal before the law, enjoy the same rights and are subjected to the same duties, without distinction as to race, social status, intellectual or cultural level, religious belief or philosophical conviction. Article 32: All citizens have the right of access to judicial organs to seek redress for violations of their constitutionally recognized rights and the law. Justice cannot be denied on economic grounds.
	Law No. 1/2011 of 2 march 2011 constituting framework law on environmental	Stipulates in its article 4 Alina 1: Everyone has the right to a human and eco-environment equilibrate the duty to defend, leaving it to the State, through the own body and appeal to popular and community initiatives, promote the improvement of the quality of individual and collective life.
<i>Human Rights</i>	Constitution of the republic of Guinea-Bissau, adopted in 1984 and amended in 1991, 1993, 1996	Article 24: All persons are equal before the law, enjoy the same rights and are subjected to the same duties, without distinction as to race, social status, intellectual or cultural level, religious belief or philosophical conviction. Article 32: All citizens have the right of access to judicial organs to seek redress for violations of their constitutionally recognized rights and the law. Justice cannot be denied on economic grounds.
<i>Gender Equity and Women's Empowerment</i>	Constitution of the republic of Guinea-Bissau, adopted in 1984 and amended in 1991, 1993, 1996	Article 25: Men and women are equal before the law in all aspects of political, economic, social and cultural life.
<i>Marginalized and Vulnerable Groups</i>	Constitution of the republic of Guinea-Bissau, adopted in 1984 and amended in 1991, 1993, 1996	Article 24: All persons are equal before the law, enjoy the same rights and are subjected to the same duties, without distinction as to race, social status, intellectual or cultural level, religious belief or philosophical conviction. Article 32: All citizens have the right of access to judicial organs to seek redress for violations of their constitutionally recognized rights and the law. Justice cannot be denied on economic grounds.
<i>Core Labour Rights</i>	Constitution of the republic of Guinea-Bissau, adopted in 1984 and amended in 1991, 1993, 1996	This law stipulates in article 46 : (1) Workers have a right to protection, security and hygiene at work. (2) The worker can only be dismissed in accordance with the law: dismissal for political or ideological

AF principles	Corresponding national standards	
	National text enacting the standard	Standard
		<p>motives is prohibited.</p> <p>(3) The state will gradually establish a system capable of guaranteeing workers social security pensions, in sickness or when incapacitated.</p>
<i>Protection of Natural Habitats</i>	Law No. 1/2011 of 2 march 2011 constituting framework law on environment	This law stipulates in article 78, that "In order to ensure the protection of appropriate quality of natural environmental components, the State through the body responsible for the area of the environment, may interdict or condition the exercise of activities and actions necessary to develop in pursuit of the same purposes, in particular through the adoption of containment and surveillance measures that take into account, besides the economic, social and cultural costs of environmental degradation in terms of obligatory prior cost-benefit analysis".
<i>Conservation of Biological Diversity</i>	Law No. 1/2011 of 2 march 2011 constituting framework law on environment	<p>The law provides in Articles 11 and 12 on the preservation of flora and fauna.</p> <p>Article 11: (1) Measures will be taken for the promotion and protection and enhancement of plants and green spaces. (2) Some plant species threatened with extinction may be subject to special protection. (3) The legal framework for the management and operation of flora will be subject to special legislation.</p> <p>Article 12: (1) All animals will be protected through legislation that promote and safeguard the conservation of the species about which affect economic or social scientific interests; (2) The protection of wildlife and the need to protect public health imply the adoption of effective control measures to be carried out by competent bodies and health authorities, particularly in the context of:</p> <ul style="list-style-type: none"> a) Maintenance or activation of the biological process of self-regeneration; b) Commercialization of terrestrial fauna, aquatic area; c) Introduction of any species of animal sel-pod, terrestrial aquatic; d) Destruction of animals considered harmful by, without exception, by duly authorised methods and always under supervision of the competent authorities; e) Regulation and supervision of the importation of exotic species; f) The regulation of some species more endangered animal may be subject to special protection.
	Orders No. 045 / PRG / 87: Code protection and enhancement of the environment	<p>Art.48.- The fauna and flora must be protected and regenerated using sound management in order to preserve the species and genetic heritage and to ensure the ecological balance.</p> <p>Art.49.- is prohibited or subject to prior authorization of the Directors in accordance with laws and regulations, any activity that may harm the animal and plant species or their natural habitats.</p>

AF principles	Corresponding national standards	
	National text enacting the standard	Standard
	he Forestry Law approved through Legislative Decree No. 4-A / 91,	This legal instrument aims to promote the sound management of natural resources in order to maximize the contribution of these resources to the economic, social, cultural and scientific country, in agreement with the national, regional and local.
	The Law on Wildlife, approved by Legislative Decree No. 2/2004	Regulate the activities in the field of wildlife and provides for adequate measures in the direction of curbing harmful practices.
<i>Pollution Prevention and Resource Efficiency</i>	Law No. 1/2011 of 2 march 2011 constituting framework law on environmental	<p>This law stipulates that:</p> <p>Article 9: Everyone is entitled to an air quality appropriate to their health and well-being, both in public spaces for recreation, leisure and circulation, whether in housing, the workplace and other human activities.</p> <p>Article 10: The public services responsible for authorizing and supervising construction on waters, shall ensure that before its entry into operation and during operation are fulfilled the standards relating to the protection of waters. The release of effluents polluting waters, solid waste, any products or species that alter its characteristics or the become unfit for its various uses, will be the subject of special legislation.</p> <p>Article 19: Are factors of environmental pollution and degradation of the territory all actions and activities that adversely affect the health, well-being, and the different ways of life, the balance and the sustainability of natural and processed, as well as the physical and biological stability.</p> <p>Section III of the Act is devoted to pollution / contamination and prohibitions. Article 20 deals with the sound pollution, Article 21 and 22 of the waste: sewage and chemical waste; Article 23 radioactive substances and Article 24 of food products.</p>
	Ordinance No. 045 / PRG / 87: Code of protection and enhancement of the environment	<p>Article 60. Waste must be properly treated to eliminate or reduce their adverse effects on human health, natural resources, flora and fauna or the quality of the environment general.</p> <p>Article 61.- When the waste is abandoned, filed or processed in contravention of the provisions of this Code and the regulations in force, the authority concerned shall automatically make the disposal of such waste at the expense of those responsible.</p> <p>Article 79.- The imposition of noise emissions that could harm the health of man, of undue nuisance to neighbors or harm the environment. The people behind these programs must implement all appropriate measures to remove them. When the urgency justifies it, the ministerial authority of the environment can take enforceable measures automatically to cease the disorder.</p> <p>Article 80.- It is prohibited by the facilities, odor-which, by their concentration or their nature, prove to be particularly unpleasant for humans.</p>

AF principles	Corresponding national standards	
	National text enacting the standard	Standard
<i>Public Health</i>	Constitution of the republic of Guinea-Bissau, adopted in 1984 and amended in 1991, 1993, 1996	Article 15: Public Health aims to promote physical and mental well-being of the population and balanced integration in the social and ecological environment in which it lives. It must focus on prevention and aim at the progressive socialization of medicine and medical and pharmaceutical sectors.
	Ordinance No. 045 / PRG / 87: Code protection and enhancement of the environment	<p>Article 75.- The noxious and hazardous substances, because of their toxicity, radioactivity or concentration in biological chains, present or may present a danger to humans, the environment and the environment when they are produced, imported Guinean territory or discharged into the environment, are subject to supervision and monitoring of the service environment.</p> <p>Article 76.- A decree sets this code:</p> <ul style="list-style-type: none"> - obligation of manufacturers and importers of chemicals for marketing regarding disclosures in environmental service related to the composition of preparations placed on the market, sold their volume and their potential effects with respect to the man and his environment; - the list of noxious and dangerous substances the production, importation, transit and traffic on Guinean territory are prohibited or subject to prior authorization of the environmental service; - the conditions, mode and the transport route, as well as all requirements relating to packaging and marketing of substances referred to in the previous paragraph; - the conditions of issue of the prior authorization referred to in paragraph 2. <p>Article 77.- The chemicals, harmful or dangerous, manufactured, imported or sold in violation of the provisions of this Code and its implementing regulations can be seized by officers authorized for Fraud; Sworn agents of environmental service and those of the ministries of rural development and health. When danger justifies, these substances can be destroyed, neutralized or stored as soon as possible by the care for the environment at the expense of the offender.</p> <p>Article 78.- It is prohibited to import, manufacture, possession, sale and distribution even for free of chemical fertilizers, agricultural pesticides and pesticides that have not been subject to approval of the Ministry of Rural Development established after consultation with the service of the environment, in accordance with Article 18</p>
<i>Lands and Soil Conservation</i>	Law No. 1/2011 of 2 march 2011 constituting framework law on environmental	Article 14 : The defense and enhancement of soil as natural resource determines the adoption of measures leading to its rational use. The occupation and use of the urban purposes and industrial ground or deployment of equipment and infrastructure will be conditioned by their nature, topography and natural features of his dependents.
	Ordinance No. 045 / PRG / 87: Code protection and enhancement of the	Art.15.- The soil, subsoil and the treasures they contain are protected as a renewable resource limited or not, against all forms of degradation and managed rationally.

AF principles	Corresponding national standards	
	National text enacting the standard	Standard
	environment	Art.16.- The use of agricultural or pastoral use bushfires is subject to prior authorization from the competent local authority, which may either prohibit them or fix all the provisions prescribed by law.
<i>Physical and Cultural Heritage</i>	Constitution of the republic of Guinea-Bissau, adopted in 1984 and amended in 1991, 1993, 1996	Article 15 of the constitution stipulates that: 1) ...The state protects and promotes the cultural heritage of the people, whose valuation must serve progress and safeguard human dignity. 2) Conditions will be created so that all citizens have access to culture and are encouraged to actively participate in the creation and dissemination of that culture.
	Law No. 1/2011 of 2 march 2011 constituting framework law on environmental	Article 31 is dedicated to Protected areas, reserves, sites, ensembles and Classified Objects.
	Ordinance No. 045 / PRG / 87: Code protection and enhancement of the environment	Article 4: The Guinean environment is a natural, integral part of the universal heritage. Conservation, maintenance of resources it offers to human life, the prevention or limitation of activities that degrade or impair the health of persons and their property are of general interest.

F. Indicate whether the project / program is already financed by other sources

This project is the currently the first integrated approach to scale-up climate-smart agriculture practices and planning across the two highly vulnerable regions in East Guinea-Bissau while contributing to institutional capacity building. The project components are based on the experiences GEF/UNDP project “Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau” (00077229), but will go beyond in terms of regional scope, integration of new agricultural technologies and the scope of monitoring & evaluation (M&E) and knowledge dissemination. GEF/UNDP project 00077229 is foreseen to end its activities by end of 2015 so that duplication of funding sources can be excluded. Other existing water and agriculture initiatives by government and NGOs in Gabú and Bafatá ‘regions’ do not currently integrate climate adaptation and resilience into their overall framework. These initiatives will be built upon for improved dissemination of project successes.

G. Where appropriate, indicate whether the project includes a training component and knowledge management to take stock of lessons learned and reapply them.

A specific component #3 (“knowledge management of lessons learned on climate-smart agriculture and adaptation planning”) is included in the project, focusing particularly on outreach and information exchange. As detailed in section II.A of this proposal, different knowledge materials (manual, tools box, project website, newspaper media, calendars, conference presentations, etc.) will be produced for specific target groups (policymakers, field workers, farmers, scientific community, etc.), integrating practical lessons on climate-smart agriculture and water management in dryland regions. Further outreach will also occur at inter-ministerial meetings and COP/UNFCCC meetings. DGA/SEAD is the lead institution of this component.

The project monitoring and evaluation system will contribute significantly to technology performance management and traceability of transactions that have achieved the outcomes and decisions useful to action.

The results (outputs, outcomes and impacts) and lessons learned from the implementation will be: i) capitalized and archived electronically and physically in a documentation center and ii) shared/disseminated in various forms adapted to different target group.

All communication material on the project will bear the logo of Bissau Guinea, the Adaptation Fund and the BOAD.

H. Describe the consultation process, including the list of stakeholders consulted during the preparation of the project, with particular reference to vulnerable groups, including gender considerations, in accordance with the environmental and social policy of the Adaptation Fund

Public consultation during the preparation of the project, were conducted in accordance with the requirements of the Adaptation Fund. This consultation took place in several phases:

- a first consultation was carried out during the preparation of the project concept note (PCN);

- a second consultation during the study on lessons learned from the LDCF project being completed;
- a third in the identification of the potential sites of the project; and
- a fourth in the preparation of the Full Project; and

The objectif is to seek the views of the beneficiaries and to collect the basic information to enable better design of the project with particular implication of vulnerable groups, elders, women and youth.

The main objective of this approach of information, communication and participation of stakeholders was to create a mutually beneficial exchanges, favorable to an open dialogue with the aim of: (i) ownership of the project by beneficiaries at the stage of preparation and planning; (ii) the consideration of the concerns of all stakeholders including vulnerable groups (women, youth, children, etc.) in the design and implementation of the project; (iii) exchanges on financing and project sustainability.

During the project preparation a literature review was conducted. Interviews with person resource working in different ministries and structures involved were made. Field visits (potential sites and sites in exploitation) and interviews with the beneficiaries were made. This helped to establish in a participatory manner the context of project development, problems to solve, the types of adapted solutions, etc. and the consideration of the problems of vulnerable populations.

a) Public consultation during the PCN preparation

The consultative process for project development built upon networks established under the NAPA and SNCCC, and furthermore GEF/UNDP project "Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau" (00077229). Workshops and meetings have been held in Bissau with various Ministries and institutions, in addition to consultations with the project region's Rural Climate Change Forum (RCCF, see section III) and other local/regional authorities. Furthermore, a one-week field trip was organized by DGA/SEAD in 2015 in order to receive feedback on planned project activities and needs. The field visit focused on extremely poor communities and women integration (either organized in associations or not) which are a focal objective under this project.

In each village visited, following local customs, the project team began by asking the village head for permission to present the project idea and then asked him to call all household heads to participate in a group focus meeting. Talks were conducted in Guinea-Bissau Kriol by the project team or in any local language/dialect when participants of the team were not fluent in the vernacular language. These meetings included clear presentations of the project idea and objectives as well as a stocktaking of household/village needs (focusing at the intersection agriculture, water resources and climate risk management). Through this approach the precise adaptation strategy choice is being made by the communities themselves – following the example from the World Bank's approach and that of others, which do not specify activities before workshops, NGO projects and a typology list of activities that could be discussed at community level. Women's participation and empowerment through the project was also discussed openly where elders or the village head judged this as problematic.

The list of stakeholders consulted during the one-week field trip can be found in Annex 6. Figure below consists of four photos taken at these meetings; they give the idea that voice and opinion of women and poor were promoted during the consultation process. During these series of consultations, the gender element was very present (see figure below).



Figure 25 : Participation of stakeholders during consultative phase for PCN preparation in four tabancas

b) Consultations during the study on lessons learned from the LDCF project

This public consultation took place in the villages benefiting from the project. The purpose of the meetings held in villages benefiting from the LDCF project is to share with the beneficiaries the experiences and lessons learned from the project (technical and organizational strengths and weaknesses). The objective is to collect the beneficiaries' assessment of the project. The approach adopted and the free exchange between beneficiaries on the one hand and between beneficiaries and the study team on the other hand. This enabled beneficiaries to identify successes, failures and areas for improvement. The following pictures illustrate the public consultations in some of these villages.



Figure 26 : Public consultation in the village of Bajocunda during the lesson learned study



Figure 27 :Public consultation in the village of Copa Mango during the study on lessons learned

c) Public consultation during potential sites identification

During the identification of potential sites for the project, several villages were visited and consultations with the local populations were carried out. The objective was to share the ideas of the project with these populations, to inform them of the possibilities offered by the project. In each village, the sites that could be put into values were visited. Following this series of site visits and public consultations, 18 potential sites were identified at this stage. Additional technical and technical studies will make it possible to define a list of sites to be developed within the framework of the project. It should be noted that a call for applications will be launched for the final selection of sites on the basis of criteria which will take into account vulnerable groups, forests, protected sites, etc. The preliminary report identifying potential sites is attached as Annex 4 to this document.

d) Public consultation during the Full Project formulation

During the preparation phase of the Full project, a broad consultation of stakeholders involved in the project was conducted. In potential villages affected by the project, meetings with local populations were organized in order to exchange with them on aspects of the

project, their opinions and their concerns. These meetings were attended by nearly 500 people in all. Village chiefs were heavily involved in public consultations. Exchange meetings were held in Bissau, Gabù and Bafatà. These meetings have gathered the heads of various sectors involved in the project. This is, among others, in charge of services: the environment, agriculture, forest and wildlife, livestock, fisheries, civil defense, health, meteorology, NGOs, etc. Meetings were also held with regional Governors and sectoral administrative authorities. So the team met with the Governor of Gabù, the Governor of Bafatà, the Administrator of Contuboel sector (Bafatà Region), the Administrator of Pirada sector (Region Gabù), the Secretary of the Administrator of Bambadinca sector (Bafatà Region), etc.



Figure 28 : Meeting with technical services in Gabù

In the villages a strong mobilization was observed. In the villages visited, the populations welcomed the project.





Figure 29 : Public consultation during the preparation of the Full project

Concerns raised by the populations during the public consultations

During these series of public consultations, populations have raised, apart from questions of vulnerability to climate change, food insecurity, poverty and malnutrition, concerns about agriculture, farming, forest management and drinking water supply. These concerns and their consideration in the project are summarized in the table below.

Table 15: Concerns raised by populations during public consultations and their consideration

Sectors	Concerns raised	Taken into account in the project
Agriculture	Lack of water for the development of agriculture	The project provided under component 2, the implementation of the infrastructure of mobilization of water for irrigation (outputs 2.1.1 and 2.1.2)
	The inundation of the lowlands	Infrastructures to fight the flooding of agricultural land have been planned at the level of outputs 2.1.1 and 2.1.2.
	The silting up of the shallows	The project was included in the development of irrigation infrastructure, landscaping of the slopes against the silting up of the shallows through reforestation with plants adapted under the supervision of the Direction of waters and forests. (outputs 2.1.1 and 2.1.2)
	The delay of the rains and the early drought which occurs most often during the flowering of the crops	<p>The mobilization of water is expected to extend its availability and cover the entire agricultural campaign (outputs 2.1.1, 2.1.2 and 2.1.4)</p> <p>The project will work in collaboration with the meteorological services for reliable information and better plan for the crop year. A suitable agricultural calendar will be established for this purpose. The gauges will be acquired under the project and installed in areas/villages of interventions to have rainfall records (output 2.1.5 (b)).</p> <p>The project also provided for the extension of short-cycle and drought-resistant seeds (output 2.1.3.2).</p>

Sectors	Concerns raised	Taken into account in the project
	The decline in the fertility of some soil on which agriculture is developed	<p>The project has programmed under the Output 2.1.3 actions to improve the fertility of the soil and the promotion of the production of manure to reduce the demand for chemical fertilizers.</p> <p>The courses are scheduled to build the capacity of producers in the use of fertilizers and pesticides (output 1.2.4).</p>
	Lack of access to inputs (seeds, fertilizers, pesticides) quality	<p>The project has planned, under the Output 2.1.3 to grant support to farmers for access to quality inputs. The actions summarized in:</p> <ul style="list-style-type: none"> - support groups for the acquisition and the multiplication of quality seeds and construction of seed banks (2.1.3 .2) - Support for the purchase of fertilizers and pesticides of quality (2.1.3.3). <p>Courses are planned at the place of the producers for the multiplication of seeds with the support of the National Institute of the agrarian research (INPA).</p>
	Attacks of crops by pests and others leading to a partial loss of crops.	Support for the acquisition of quality pesticides (output 2.1.3.3) and the capacity building of producers for better treatment plant (output 1.2.4) will better protect crops.
	Lack of materials and equipment for production and development of products	The project will provide support to producers for the acquisition of 20 tillers, 1000 weeders, 60 yoked oxen and 20 hullers (Output 2.1.3.5). This activity will be conducted for demonstration.
Breeding	Lack of fodder and water for livestock with serious implications for the livestock production and income for farmers	<p>The project provided support to the development of pasture and the production of the dry feed from brachiaria and other nutritious plants. Farmers will be trained on the techniques of forage production. Sheds for storage of dry fodder for feeding cattle in the dry season are planned in each area of intervention. Support will be provided to groups of breeders for their specialization in the production of seeds of brachiaria (Output 2.1.3).</p> <p>The project foresaw the realization of infrastructure of water supply for livestock under the output 2.1.2. There are access ramps to the Cocoli River by cattle (output 2.1.4).</p>
	Lack of corridors of transhumance leading to conflicts between farmers and agriculture	<p>The implementation of the Outputs 2.1.2 ; 2.1.3.4 and 2.1.4. will stabilize the livestock and reduce conflicts between farmers and ranchers and transhumance.</p> <p>One project « Strengthening livestock resilience to drought in Guinea-Bissau» (Green Climate Fund/BOAD project) is identified and currently in the process of formulation to increase the resilience of livestock production to the adverse effects of climate change in</p>

Sectors	Concerns raised	Taken into account in the project
		north-eastern and north-western of Guinea Bissau. This project will address issues related to transhumance corridors (see more informations on pages 83-84).
Forests	Destruction of forests and plantations by Bush fires	It is planned to create brigades to fight bush fires and the capacities of committees of vigilance on Bush fires (output 1.2.5). These brigades and committees whose capacities to intervene are reinforced, will undertake the campaigns of sensitizing the populations on the fight against the bush fires and the techniques of fire. Awareness for the fight against the practice of slash and burn agriculture which is one of the causes of forest fires, will reduce this phenomenon.
Drinking water supply	Difficult access to drinking water in the villages	Access to drinking water will be improved under the output 2.1.4. Drinking water wells will be carried out in the villages that do not yet have access to drinking water. 30 drilling will be carried out to improve the supply of water to the populations.

All the concerns raised during the public consultations were taken into account in the planning of the project. Monitoring and evaluation actions will help to measure the level of satisfaction of these concerns with beneficiaries.

I. Justify the amount of funding requested, based on the full cost of the adaptation.

Baseline scenario

Under a baseline scenario the semi-arid woodland savanna region would continue to be dominated by slash and burn, rain-fed agriculture and extensive-method for livestock. East Guinea-Bissau is already highly food-insecure, and under increasing temperatures it is highly likely that availability (production) and access (prices, income) to food would be further affected, potentially increasing the need for international food aid programs such as through WFP/FAO. Changes in total precipitation and higher drought or flood frequency would act in a similar direction.

While there is high uncertainty regarding the precise regional or local consequences of global warming, inaction would surely be detrimental for East Guinea-Bissau, both in terms of incurred losses due to current climatic variability and future change. Current coping practices (see Part I) by farmers in times of climatic stresses are clearly inadequate.

On the potential sites identified during the preparation of the present Full Project, farmers exploit the lowlands with traditional techniques and remain exposed to the adverse effects of climate change, which is confirmed by irregular rainfall, floods and precipitous dryness which sometimes occur during periods of bloom. The frequency of these floods and the precocious dryness compromise the efforts of the peasants to overcome the food needs. Production remains low and food security is not assured. Poverty and malnutrition are the daily experiences of farmers.

To deal with the precarious food situation, households are appeal to a number of survival strategies for their food namely reduction in the quantities consumed by adults including

youth for the benefit of the children, (ii) less preferred food consumption; (iii) reduction of the amount of food eaten during the meal; (iv) the reduction in the number of meals per day; (v) selling household assets ; and (iii) dependent on the help of family or friend. These strategies not only to plunge people into a vicious circle where poverty and food insecurity are mutually reinforcing but show that there are real difficulties of access to food in Bissau Guinean rural and especially during the lean period.

In fact, reducing food consumption below nutritional requirements or selling household assets in order to survive in times of droughts directly reduces the vector of assets a family has to react to an additional year of poor weather; where reducing food intake and selling assets as coping strategy cannot be repeated each year. Poor households, especially those headed by women, are most exposed to shocks and seasonal variations in production, their vulnerability to future food insecurity increases.

In this context, socioeconomic scenarios point at increasing risks of poverty-related problems such as food insecurity, health or social welfare. Climate variability and change thus put heavy burdens on family farmers that will very likely exceed their coping capacities.

Alternative adaptation option

Faced with climate uncertainty and fragility of ecosystems that characterize Bissau Guinea, irrigation and crop yield improvement through the use of rainwater collection techniques appear to be the most important factors to throw the foundations for local and national economic and social development. The mobilization and control of water to meet the needs of irrigation and livestock become an imperative in order to improve food security and incomes of the population. The activities to fight against the flood and silting of parcels, the forest fire, to improve the soil fertility, livestock and domestic water supply, forage production, etc. will help to secure crops and livestock production, increase yields and incomes of the beneficiaries

The project's integrated approach integrates both concrete adaptations, as well as strengthening capacities across scales in adaptation planning and climate risk management. While the project represents only a first step in scaling-up successful actions and learning, its outcomes for the intervention region and country foresee a significantly positive alternative scenario compared to the baseline. In terms of the project interventions there are limited options available in terms of alternative actions to build climate resilience in the agriculture and water resources sectors. Additionality to a socioeconomic baseline scenario is hard to prove because of vulnerability's multi-faceted character (environmental, social, economic and institutional, among other).

The reinforcement of the technical and organizational capacities of the producers and the superimposition of the activities of adaptation on site are all actions that will contribute to the achievement of the results of the project, to reinforce the resilience of the populations to the harmful effects of the climatic changes, to improve yields and production and finally to reduce food insecurity, malnutrition and poverty..

J. Describe how the sustainability of results of the project / program has been taken into account in the design of the project / program.

The project sustainability is based on the strong involvement of national stakeholders (beneficiaries, ministries, civil society, private sector, etc.) at all stages of its design. Its

implementation involves the participation of community organizations, beneficiaries, NGOs and the private sector. Each actor will contribute to a participatory approach where all activities will be conducted in close consultation with the beneficiaries.

The sustainability of the project outcomes relates to “practice-focused” component #2 (climate-smart agriculture and water management) and "capacity-focused" components #1 and #4 (technical capacity and outreach). Capacity-building at ministerial level will provide permanent benefits after project completion: trained government personnel will see their position strengthened, and may engage in future national adaptation project development, or continue research issues related to climate change and adaptation. Because of the project's novel but realistic character for Guinea-Bissau and the region of West Africa, its results will likely influence practice and policy beyond project implementation time.

Outcome sustainability of component #2 may be more complicated: even though local interventions may function at project end in 202, a principal concern would be the abandonment of these subprojects after technical assistance and regular visits from the project team cease. Participative and integrative processes are key elements to avoid these developments. This includes taking into account needs of the communities, respecting different opinions, creating a project ownership for the participating tabancas etc. The project will also monitor and evaluate (M&E) project implementation continuously; therefore reducing the risk that families may be unsatisfied with the interventions. Preliminary lessons from the ongoing GEF/UNDP-00077229 project seem to indicate that the risk of subprojects terminating after project teams have left is relatively low and manageable.

The project seeks commitment from the regional water authority (Regional Directorate of Water Resources) and other relevant local authorities to maintain small water retention and other infrastructure after project end, in line with the institutional set-up of GEF/UNDP-00077229 project. Villagers are to take ownership of other small scale infrastructure, and young men and female will be trained by the project to undertake smaller maintenances, thus also contributing to local capacity building and empowerment. This commitment has been obtained during the project consultation phase, and will be a conditionality for any subproject implementation.

The irrigation infrastructures are built for 30 years life. The Project management unit will select by application a local NGO, who will organize the beneficiaries in committees and subcommittees around each of the activities. The NGO will support beneficiaries in the implementation of a fee mechanism to allow each irrigated perimeter and each unit of supply of drinking water (drilling and ramps) of sufficient financial resources for infrastructure maintenance and continuity of operations (acquisition of seeds, fertilizers, pesticides and small equipment of exploitation, etc.) in the short, medium and long terms.

The funds collected by the various subcommittees will be deposited on an account of a bank or a microfinance institution created on behalf of the beneficiaries of the site in question. At the level of each Management Committee, the cash will be preferably held by women known for their honesty and good management of public goods.

Not only the project releases a total profit of 5 554 420 USD annually, it is expected a financial participation of beneficiaries in the maintenance of infrastructure and the actions of fire brigades amounting to 457 284 USD per year. This will ensure optimal operation of the infrastructure, a development of the appointed areas and management of bushfires for 30 years. With the climate-smart technical capabilities acquired and substantial profits by the groups, they can invest in the expansion of areas for a greater production of rice and vegetable products. This will help to ensure food security at the national level.

The technical and organizational capacity building planned under the output 1.2.1 for the various management committees (Perimeters management committees with four subcommittees: the Seed subcommittee, the Plowing subcommittee, the Irrigation Infrastructure Management subcommittee, and the Fertilizers and pesticides subcommittee; (ii) the Management committees of the water works to supply water to population and livestock; and (iii) the Pasture Management Committee), by the NGO recruited will allow recruited these committees to effectively assume their mission after the end of the project.

Under the supervision of the PMU, the NGO will organize the perimeters committees and will strengthen their management capacities by working closely with all State departments, each in its own field, to follow up on the perimeter committees after closure of the project. This includes among others:

- the regional directorates of agriculture (DRA) for concerns related to the management of agricultural equipment and fertilizers;
- the National Institute of Agrarian Research (INPA) for concerns related to seeds;
- regional plant protection services for concerns related to the management of pesticides;
- regional directorates for issues related to livestock;
- etc.

In addition, these various departments or institutions of the State will ensure within the technical review committee of the sub-projects, the regional approval committee, the Steering committee that the beneficiaries have taken into account in the sub-projects, sustainable management of fertilizers, seeds, pesticides and small agricultural equipment, etc.

K. Provide an overview of the environmental and social impacts and risks identified as relevant to the project / program.

Environmental and social classification of the project

The Adaptation Fund presents a set of principles by which it enacts environmental and social safeguards applicable to the projects it finances.

The main activities of the project include: (i) socio-climatic vulnerability assessment for East Guinea-Bissau; (ii) assessment of technical capacity building needs of ministries and field operatives for adaptation planning; (iii) formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources; (iv) technical trainings on adaptative systems and organizational capacity building for identified target groups; (v) technical assistance and rural extension for subprojects; (vi) formulation/Update of contingency plans for climate-risk management; (vii) support for farmers groups by the government technical experts for adaptation actions implementation; (viii) capacity building to prevent forest fires; (ix) Development of lowlands to maintain agricultural production in drought periods; (x) Construction of micro-dams for irrigation of rice, vegetable crops and livestock water supply; (xi) rehabilitation/improvement of soil and pasture productivity and small-scale investments into agriculture inputs (seeds, fertilizers, pesticides quality), machinery and tools; (xii) construction of drills/wells and ramps for improved livestock and domestic water supply and market gardens development; (xiii) development of knowledge management strategy; (xiv) creation and operating of the project website; (xv) development of manual and other materials on best practices and measures for climate-smart agriculture; and (xvi) dissemination of results to other regions of Guinea-Bissau and West Africa.

Capacity-building activities of technical services and producers groups will have positive impacts on the management of climate resilient farming practices and the environmental management of the project (see detail of positive impacts under the item II.B). However, though activities that aims to set up water mobilization infrastructures will reduce flooding, they will lead to the drying up of crop plots, loss of production and thus entail negative impacts that need to be analyzed.

The development of these infrastructures on the identified potential sites will neither cause the relocation of population nor affect any natural habitat. It will not involve irreversible effects on the biophysical and human environment. Under this project, water mobilization infrastructure is small size and includes retention dykes and bunds of up to 2 m in height, levee dykes, mini-water retention ponds which height does not exceed 2.5m, drills for the development of garden products and the supply of safe drinking water for the population and the livestock.

The environmental and social impact assessment of a such project is to examine the positive and negative effects that the project could have on the environment and populations, and recommend any measures needed to prevent, minimize, mitigate or compensate for adverse effects and improve environmental performance.

Because the sites of the intervention areas of the subproject are not completely retained, an environment and social management framework (ESMF) is prepared for the project according to the 15 ESP principles of the Adaptation Fund. The results of the assessment of the risks and impacts of the subproject according to the 15 principles of the Adaptation Fund will be used to update the Environmental and Social Management Framework Plan (ESMFP) of the ESMF. Thus, the ESMFP updated with the subprojects ESIA results will become the Environmental and social management plan (ESMP) of the project. The project ESMP will be applicable to all subprojects according to the each subproject's ESMP.

Although the project area is not recognized as an area of pest attack, the implementation of the project calls for preventive and curative pest management techniques and therefore an Integrated Pest and Pesticide Management Plan (PGIPP in French) is prepared and submitted with the present proposal. An approach of integrated pest management is presented on page 121-123. A summary of this PGIPP is presented in English in the ANNEX 15 and PGIPP report.

When the sites of the subprojects will be definitively retained, an Environmental and social impact assessment (ESIA) will be prepared for each subproject on the basis of the 15 ESP principles of the Adaptation Fund.

Table 16 : Impact and potential risk assessment

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	No project component or activity contravenes any laws or regulations currently in force in Guinea-Bissau. The project complies with the country's legal framework for agriculture, water and environmental protection. For the Full	Weak. The Environmental and Social Management Framework is prepared for the project. When the sites of the subprojects will be definitively retained, an Environmental and social impact assessment (ESIA) will be prepared for each subproject on the basis of the

	Proposal an Environmental and Social Management Framework (ESMF) is prepared	15 ESP principles of the Adaptation Fund. The results of the assessment of the risks and impacts of the subproject according to the 15 principles of the Adaptation Fund will be used to update the Environmental and Social Management Framework Plan (ESMFP) of the ESMF. Thus, the ESMFP updated with the subprojects ESIA results will become the Environmental and social management plan (ESMP) of the project. The project ESMP will be applicable to all subprojects according to the requirements of each site.
<i>Access and Equity</i>	The intervention logic of the project is to provide potential beneficiaries in the target region with fair and equitable access to project activities and equipment throughout both planning and implementation phases. All producer groups which request participation will have an equal opportunity to benefit from the adaptation activities proposed by the project. Eligibility criteria of the project will be clear and transparent, and defined together with all relevant stakeholders, including traditional authorities. For the project interventions it is planned to include (i) difficulty of access to water in the area; (ii) vulnerability in terms of biophysical and climate risks; and (iii) social vulnerability as selection criteria. Through these criteria the project will assure the participation of less empowered groups, including women, minorities and particularly vulnerable groups. The project's results-framework will measure developments related to 'access and equity for vulnerable groups' throughout the project duration.	Very weak. The project implementation will guarantee access and equity to sensitive groups (including gender, elderly).
<i>Marginalized and Vulnerable Groups</i>	The project focuses on marginalized and vulnerable groups (minority groups, women, extremely poor, elderly, children etc.) and aims to assist them to improve their agricultural practices and living conditions. As such the project is not expected to have any negative impact on these groups. The consultation phase has identified Fula, Mandinga and Dgancanca ethnicities in the project region. Both Fula and Mandinga are majority groups, and work as farmers and ranchers, whereas Dgancanca constitute a minority group working with rice farming. Each community has its own lands at their disposal; therefore the project activities can be carried out without problem in collaboration with each ethnicity. The	Very weak. The Full Project Proposal follow and will relevant Adaptation Fund environmental Policy for the full project development. These include: (a) screening of communities; (b) social assessment of needs and conflicts; (c) free, prior, and informed consultation with the affected groups.

	project will work with the majority and minority groups.	
<i>Human Rights</i>	The project affirms the fundamental rights of people in the intervention areas, and thus does not affect their freedom. Furthermore, the project does not integrate any activities contrary to custom law or traditions. Participation in the project cycle will be participatory and voluntary	Very weak. In particular, the RCCF and village heads will be consulted to avoid any negative impacts on human rights.
<i>Gender Equity and Women's Empowerment</i>	The logical framework of the project foresees direct participation for women and women's associations so they can benefit directly from project. In particular, the project proposes to support women to develop sustainable income generating activities and improve thereby their living conditions, therefore also empowering them in the context of a largely traditional and male-dominated society. The project will also promote women's participation in the RCCF and other regional and local fora: first, it is planned that the two honorable members from traditional authorities involved in development issues in the project region (one from Gabú, one from Bafatá) from the Rural Climate Change Forum (RCCF) will be one female and one male. Second, the pre-selection committee (RPPSC) to be created for the selection of subproject activities will be composed of four important and respected traditional authorities of the RCCF (one male and one female from Gabú, one male and one female from Bafatá) in the project region. Participation of women and empowerment will also be a key focus of the project's M&E framework.	Very weak. In Guinea Bissau, the women are the most farmers cultivative rice and working in gardens field. So, they will be the largest beneficiaries of the project. Progress with regards to women's participation and equity will be measured through the project's M&E framework, so compliance is not a problem.
<i>Core Labour Rights</i>	Core labor rights concern gender aspects, respect for workers; maximum work hours; child labor; etc. The project will ensure that national working standards are respected on production sites. The project will also ensure that appropriate wages will be paid per assigned task, and that no child labor will be employed. Social security standards (e.g. access to first aid) will also be respected and enforced.	Very weak. Monitoring on core labor rights will be undertaken throughout the project.
<i>Indigenous Peoples</i>	The sites work during project preparation has not identified any indigenous communities in the project areas.	Very weak. In the areas visited, no indigenous people were reported
<i>Involuntary Resettlement</i>	The project will not be developed on any site requiring the resettlement of populations (gives criterion of choice of sites)	No expropriation, relocation of producers or disruption of the livelihood activities of the producers will be undertaken.
<i>Protection of</i>	All project activities will be carried out	Weak. The Environmental and social

<i>Natural Habitats</i>	on areas already under production by farmers, and the project will teach farmers practices to dispense traditional slash-and-burn agriculture practices, therefore reducing pressures on deforestation. Furthermore, the project will work with water-saving irrigation techniques to limit runoff and soil erosion in the project area. Nevertheless, the project may cause negative impacts on the biophysical environment, including natural habitats, if project activities are not monitored consequently. For this reason the ESMF (Full Proposal) is prepared and M&E framework will focus on assessing potential risks and impacts on natural habitats.	management plans (ESMP) of the subprojects and the Environmental and social management plan (ESMP) of the project will be prepared in order to mitigate potentially adverse risks and impacts on natural habitats.
<i>Conservation of Biological Diversity</i>	The project will adopt agricultural practices that increase biodiversity compared to the baseline scenario, including conservation agriculture and agroforestry. Furthermore, the project will not introduce any exotic or invasive species of crops in the intervention areas. The brachiaria and legumes that will be promoted in the production of fodder for livestock, are local plants which integration will cause no problem. However, as noted before, small-scale water retention and irrigation may impact biodiversity particularly when areas need to be cleared	Weak. The Environmental and social management framework (ESMF) demonstrated that the risks and impacts of mini- water retentions on biological diversity are weak. If any, the mitigation measures are planned according to the environmental and social policies of the Adaptation Fund, as well as relevant national environmental and social regulations.
<i>Climate Change</i>	Focus of the project is climate change adaptation through climate-smart agriculture, which from a climate perspective incorporates resilience (adaptation) and reduction or removal of greenhouse gases (GHG) (mitigation). All adaptation actions undertaken under the umbrella of this project will need to be assessed constantly in order to understand whether they contribute to building of resilience under increasingly variable climate. The final assessment of the project as well as the socio-climatic vulnerability assessment will support achieving this principle. Potential impacts on land use will also be registered, thus contributing to the assessment of GHG emissions reductions (mitigation).	Weak. Project foresees assessments on adaptation and mitigation.
<i>Pollution Prevention and Resource Efficiency</i>	Water resources are currently exposed to various forms of pollution associated with the use of fertilizers and pesticides and manure. The project will work to prevent these types of pollution. There may be further pollution linked to the	Weak. The ESMF demonstrated that the risks and impacts that the pollution of water and soil can be avoided. An Pest and Pesticides management plan is prepared. The deterioration of water quality is most often

	<p>construction of small water retention, including deterioration in water quality downstream, or detrimental effects through limiting access to water by downstream users.</p>	<p>due to the fact that fertilizers and pesticides are not used in an efficient and timely manner. In order to prevent deterioration of the quality of the soil and especially of water, the project envisaged activities to strengthen producers' capacities in the use of fertilizers and pesticides (output 1.2.1.). On-site technical support for the proper management of fertilizers and pesticides will be provided to producers by the technical services (output 1.2.4). In addition, periodic water analyzes are scheduled in order to monitor the evolution of water quality and prevent downstream and on-site water pollution. This action is foreseen under output 2.1.3 particularly the activity 2.1.3.7 and budgeted.</p> <p>The sites are victims of the phenomena of floods during the rainy period and limit the possibilities of development of cultures.</p> <p>In addition, the irregularity of rainfall causes a series of alternation of floods and dewatering of the parcels which the duration of each phase depends on the amounts of rain. These phenomena are intense because farmers don't have means to retain and regulate the flow of water at the watershed level.</p> <p>For the people of downstream, it is expected that each water infrastructure has an independent channel to regulate the flow of water at the downstream of the landscaped perimeters.</p> <p>Thus, water storage facilities are designed so that people of downstream can't anymore suffer floods phenomena and have regularly enough water for their development.</p> <p>Although the Eastern regions of Guinea Bissau experience severe drought, rainfall is recorded around 1250 mm to 1500 mm of water. However, more than 80% of precipitation is concentrated in July, August and September. From November to May there is no rain. This concentration of rainfall over only three to four months is the cause of the flooding of the sites limiting their development. The purpose of the project's infrastructure is to regulate the flow of water on the sites and ensure a regular downstream flow through a flow channel considered in the design of water mobilization infrastructure. Beyond the water that will be used for crops on the sites, a steady flow of water will be effective throughout the rainy season to ensure the water needs required downstream so as not to disrupt ecosystems and human life. At the end of the rainy season and on dates recognized for the beginning of the draining of the plots (sites) due to the lack of</p>
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		<p>water, the downstream water channel will be closed. The same will be applied in case of potential downstream impacts. The decision to close the canal will be made on the basis of known water needs of populations and downstream ecosystems.</p> <p>The Regional Directorate for Agricultural Hydraulic Infrastructures will decide on the closure of the canal jointly with the PMU, perimeter manager, the Rural Climate Change Forum¹³ (RCCF) representative (the local president if possible) and the Environment vigilance Committees (ARC)¹⁴ representative (the local president if possible) of downstream villages. To facilitate the participation of downstream populations and beneficiaries in the decision to close the canal, the Minister of Agriculture and the Minister of the Environment will issue an interministerial decree in order to empower the stakeholders in the management of the water, upstream and downstream of the perimeters developed within the framework of the project. Lessons learned from this experience will be used for other projects in the country.</p> <p>This will ensure the availability of water in the catchment retention basin, complementary irrigation of crops that need water to mature and other uses of beneficiaries. In cases where it is proved that there is a downstream supply of water during the dry season, the opening of the downstream feeder canal will be sized in accordance with the natural need of the human, animals and ecosystems downstream.</p>
<i>Public Health</i>	<p>Disease-burden may be linked to vector-borne diseases of small water retention. Otherwise, the project will promote organic fertilizer use and sustainable practices that may be beneficial to human health. By increasing food production and variety thereof the overall health of the population will be strengthened as calorie intake rises and nutritional quality of the food consumed is higher.</p>	<p>Weak. Mitigation actions are planned in the Environmental and social management framework plan (ESMFP) included in the ESMF in order to discern health impacts due to vector-borne disease occurrence, caused by small dam construction. The ESMFP will be updated with the subprojects ESIA results to become the Environmental and social management plan (ESMP) of the project. The project ESMP will be applicable to all subprojects according to the requirements of each subproject's ESMP.</p>
<i>Physical and Cultural Heritage</i>	<p>No adverse impacts on physical and cultural heritage of the people in the intervention areas were identified. A public consultation was conducted in the project areas. The chances of damage to physical assets are extremely low.</p>	<p>Weak. One of the criteria of selection of the intervention area is: "Not located in a known cultural heritage area or suspected to be sheltering a cultural heritage". This criterion enables to limit the risks related to the destruction of the cultural and physical heritage. However, incidental findings are not excluded on</p>

¹³ Rural Climate Change Forum (RCCF) is composed of rural population representative of upstream and downstream villages

¹⁴ The RCCF and the ARC are committees that have been set up in villages to promote the sharing of information and experiences and exchanges related respectively to the climate change and the environment. These two committees are complementary actors and are made up of representatives of the local population.

		non-suspected sites. Thus, the risk of destruction of physical and cultural heritage during the incidental findings is present. Thus, in case of fortuitous discoveries of physical and cultural heritage on a subproject site, mitigation actions should be planned in the subproject ESMP.
<i>Lands and Soil Conservation</i>	The project will have positive impacts on the landscape of the intervention areas through the establishment of agro forestry systems and conservation agriculture. Soil conservation and restoring fertility is a key project activity.	Very weak. The project actions will improved the fertility of the soil and the sustainable management of the Lands.

Project generic impact assessment

- Project impacts identification

The identification of impacts is based on the adapted Leopold matrix, which links the expected impact-oriented activities per phase and the environmental and social principles of the Adaptation Fund. The crossing of the two parameters makes it possible to identify the impact of the activity on the environmental component considered in the corresponding E&S principles of the Adaptation Fund.

In summary, taking into account the analysis made from the table below, the predictable impacts.

Interactions between activities sources of impact by phase of the project following the principles of the Adaptation Fund

		Principles of the Adaptation Fund														
Phases	Sources of impacts of the project components and activities	Compliance with the law	Access and equity	Vulnerable and marginalized groups	Human rights	Gender and women's empowerment	Working conditions	Indigenous peoples	Involuntary resettlement	Protection of natural habitats	Conservation of biological diversity	Climate change	Pollution prevention and management efficiency	Public health	Physical cultural heritage	Land and soil conservation
Preparation phase	Launch of the project															
	Activities to strengthen technical, organizational and institutional capacity		x	x		x										
	Realization of in-depth APD	x														
	Call for tenders and Acquisition of equipment			x												
Construction phase	Mobilization and transfer of equipment to sites													x		
	Installation and construction downturn	x			x		x			x	x					
	Implantation															
	Preparation and field stripping															
	Infrastructure construction				x		x			x	x	x				x
Operating phase	Soil preparation and plowing															
	Acquisition of improved seeds									x	x					
	Seedlings						x							x		
	Water exploitation												x			
	Operationalization of Structures						x				x				x	x
	Maintenance of works and cultures				x											
	Acquisition and application of fertilizers (organic manure or chemical fertilizer);		x	x	x	x	x			x	x		x	x		x
	Use of pesticides		x	x	x	x	x			x	x	x	x	x		x
	Rejection of the packaging of pesticides										x		x	x		x
	Harvest															
End of project	Income generating activity		x	x		x								x		
	Abandonment of equipment															
	Dismantling						x						x	x		

Two types of impact can be identified: positive impacts and negative impacts.

Positive impacts are described under item II. B

Description of the environmental and social negative impacts and risk

The table below describes the negative environmental and social risks and impacts of the project as a whole. These negative impacts and risks can arise in one or the other phase of the project, namely: project preparation, construction of infrastructures, operationalization of project sites, and completion of the project.

Triggered principles E & S of the FA	Impacts / risks identified	Description of the impact or the risk
Compliance with the law	Low integration of environmental and social issues relative to the Adaptation Fund ESP principles in the subprojects ESIA and ESMP	Given the current practice in ESIA's formulation in the country in accordance with national regulations and those of donors such as the World Bank and BOAD, it is possible that, the impacts and risks assessment are not sufficiently take into account the the environmental and social principles of the Adaptation Fund ESP in the formulation of the sub-project ESIA's.
	Low capacity to producers for the implementation of environmental and social measures, in accordance with national law and the principles of the Adaptation Fund	Environmental and social impact studies or records of environmental and social impact made on behalf of the subprojects will be accompanied by environmental and Social Management Plans according to the environmental and social principles of the Adaptation Fund. The prescribed measures will be implemented on plots by the producers. However, there is a risk to the low ability of producers to implement environmental and social measures proposed, in accordance with national law and the principles of the Adaptation Fund
<i>Access and equity</i>	Risk of increase in inequalities between women, men, children and particularly vulnerable groups	Producers are, in their majority, the poor who are often not integrated into the decision-making process. They are men, women and young people. There is therefore a risk of lack of access to the resources of the project by the producers at the level of the technical and organizational capacity-building, access to the facilities of modern irrigation techniques, access to farm inputs of quality and development of revenue-generating facilities.
	Risk of not full participation of certain groups in the preparation and the implementation of the subproject	There is a risk that all members of the beneficiary groups are not involved in the preparation and the implementation of subprojects
Marginalized and vulnerable groups	Risk of no involvement of marginalized and vulnerable groups in	Under the project, it is proposed to strengthen the irrigation system to diversify agricultural production and reduce the vulnerability of farmers to the harmful consequences of climate change. With this approach,

Triggered principles E & S of the FA	Impacts / risks identified	Description of the impact or the risk
	the provision of the resources of the project	the project will ensure better adaptation to climate change that affects the production and productivity. The activities will contribute to create assets for long-term recipients. The activities of the project will also help create livelihoods and income for farmers. There may be the risk that these vulnerable and marginalized groups are not involved in the technical and organizational capacity-building provided under component 1, not have access to modern technical equipment of irrigation under component 2, or lack of agricultural inputs and quality of income-generating activities under component 3 of the project.
Fundamental labour rights	Risk related to the health and safety of workers	During construction works, and during their operation, workers are exposed to the risk of accident at work that can go from simple death injuries. It is similarly during preparation of the soils, plowing operations, maintenance, etc. The supply of agricultural inputs also presents risks of transit traffic accident. Some producers may be exposed to the risk of poisoning if they are not trained in the use of pesticides, and if they have no individual protection equipment.
	Risk of child labour outside the limits of the law	In rural areas, children help parents in field activities. Under the project, it is not excluded that children are used to difficult tasks
Gender equality and empowerment of women	Insufficient taking into account of gender in the implementation of the project	Women and young people were consulted widely at the stage of identification and design of projects. It is important to be sure that they will be actually involved in the phase of implementation of the project which will be carried out by the project management unit which is not yet in place.
Protection of natural habitats	Destruction of vegetation and wildlife habitat	Development can cause the destruction of vegetation and Wildlife Habitat on the site
	Risk of d the quality of the water and soil egradation	Strip of land and the use of fertilizer and pesticides can contribute to the degradation of soils The use of pesticides and chemical fertilizers can be sources of impairment of the quality of water and soil
Pollution prevention and efficient management of resources	Contamination of soils and waters by pollutants	The development of the project will require the use of pesticides under the pest control. Using rational number of pesticides and chemical fertilizers on the plot may cause pollution of water and soil
	Risk of non-availability water for downstream populations	Construction of water infrastructure could limit the availability of water for the population downstream landscaped perimeters.
Public health	Risk of poisoning by inhalation or by consumption of water or food	The implementation of the project has risks to human health through the use of pesticides and other chemicals on the plots. Exposure to pesticides can be direct (contact) when applying, passing over a

Triggered principles E & S of the FA	Impacts / risks identified	Description of the impact or the risk
	contaminated by pesticides or fertilizers	treaty site or secondary or indirect (for water, food...) and is likely to affect the entire population in this case.
	Development of water-related diseases	The continued presence of the irrigated water could cause the development of waterborne diseases (malaria, typhoid fever, amoebic dysentery, etc.).
Physical and cultural heritage	Risk of destruction of the physical heritage during incidental findings	Although the identification of sites takes into account the protection of the physical cultural heritage, incidental findings are not excluded during the implementation of the project. Is the risk of destruction of the physical and cultural heritage during incidental findings
Land and soil conservation	Deterioration in the quality of the soil and the Earth	Although the subproject includes reforestation activities and seeks to promote agroforestry, some activities can have a negative impact on the quality of the soil including the use of pesticides and chemical fertilizers. Rational use of fertilizers and pesticides use will lead to pollute and degrade the soil. Chemical residue may form with other natural compound in the soil and degrade the complex soil pH and cause acidification.

The impact/risk and mitigation measures are contained in table 24, under Item C of PART III.

PART III: IMPLEMENTATION MODALITIES

A. Describe the implementation modalities of the project/program.

PROJECT IMPLEMENTATION ARRANGEMENT

The General Direction of Environment (GDE) of the Ministry of Environment and Sustainable Development of Guinea-Bissau (MESD) will be the executing entity and BOAD will be the implementing entity for this project.

The project management committees/bodies are: (i) Project Steering Committee, (ii) Project Management Unit, (iii) Technical Committee for subproject proposals review; (iv) Subproject Approval Committee, (v) Perimeters (developed sites) Management Committees, (vi) Drinking water infrastructure for population and livestock management Committee, and (vii) Pasture management Committee.

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Project Steering Committee

Created by Ministerial order of the Ministry of Environment and Sustainable Development, the Steering Committee is responsible for the strategic direction and supervision of the implementation of the project. It approves Annual work plans budgeted (AWPB) and meets twice a year. It is chaired by the General Secretary of the Ministry of Environment and Sustainable Development and includes all stakeholders taking into account the key actors. A national technical planning workshop will be organized once a year, prior to the first session of the steering Committee. This workshop will bring together all actors involved in the technical implementation of the project. The procedures manual will specify the relevant structures. The Steering Committee of Project will serve as a space for debate on themes concerning the Project and interdepartmental coordination of project activities. It will review and approve the Manual of procedures, schedules, progress and audit reports of the project. This board is to be composed of:

- (i) representatives from relevant ministries and public organisms, including: Ministry of Environment and Sustainable Development, Ministry of Agriculture, forest and livestock, General Direction of Water Resources, Ministry of women, family and social solidarity, Ministry of Economy, Planning and Regional Integration, National Institute of Agrarian Research (INPA), National Research Institute (INEP), National Meteorology Institute (INM-GB);
- (ii) representatives from civil society: three (03) representatives of Rural Climate Change Forum (RCCF), with one traditional authority and two (02) women from Gabù and Bafatà ; two (02) representatives of NGO's association/platform (one from Gabù and one from Bafatà) ; two (02) representative of women Groups (one from Gabù and one from Bafatà).

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Project Management Unit

GDE/MESD will put in place a project management unit (PMU) whose role will be to (i) ensure the overall project management and monitoring, in accordance with Adaptation Fund rules; (ii) facilitate communication and networking among key stakeholders in Bissau; (iii) organize the meetings of the Project Steering Committee (PSC); and (iv) support local stakeholders to realize the project's objective; (v) ensure that all relevant stakeholders are

adequately informed of the grievance mechanism; (vi) managed compliant under the control of the IE.

The proposed structure of the PMU consists of a Program Manager which will also function as National Project Coordination (NPC) and the support staff. The role of the NPC is to oversee the implementation of the project, including administrative and technical coordination and reporting back of progress upon feed-back received from the project partners, BOAD, Adaptation Fund and MESD.

The PMU will consist of one National Coordinator (NC) one dedicated field coordinator, an agronomist expert based in Gabù (FCG) and one Assistant dedicated field coordinator, an adaptation Expert based in Bafatà (FCB), one Specialist in policy and regulatory development and capacity building in climate change and environment, one Communication Expert. The PMU staff will include: an accountant (Specialist procurement), a secretary, three drivers, two housekeepers (Gabù and Bafatà), and two guardians (Gabù and Bafatà). The National Project Coordination function will be supported by streamlined secretarial, logistic and administrative support in Bissau, Gabú and Bafatá.

The FCG and the FCB, in complementary collaboration, will lead the technical implementation process of Components 2. The technical implementation of the project Component 1 will be led by a Specialist in policy and regulatory development and capacity building in climate change and environment under the responsibility of the National Coordinator. The technical implementation of the project Component 3 will be led by a Communication Expert under the responsibility of the National Coordinator. The National Coordinator will be specifically in charge of component 4 relative to the project management.

The NC, the Specialist in policy and regulatory development and capacity building in climate change and environment, the FCG, the FCB, the Communication Expert, the proximity support facilitators/animators and the other experts shall be recruited through a selective process. Selection and contracting will follow relevant national legislation and/or BOAD/Adaptation Fund requirements.

The project will be implemented in collaboration with the relevant Ministries as Ministry of Environment and Sustainable Development, the Ministry of Agriculture, forest and livestock, the General Direction of Water Resources, the Ministry of women, family and social solidarity, research institutions on seed production, water use and quality with the support from local communities, private sector associations, NGOs and other representative civil society, technical organisms, regional governments, rural extensionists, and other regional/local partners.

The technical implementation in the field will be supported by local associations, NGOs, women's associations, respected elders and traditional chiefs, particularly through the channels of the existing Rural Climate Change Forum (RCCF) in the Project Region. The RCCF will discuss and evaluate with the villagers and agriculture groups project activities, send in suggestions for improvement, and provide close ties with the tabancas. Through the RCCFs, Sanitary Vigilance Committees further safeguards for forest preservation and climate change sensibilization will also be implemented. With the support of the Ministry of Environment and Sustainable Development, the Ministry of Agriculture, forest and livestock, the General Direction of Water Resources, the Ministry of women, family and social solidarity, the RCCF will assure that the Project's activities continue after end of the official project.

Apart from the team forming the PMU, the project will use the services of building companies and external consultants such as: a hydraulic engineer, Pastoralist, agro-sylvo-pastoral system, etc.

- **Technical Committee for subproject proposals review**

As part of the implementation of the project, a technical committee will be set up to review the subprojects proposals. It will consist of: (i) one expert of agriculture; (ii) one expert of hydraulic management; (iii) one expert of livestock; (iv) one expert of the Competent Environmental Assessment Authority (AAAC); (v) one expert of forest management; (vi) one expert of pest and pesticide management; (vii) two representatives of PMU. This committee will be responsible for the subprojects proposals technical analysis according to the selection criteria set up by the PMU.

- **Regional Approval committees**

The regional approval committee is represented by the Regional Planning Office put in place by the national texts to ensure the regional development planification. According to the national development texts, each micro-project must go through the Regional Planning Office before being submitted for funding. The project will be executed in two regions. There will therefore two regional approval committees: (i) Gabù region sub-project Approval Committee; and (ii) Bafatà region sub-projects Approval Committee.

The Regional Planning Office is the consultative body for the intervention of the different actors in the development process of the regions. Its functions include: (i) identify, formulate, implement and monitor the projects; (ii) monitor the development and implementation of micro-projects in the region; (iii) provide assistance to villages with the development activities; etc.

The regional Governor is the President of the committee. The Regional Director of Planning and Statistics is its Executive Secretary. The Regional Administrative Secretary of the governorate is the Secretary of the committee. Apart of these members, each Regional Planning Office is composed, inter alia, of:

- representatives of the Regional Directorates for: Agriculture, Natural Resources (Environment), Poverty alleviation, Finance, Health, Justice, Meteorology, Public Works, Education, Guard -budgetary, etc .;
- a representative of national and foreign NGOs;
- a representative of the Institute of Women and Children;
- a representative of the media;
- a representative of civil society;
- a representative of the religious entities;
- a representative of the traditional society.

See annex 14, the competencies and composition of the Regional Planning Office.

- **Perimeters management committees**

In the practice in Guinea Bissau, the management committee is set up in the developed perimeters for rice production. In the framework of the LDCF project, the organization of the perimeters committees is ongoing.

On each site of the Adaptation Fund project, a Management Committee of the perimeter will be set up. This Committee will be to ensure good management and the functioning of the

entire perimeter. It will ensure good planning of agricultural campaign, the implementation of devices to support better agricultural production. Under the management of the perimeter, one will distinguish four subcommittees: (i) the Seed subcommittee, (ii) the Plowing subcommittee, (iii) the Irrigation Infrastructure Management subcommittee, and (iv) the Fertilizers and pesticides subcommittee. The role of its subcommittee is described below. Each perimeter management Committee will be composed of thirteen (13) members consisting of: (i) a Chairman of the Committee elected from among the beneficiaries; and (ii) three (03) representatives of each Subcommittee (president, Treasurer and Secretary of the Subcommittee). The Committee will meet once a month to reflect on the conduct of the agricultural campaign, problems and approaches to solutions. The representatives of each Subcommittee will point to the members of the Committee and will be responsible for disseminating the decisions taken at the level of the Committee of management of the perimeter. Each Subcommittee will be made up of nine (09) members including five (05) women and four (04) men.

The roles of subcommittees are:

➤ *The Subcommittee of seeds*

Availability in time of the resistant and profitable varieties is important to the success of the crop year. The Subcommittee of the seeds will be responsible for monitoring seed multiplication in order to ensure sufficient seed availability for the entire perimeter. This Subcommittee will work in collaboration with the General Directorate of agriculture and the national Institute of agronomic research (INPA) for the acquisition of quality seeds. This Subcommittee will participate and will follow the training on the multiplication of seeds scheduled in component 1 of the project.

➤ *The Subcommittee of ploughing*

The preparation of the soil is an important step for any culture. Sit a good seedling or a repiquetage to allow a rigorous development of the plant and a good production is necessary. Labour Committee will be responsible to track all activities relating to the preparation of the soil (cleaning, pre-irrigation, ploughing, milling). He will be responsible for the planning of labour in a sense of respect for the cultural calendar. This Committee will be responsible for maintaining plowing equipment in good working condition.

➤ *The Sub-Committee on management of irrigation infrastructure*

Irrigation and maintenance of irrigation infrastructure is essential for the carrying out of an agricultural season. The Irrigation Infrastructure Management Subcommittee will be responsible for ensuring the proper functioning of water retention, irrigation and perimeter protection structures.

➤ *The Subcommittee of the fertilizers and pesticides*

With regard to fertilizers and pesticides, the subcommittee that will be responsible for them will ensure their timely availability and distribution according to well-defined criteria in collaboration with the PMU. The committees will also be responsible for interacting with the Regional Directorates of Agriculture to ensure the availability of good fertilizers and pesticides and their proper use during each crop year. This sub-committee will work with the different institutions involved in the project integretad pest and pesticides management (refer to the Approach to Pests and pesticides management described below).

- **Management committees of the hydraulics infrastructures to supply water to population and livestock**

To ensure the management and maintenance of the infrastructure of water supply for the population and livestock (water borehole and ramps), a water management Committee will be set up in each beneficiary village.

The role of the committee will be to ensure: (i) the proper use and proper functioning of the water supply infrastructure; (ii) equitable access to drinking water for all segments of the population; (iii) collection of fees, the amount of which will be withheld by agreement with the PMU, the NGO, the representatives of the Regional Directorate of the rural water supply, representatives of the Governorate of Bafatà and Gabù; (iv) repair of infrastructure in the event of a technical breakdown.

The committee will consist of 5 members including 3 women and 2 men. On the basis of the known experiences and intrinsic values of the candidates who have presented themselves, the members of the water management committee will be elected publicly by the beneficiary population. The committee will consist of:

- A president ;
- Secretary ;
- A Treasurer;
- A person in charge of the control of the condition of the works and the follow-up of the repair;
- One responsible for the purchase of repair parts.

Royalty collectors could be elected by neighborhood, by village, by grouping as appropriate. The committee will open a savings account at a micro-finance office in the place where the royalties collected from the population will be paid. The committee will report monthly to the beneficiary groups and populations under the supervision of the village chief (s) concerned.

The organization of the committee will be supervised by an NGO that will be recruited by the PMU through a call for candidates to support the organization of beneficiaries. The NGO will have to provide efficient support that will allow the committee to be able to act autonomously at the close of the project. The interventions of the NGO for the good functioning of the committee and the works will be done with the concrete involvement of the representatives of the Regional Directorate of the rural water supply, the representatives of the Governorate of Bafatà and Gabù under the supervision of the PMU.

- **Pasture Management Committee**

In each administrative sector¹⁵ where a forage production activity will be developed, a pasture management committee will be set up.

The role of this committee will be to ensure: (i) the availability and distribution of brachiaria seeds for the development of pasture fields, and (ii) supervise the development of pasture fields. The committee will work with the National Institute of Agrarian Research to acquire quality seeds. It will work collaboratively with other committees including the Perimeter Management Committee for Joint Water Resources Management. It will also collaborate with forest resources management services to limit and better manage grazing fires.

The committee will be composed of 5 members formed by:

- A president
- A secretary
- A Treasurer
- One responsible for the availability and distribution of brachiaria seeds

¹⁵ In Guinea Bissau, the regions are subdivided into several administrative sectors.

- One responsible for the development of the pasture fields.

These members will be elected from breeding groups.

The committee will meet on a monthly basis to review the activities undertaken, identify weaknesses in the conduct of activities and propose measures for improvement. The work of the committee will be supervised by the PMU through the recruited NGO. The Committee will also benefit from the technical support of the regional livestock services.

Approach to integrated pests and pesticides management in the implementation of the project

Integrated Pest Management (IPM) is concerned with a holistic approach towards pest control techniques, aiming to keep pesticide applications and other interventions within economically justified levels while minimizing any risks (real or potential) to human health or the environment. Natural pest control plays a significant role in IPM, and includes direct and indirect measures (see table below). The present project on Climate-smart agriculture aims to significantly reduce chemical pesticide application already indirectly, where many activities –use of crops adapted to local conditions, reliance on appropriate yield expectations, use of resistant varieties, optimal densification of cultivars, etc. – overlap with indirect plant protection¹⁶.

The project area is not recognized as an area of pest attack. However, the implementation of the project calls for preventive and curative pest management techniques and therefore the preparation of an Integrated Pest and Pesticide Management Plan (PGIPP in French). The development of the PGIPP is based on information gathered in the project area, through consultations with beneficiaries, technical services for plant protection, agriculture, environment, livestock, Public health, etc. Field information was complemented by documentary research and analysis on pest and pesticide management.

The option for the promotion of integrated pest and pesticide management in the framework of the project is made to avoid or considerably reduce the use of chemical pesticides. In case of parasite attack, the least hazardous methods will be preferred. Chemical pesticides will be used in extreme cases where less dangerous methods will prove ineffective. In this case, the choice of use of chemical pesticides will be made in accordance with the recommendations of the integrated pest and pesticide management plan. Given that Guinea Bissau does not have sustained experience in integrated pests and pesticides management, it is very important to take into account, the experiences and lessons learned of the FAO in the pests and pesticides integrated management in the Africa's subsaharian countries. It is why, the members of National committee of pest and pesticides management (CNGP), the DPV officers, the PMU, the NGO's representatives in charge of the supervision of beneficiaries on the perimeters will be trained on the integrated management of the pests and pesticides in the project area by an Expert very experienced in the FAO integrated pest and pesticides management in the Africa's subsaharian countries. This expert will be recruited by the PMU under the supervision of the Implementing Entity (activity planned under output 1.2.1, item d.).

At the end of the training sessions, a box of integrated pests and pesticides management tools will be made available to the beneficiaries, the DPV, the PMU, the CNGP and the Regional Directorate for Agriculture for appropriate integrated pests and pesticides management actions. These tools box prepared by the Expert with the FAO experiences in the integrated pests and pesticides management, will indicate the appropriate actions to take

¹⁶ See Climate-Smart Agriculture Sourcebook: FAO, 2013

on the various pests and pesticides. The tools box will also indicate the limited WHO class U and III pesticides that the beneficiaries can use if the agronomic, cultural, mechanical and biological methods prove to be ineffective in dealing with the problem.

The following approach will ensure coordinated and sustainable management of pests and pesticides in the project framework.

Step 1: Dissemination of pest management alternatives

The alternatives to pesticides as agronomic, cultural, mechanical and biological control will be disseminated for better use by the producers. The resistant seed will be promoted also. This actions will be integrated early the sites or crop development to prevent the attack by pests. The box of integrated pests and pesticides management tools elaborated following the training by IPM Expert will be made available to the beneficiaries.

For the integrated pest and pesticides management and others sustainable activities in the project framework, the project will strongly collaborate with the regional offices (CILSS in Ouagadougou (Burkina Faso, AGRHYMET in Niamey (Niger), EMPRES-FAO (Prevention of major pests upsurges in West and Northwest Africa)) involved in sustainable agriculture development.

No specific pest forecast modeling, e.g. via economic injury level and action thresholds, epidemiology and forecast models, is foreseen for this project. If available this can be undertaken in collaboration with third-party projects identified by the Consultant recruited for capacity building on integrated pest and pesticides management.

Step 2 : When an attack of crops by pests is observed on a site, the beneficiaries will use, under the control of the site facilitator and the project regional coordinator, the appropriate alternatives retained in the IPM tools prepared with the support of the IPM Expert on which the beneficiaries, the facilitators and the project regional coordinators have already received training. These alternatives measures will be applied in a spirit of environmental protection and human health. The project regional coordinator will inform the PMU on the adequate actions taken on the perimeter by the beneficiaries to end the attack of pests.

Step 3 : In extreme cases, where alternatives actions will prove ineffective, the regional directorate of DPV, who have also received training from the IPM Expert, will advise the PMU on the need for limited class III or U pesticides purchases. The use of the WHO class III and U pesticides by the beneficiaries will be done with the support of PMU under the control of the DPV. The National Pesticide Management Committee¹⁷ (CNGP) will be informed by the DPV and the PMU will inform the BOAD on the process.

17 To overcome the problems associated with the uncontrolled use of pesticides and to reduce the risks associated with the use of poor quality pesticides, a National Pesticide Management Committee (CNGP) is set up in Guinea Bissau, Article 11 of Legislative Decree No. 7/2000 of 24 August 2000. This committee is composed of members from such structures as the environment, health, agriculture, farmer organizations, customs. The CNGP ensures, inter alia: (i) the implementation and monitoring of compliance with pesticide quality control procedures and standards; (ii) post-registration control of pesticides; (lii) compliance monitoring of pesticides; Control of the distribution and use of pesticides; (iv) control of Maximum Residue Limits (MRLs) of imported products for local consumption; (v) control of professionals in the pesticide industry; (vi) Maintaining the register of operators in the sector; (vii) the maintenance and updating of registered pesticides; (viii) denunciation of unauthorized pesticides entering the country; (ix) monitoring of toxicovigilance; (x) monitoring of pre-extension trials; (ix) monitoring the implementation of international pesticide conventions.

The possible alternatives for chemical pest control which can be used in the framework of the project are presented in the table below :

Indirect plant protection	Monitoring and forecasting	Direct plant protection
<p>Optimal use of natural resources:</p> <ul style="list-style-type: none"> • Use crop adapted to local conditions • Rely on appropriate yield expectations • Use of resistant varieties • Weed management with adequate intensity of competition • Adequate mixtures of varieties and crops • Optimal timing of sowing period • Training on pest and appropriate pesticides, particularly biological options, and importance of ecological compensation areas <p>Use of farming practices without negative impact on the agro-ecosystems:</p> <ul style="list-style-type: none"> • No use of surplus input of nutrients (especially N); • Optimal density of crop and foliage to facilitate ventilation • Low intensity of tillage/cultivation and production methods protecting soil fertility • Weed management for erosion control • Biodiversity conservation and protection to enhance biodiversity, therefore reducing pest incidence • Where adequate protection and augmentation of beneficial biological antagonists. 	<ul style="list-style-type: none"> • Monitoring and forecasting of pest incidence will be done in accordance with the project's IPM plan. • No specific pest forecast modeling, e.g. via economic injury level and action thresholds, epidemiology and forecast models, is foreseen for this project. If available this can be undertaken in collaboration with third-party projects identified by the Consultant recruited for capacity building on integrated pest and pesticides management. 	<p>Use of selective pest control methods:</p> <ul style="list-style-type: none"> • Wherever and whenever adequate, reliance on biological control, biopesticides, etc. <p>Chemical pest control methods, only where other options are failing or will be very likely:</p> <ul style="list-style-type: none"> • Preference for the most specific and selective pesticides (class III and U of WHO) • Preference for least harmful and least toxic pesticides (class III and U of WHO)

SUBPROJECT IMPLEMENTATION APPROACH

The project that will be implemented in the northern parts of the regions of Gabù and Bafatà namely the sectors of Sonaco, Pirada, Pitche, Gabù, Cuntoboel and Ganadu, aims to address key vulnerabilities in agriculture and water resources management, and thus contribute to immediate and longer-term development and resilience needs of extremely vulnerable farmers, with a focus on extremely vulnerable groups: women, youth, elderly and children. For this purpose, the following three main components have been considered: (i) Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning; (ii) Enhance the resilience of existing agricultural productive systems, including water control; and (iii) Knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning. This project will be implemented through sub-projects which will be subject to a selection process.

Within the framework of the project implementation, two types of activities can be distinguished: 1) one that will be chosen by the communities for the development of the subprojects, and 2) one that have already been decided in the proposal and which will not be decided by the communities.

The type 1 activities which will be chosen by the communities for the development of the subprojects:

These activities concern:

- construction of dams and development of downstream lowlands;
- development of lowlands without dams;
- construction of drills/wells to improve livestock and domestic water supply;
- development of market gardens with drills construction;
- support for forage production for livestock.

All these activities are described under component 2 namely outputs: 2.1.1; 2.1.2; 2.1.3; and output 2.1.4.

The type 2 activities which have already been decided in the proposal

It concerns:

- all activities under component 1 (Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning);
- all activities under component 3 (Knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning);
- some activities of component 2 :
 - support to access improved, resistant and short cycle seeds;
 - support to groups for acquisition of quality fertilizers, quality pesticide;
 - support for the acquisition of equipment/facilities of production and development of products for demonstration.

Although potential sites have been identified during project formulation, a call for the sub-projects proposal will be launched to allow farmers to express their interest in the project.

Each subproject can be designed on the basis of the type 1 activities by the applicants (target groups) and submitted to the governor of the Region.

The following lines were defined to guide the sub-project selection process.

Step 1: Information on the Project approach and call for subproject proposal

A large public consultation is conducted during the project preparation. This stage is to be completed within the first 6 months after the establishment of the Project Management Unit. The information on investment opportunities among target populations, the intervention strategy of the subproject, the process of formulation of applications by promoters (farmers groups), the technical review and the validation process will be disseminated at this step. This, to enable the promoters of subproject express their interest to the project. After that, there will be a call for project proposal.

The criteria for selection of the sub-project will be prepared by the Project management unit (PMU), and made available to subprojects promoters, regional technical review committee to select the best subprojects and the regional approval committee to approve the best-subproject. One of the criteria will be the willingness of sub-project promoters to put in place an infrastructure maintenance device in the short and long term.

Step 2: Selection of the potential beneficiaries by the technical review committee

At this step, the expression of interest will be formulated by the applicants. The requests formulated by several villages and/or several farmers groups should be encouraged by the PMU. The requests will be sent to the Governor of the region.

As mentioned above, in addition to the potential sites that have been identified, any other site that can be assigned to type 1 activities can be considered in the selection of subprojects. In order to select the best sites and the most interesting potential beneficiaries, a call for expressions of interest will be launched. Farmers' and breeders' groups, villages and groups of villages will address their request to the governor. NGOs working in the two regions will be recruited on the basis of a call for applications to prepare an expression of interest for each applicant.

Expressions of interest registered by the Regional Governorate will be forwarded by the Governor to the Sub-Projects Technical Review Committee for the pre-selection of beneficiaries. The composition of the Technical Review Committee is described below. The Technical Review Committee, on the basis of the following criteria, will select the sites for which the subprojects may be prepared:

- the applicant's level of vulnerability to the variability of climate change;
- the real needs of the applicant;
- the adequacy of the site in relation to demand;
- the level of organization of the applicant;
- the level of interest of women and young people in the applicant's organization;
- the applicant's experience in the activity for which he/she would like to position himself;
- the commitment of the applicant to comply with the technical, financial, environmental and social rules of the project;
- availability of suitable land for perimeters;
- availability of groundwater for drinking water infrastructure and gardens;
- the number of operators to judge the per capita investment of beneficiaries;

- the contribution of the beneficiaries to the work;
- etc.

These criteria may be strengthened by the Project Management Unit (PMU) depending on the progress observed in the field.

Technical Review Committee will select the good subprojects on the basis of the financial, economic, environmental, social and gender criterion.

The technical review committee will ensure the inclusion of marginalized populations, women, and youth peoples. In this sense, the criteria for selection of the sub-project will take into account vulnerable and marginalized groups and gender mainstreaming. In the definition of the selection criteria, the project management unit will ensure that at least 50% of the direct beneficiaries of the project are women.

Step 3: Subprojects environmental and social due diligence

As a reminder, the project will be implemented in the regions of Gabù and Bafatà. Because, the sites to be developed are not yet definitively retained, an Environmental and Social Management Framework (ESMF) is prepared for the project with an Environmental and Social Management Framework Plan (ESMFP).

When the choice of the sub-project sites are finalized, environmental and social impact assessments of the subprojects will be conducted in accordance with the Adaptation Fund's ESP by consultants recruited by the PMU under the supervision of the Implementing Entity.

An ESIA with ESMP will be prepared for each subproject according to the 15 principles of the Adaptation Fund. Thus, the ESMFP of the project will be updated with the subprojects ESIA and ESMP to become the Environmental and social management plan (ESMP) of the project. The project ESMP will be applicable to all subprojects according to the requirements of the ESMP of each subproject.

To enable the integration of the environmental and social dimensions in the design and implementation of the sub-projects to be financed by the Adaptation Fund project, it is essential to propose a procedure allowing the assessment of the environmental and social impacts, the implementation of the environmental and social measures and the actors who will be responsible for their implementation. Indeed, the procedure will be the approach which will allow to determine the level and modalities of consideration of the environmental and social impacts in the cycle of the subprojects. The studies that will be conducted will be guided by the environmental and social principles of the Adaptation Fund.

The step 3.1, 3.2, 3.3 below should not take more than 4 months after after the establishment of the PMU.

Step 3.1- Formulation of the Terms of reference of the sub projects and authorization of the AAAC for the realization of the ESIA

For subprojects selected that require the formulation of an environmental and social impact assessment, the Terms of reference (TORs) will be prepared by the PMU following the result of the screening and subject to the approval of the BOAD. The TOR will be submitted to the BOAD with a short list of consultants to prepare the ESIA. The BOAD will send to the PMU, the non objection for the TORs and the short list for the recruitment of the Consultant. Once the non objection is issued by BOAD for the PMU, a "project notice" ("avis de projet" according to the national ESIA procedures) annexed to the TORs and the consultants

selected by the PMU, will be sent by the PMU to the AAAC. The AAAC will confirm the categorization of the sub project and will issue the authorization to conduct the environmental assessment, in accordance with the national procedures of ESIA. The authorization received from the AAAC by the PMU will allow the consultant to prepare the ESIA report.

Step 3.2- Preparation of the Environmental and social impact assessment for the subprojects

The consultant recruited by the PMU will lead the ESIA of the subprojects with an environmental and social management Plan (ESMP) in accordance with the environmental and social Policy of the Adaptation Fund. Mitigation, compensation and prevention measures will be determined according to the level of impacts and risks identified in the field taking into account all of the 15 environmental and social principles of the Adaptation Fund. The ESMP will take into account the integrated pest and pesticides management measures.

The ESIA of the subprojects with their ESMP will be used to update the current Environmental and Social Management Framework Plan (ESMFP) and to have definitively the project environmental and social management plan (ESMP) that is applicable to all Subprojects according to the requirements of each subproject ESMP. One of the Consultants who have conducted the sub-projects ESIA will be selected to put on the ESMP of the project under the supervision of the PMU and the control of the BOAD.

Step 3.3- Review and approval of the sub-projects ESIA and the project ESMP

When the subprojects ESIA reports will be prepared, they will be disclosed at the level of the PMU, the AAAC and BOAD to allow the stakeholders to make their comments on the ESIA content. The comments will be integrated to correct the reports by the consultant.

The reports corrected by the consultant will be submitted to the PMU.

Under the supervision of the AAAC, the ESIA reports produced by the Consultant will be submitted to an ESIA Report approval Committee in accordance with the national procedures of ESIA. The ESIA Report Approval Committee members will be appointed by order of the Minister in Charge of the environment in accordance with the national procedures of ESIA. The Minister of the environment will issue the authorizations on the approvals reports of the Committee and on the recommendations of the AAAC in accordance with the national procedures of ESIA.

To save time and money, the PMU will ensure that the review and approval of the ESIA of the all subprojects by the ESIA report approval Committee may take place together if possible.

Once an ESIA receive the authorization of the Minister in charge of environment, the PMU will register it subproject in its financing portfolio. The BOAD will disclose the summary of the ESIA and the ESMP of subproject on its website.

Step 3.4- Execution of environmental and social measures

The promoter is responsible for the implementation of environmental and social measures in all phases of the subproject. It will be supported, if necessary, by a Consultant and the Site animators in case it would have no in-house expertise for this purpose and that the planned training by the PMU in the context of the project will be insufficient to help him.

Step 3.5- Environmental and social management plan supervision

Environmental and social management plan supervision is the responsibility of the PMU with the support of national and local technical institutions concerned.

The supervision is done at the level of all the sub-projects in accordance with the ESMP of the project. A monthly report will be prepared by the PMU on the management of the ESMP and sent to the BOAD.

Step 3.7. Subprojects grievance management

The BOAD shall disclose its grievance mechanism in Guinea Bissau and specifically in Gabù and Bafatà regions, to provide people which could be affected by the subproject with an accessible, transparent, fair and effective process for receiving and addressing their complaints about environmental or social harms caused by any such subproject.

Complaints regarding the subprojects will be sent to the PMU, to the Resident mission of the BOAD in Guinea Bissau, to the BOAD headquarter or to the Adaptation Fund Board secretariat. The addresses will be in the grievance mechanism which will be disclosed.

The BOAD, through the PMU, is responsible to compile all the complaints, to respond promptly to all such complaints and identify who must correct the shortcomings and may be sure that the shortcomings are corrected in the appropriate time. BOAD must take all arrangements to control the correction of the shortcomings on the field at the subprojects level and have the report from the PMU on the satisfaction of the complainants.

Step 3.7-: Environmental and social monitoring

(See section III.D, page 163).

Step 4: The approval of the subprojects

The Reports of technical review of the subprojects (step 3.3), including the results of the steps 3.1 and 3.2, with the authorization of the Minister in charge of the environment, will be submitted by the PMU to the regional Committee for approval. The regional Committee will proceed to the approval of the subprojects. The PMU will send the sub project proposal and the ESIA of the subproject to the BOAD for non objection.

Step 5: Sub-project funding

The approval of a sub-project and the non-objection of the BOAD entitle the beneficiaries of the sub-projects to receive the financing. The PMU can therefore sign a financing contract with the beneficiaries and the sub-project is financed on the basis of the budget for each activity.

Step 6: Implementation of subprojects

The subprojects will be implemented as described in the PART III. A.

The implementation of environmental and social measures, supervision and environmental and social monitoring will be conducted as described under the step 3.4 to 3.7 and the item: PART III.C and PART III.D.

Step 7: Launching process, by the PMU, of tender documents of business

This process involves the preparation of Tender Documents and their launching. Given the specificity of equipment, acquisitions and ordering of the installation, work will be done by the PMU in the name and on behalf of farmers. During this stage, the PMU will select, in accordance with the regulations in force in Bissau Guinea, Adaptation Fund and BOAD procedures, companies for the acquisition of equipment, development work and accompanying infrastructure.

IMPLEMENTING ENTITY (BOAD) SPECIALIZED TECHNICAL SERVICES

The implementing entity (BOAD) will give general management support and specialized technical support services to the project. The indicative services provided by the implementation entity (BOAD) are summarized in the table below.

Table 17: indicative technical services of the implementation entity

Step	Indicatives services
Identification, Sourcing and Screening of ideas	<ul style="list-style-type: none"> - Provide information on substantive issues in adaptation associated with the purpose of the Adaptation Fund (AF). - Engage in upstream policy dialogue related to a potential application to the AF. - Verify soundness and potential eligibility of identified idea for AF.
Feasibility Assessment / Due Diligence Review	<ul style="list-style-type: none"> - Provide up-front guidance on converting general idea into a feasible project; - Source technical expertise in line with the scope of the project; - Verify technical reports and project conceptualization; - Provide detailed screening against technical, financial social and risk criteria and provide statement of likely eligibility against AF requirements; - Determination of execution modality and local capacity assessment of the national executing entity; - Assist in identifying technical partners; - Validate partner technical abilities; - Obtain clearances from AF.
Development & Preparation of project	<ul style="list-style-type: none"> - Provide technical support, backstopping and troubleshooting to convert the idea into a technically feasible and operationally viable project; - Source technical expertise in line with the scope of the Project needs; - Verify technical reports and project conceptualization; - Verify technical soundness, quality of preparation, and match with AF expectations; - Negotiate and obtain clearances by AF; - Respond to information requests, arrange revisions; - etc.
Selection of the sub-project	<ul style="list-style-type: none"> - Make the subproject screening; - Control the preparation of the TOR of subproject environmental and social assessment; - Make no-objection on the TOR; - Supervizes the selection of consultants to prepare subproject ESIA; - Analyzes the ESIA report and provide the comments to be taking into account by the consultants; - Supervizes the subproject approval.
Implementation of the project	<ul style="list-style-type: none"> - Technical support in preparing TORs and verifying expertise for technical positions; - oversee the process of recruiting consultant (FAO expert) for the training on integrated pests and pesticides management ; - Oversee all training activities and the application of best practice measures in the field ; - Manages the grievance process and ensures that the complainants have been satisfied with the resolution of their complaint ;

Step	Indicatives services
	<ul style="list-style-type: none"> - Provide technical and operational guidance project teams; - Verification of technical validity / match with AF expectations of inception report; - Provide technical information as needed to facilitate implementation of the project activities; - Provide advisory services as required; - Provide technical support, participation as necessary during project activities; - Provide troubleshooting support if needed; - Provide support and oversight missions as necessary; - Receipt, allocation and reporting to the AF of financial resources; - Allocate and monitor Annual Spending Limits based on agreed work plans; - Oversight and monitoring of AF funds; - Return unspent funds to AF.
Project monitoring and reporting	<ul style="list-style-type: none"> - Provide technical support in preparing TOR and verify expertise for technical positions involving in the and reporting; - Provide technical monitoring, progress monitoring, validation and quality assurance; - Conduct field monitoring missions; - Verify the implementation of adaptive actions; - Monitor the implementation of the agreement of compliant resolution; - Receives and analyzes the monthly report on the subproject ESIA implementation; - Verify the concrete implementation of the ESMP including integrated pest and pesticides management and recommend specific corrective actions to ensure that the subprojects complies with the E & S principles of the Adaptation Fund; - Submit annually, the reports on the implementation of ESMP to the Adaptation Fund; - Include in the midterm and final evaluation report of the project, the status of implementation of the environmental and social management plan including integrated pest and pesticides management and the implementation of the grievance mechanism
Project evaluation and reporting	<ul style="list-style-type: none"> - Provide technical support in preparing TOR and verify expertise for technical positions involving evaluation and reporting; - Conduct the evaluation field missions on the different aspects of the project, namely: technical, environmental, social, pest and pesticides management, Grievance management, budget, etc.; - Participate in briefing / debriefing; - Verify technical validity / match with AF expectations of all evaluation and other reports; - Undertake technical analysis, validate results, and compile lessons; - Disseminate technical findings.

STAKEHOLDERS AND THEIR ROLES

The table below shows the roles of various entities by project component

Table 18: Roles of key stakeholders

Products	Public institutions (ministries and technical services of Environment, Agriculture, Livestock, Water, Forestry, Civil protection, National Laborator...)	Local organizations (umbrella, cooperatives ...)	Private technical support structures	Project Management Unit	Implementation entity
Component 1: Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning				Coordinate support among stakeholders, manage funds; ensure the proper conduct of procurements of goods and services markets, develop activity reports, Ensure effective	The implementing entity (BOAD) will give general management support and specialized technical support services to the project. The indicative services provided by the implement
Outcome 1.1. Technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions enhanced					
1.1.1 Socio-climatic vulnerability assessment for East Guinea-Bissau	Participate in the organization		Provide expertise for the capacity building of the local development services agents of Ministry of Agriculture on climate change and its impacts on food security		
1.1.2 Assessment of technical capacity building needs of ministries and field operatives for adaptation planning	Participate in the organization of training for its own staff		Provide the necessary expertise for the training of technical staff on natural resource		

			monitoring tools	monitoring and evaluation of project activities. Coordinate support among stakeholders, manage funds; ensure the proper conduct of procurements of goods and services markets, develop activity reports, Ensure effective monitoring and evaluation of project activities Etc.	ation entity (BOAD) are relative to: (i) Identification, Sourcing and Screening of Ideas; (ii) Feasibility Assessment / Due Diligence Review; (iii) Development & Preparation of sub-project; (iv) Implementation of the project; (v) Grievance mechanism implementation; (vi) Evaluation and Reporting.
1.1.3 Formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources	Participate to the training		Provide the necessary expertise for the capacity enhancing		
Outcome 1.2 Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, environmental, social and gender in practice (on-site) and adaptation planning					
1.2.1 Technical trainings on adaptative systems and organizational capacity building for ONGS and identified target groups	Provide support for sensitization and training of target beneficiaries	Provide support for the mobilization and sensitization of communities	Provide the necessary expertise		
1.2.2 Technical assistance and rural extension for subprojects	Provide technical support	Mobilize and organize the famers			
1.2.3 Formulation/Update of contingency plans for climate-risk management	Provide support for training of farmers	Mobilize and organize the famers	Provide the necessary expertise for the developpement of the		
1.2.4 Support for famers groups by the government technical experts for adaptation actions implementation	Provide technical support	Mobilize and organize the famers	Provide the necessary assistance, if need		
1.2.5 Capacity building to prevent forest fires	Provide technical support				
Component 2: Enhance the resilience of existing agricultural productive systems, including water control					
Outcome 2.1 Agricultural and livestock activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security					
2.1.1 Development of lowlands to maintain agricultural production in drought periods	Provide support for identification of the sites	Mobilization of the population especially local workforce	Provide necessary expertise for the study and the		

			construction of small-scale irrigation system	
2.1.2 Construction of micro-dams for irrigation of rice, vegetable crops and livestock water supply	Provide support for identification of the sites	Mobilization of the population especially local workforce	Provide necessary expertise for the study and the construction of mini-water retention for irrigation	Coordinate support among stakeholders, manage funds; ensure the proper conduct of procurements of goods and services markets, develop activity reports, Ensure effective monitoring and evaluation of project activities Etc.
2.1.3 Rehabilitation/improvement of soil and pasture productivity and small-scale investments into agriculture inputs, machinery and tools	Provide sensibilisation and technical support			
2.1.4 Construction of drills/wells and ramps for improved livestock and domestic water supply and market gardens development	Provide support for identification of the sites	Mobilization of the population especially local workforce	Provide expertise necessary	
Component 3: Knowledge management of lessons learned on climate-smart agriculture and adaptation planning				
Outcome 3.1 Sustainable climate-smart agriculture practices and management is disseminated in comparable regions of the country and other West African countries				
Output 3.1.1. Knowledge management strategy developed	Provide technical support to develop the knowledge management strategy		Provide expertise if necessary	
Output 3.1.2. Development and animation of the project website	Making available data, lessons learned and other information on the project for publication on the project website.	Provide support to the collection and processing of data on the project	Provide support to the collection and processing of data on the project, if necessary	
Output 3.1.3. Manual and other materials on best practices and	Provide necessary expertise	Provide support for the dissemination of	Provide exper	

measures for climate-smart agriculture are developed		information within communities on the best adaptation practices			
Output 3.1.4. Dissemination of results to other regions of Guinea-Bissau and West Africa	Organization of exchange meetings in other regions	Mobilization of the population	Animation of the exchange meeting		

B. *Describe the financial risks' management measures and risks of project /program.*

The following table summarizes the key project risks.

Table 19: Project risk

Category of risk	Risks	Description
Political	Government political instability and frequent political post shifts high in government may hinder the project implementation	During this quinquennium, Guinea-Bissau experienced several governments with changes of posts and attributions of ministries due to instability prevails. Changes are continuing and may result in changes to the responsibilities of departments, management and technical services. This can undermine the implementation of the project if this climate of instability persists. empowerment and advocacy at the highest ministerial levels on climate change may be lost due to ministerial changes. The impact at the effective project roll-out levels is much less, but lack of ministerial support will mean that progress is slowed in terms of policy and action change.
	Political resistance/inertia to adjust 'governance frameworks' (i.e. policies, plans, strategies, programmes etc.).	Often when a policy, plan or strategy is prepared and validated it is generally considered 'final'. There is reluctance to treat it as a dynamic document, which may be subject to adjustments. This applies in particular to the plans and strategies which are time bound and the programmes that involve external funding. There may be inertia over any policy change additionally, in under-resourced, low capacity government departments
	Policymakers or politicians prioritize economic benefits over social and environmental needs	Politicians can want that some project activities such as the fight against forest fires, capacities building, contribute to the development of the economic activities of the country.

Category of risk	Risks	Description
Strategical	Reluctance to apply the knowledge and practices for adaptation to climate change Cultural barriers in accepting new techniques can be expected	<p>Cultural practices in Guinea-Bissau are important. In many families and communities there are complex reasons for existing practices, and new techniques may be unpopular because they require a fundamental change to customs and practices, even if they do increase yields, income and/or livelihoods security. In addition, it is frequently easier, and outcomes are more predictable, to keep with existing livelihood strategies, even if these are not as successful as they might be. If new farming techniques and livelihood opportunities are tailored to the local reality – or, better still- existing techniques only slightly changed and improved, with demonstrated success and strong elements of community-level partnership and NGO support, technique uptake will be increased and more rapid. The project needs to monitor this carefully with in depth social household surveys on practices and behavioural change.</p> <p>Fortunately, the results of the LDCF project convinced Gabu and Bafata populations which are strongly looking for the project of the Adaptation Fund</p>
Institutional	Overlap of interventions of public institutions	The project covers various aspects including environmental, agriculture, livestock, water, forests, etc. These aspects are the attributions of several departments/ministries. If the responsibilities are not clearly defined, there is a risk of overlap of interventions of the departments.
	Weak participation and involvement of public services at regional level	It may happen that local public technical services that are supposed to provide support to producers in the conduct of agricultural activities are loosely involved. This risk can exist with constantly positions changes.
	Lack of support from local administrative authorities (Gouvernors of region, Administrators of sectors, etc.)	If the local administrative authorities are not involved at the stage of identification and planning of the project, they will not give their support in the implementation of the project.
Technical	The low capacity of stakeholders to implement the project activities	The project envisages promoting resilient to climate change activities that were not practiced by the producers. They won't have capabilities necessary to implement these activities. Which may adversely affect the expected results of the project.
	The technical practices promoted by the project are confined to the first beneficiaries	There is risk that promoted practices are confined only to the intervention area of the project if the dissemination of practices through the replication of the project is not planned.
Financial	Bad financial governance and corrupt practices may lead to	Guinea Bissau is the 158 least corrupt nation out of 175 countries, according to the 2015 Corruption

Category of risk	Risks	Description
	less funds invested in desired outcomes than planned	Perceptions Index reported by Transparency International ¹⁸ . Where transparency and accountability mechanisms are weak or lacking, public financial management and development outcomes suffer as a result ¹⁹ .
Climatic	New facets of climate risks emerge during the life of the project	The flooding, the drought and climate disturbances could be increased during the life of the project.
Environmental ¹⁹	Exclusive focus on climate change may distract from wider environmental and poverty issues	Dealing with the risks of climate change may lead to less focus on other corollary environmental issues that are perhaps more important in the short term, such as loss of biodiversity.
	Weak integration of environmental issues and gender in the implementation of the project by the producers	Producers could unsufficiently observe environmental and social measures prescribed under the project by mistakes from lack of knowledge of their interest.
Management	Failure in coordination of the project	The study on the lessons learned of the LDCF project noted some shortcomings in the cordination of the project. If arrangements are not made, this risk can occur in the context of the present project.
	Failure in communication of the project	The project covers several villages with different dialects. If an effective program of communication is not established, this mission can be reveal a failure under the project implementation.
	Failure in monitoring of activities due to conflict of interest between stakeholders	Several institutions will be involved in the monitoring of the activities of the project. If the role of each actors isn't defined through clear memorandum between the project and technical institutions, a conflict of interest may arise in the monitoring of the project.
	Lack of infrastructure monitoring that would be degraded or abandoned as soon as the project is completed	If the selected beneficiaries do not sufficiently involved in the project, infrastructure established can be dropped or will degrade quickly just after the close of the project.

The risks identified above were evaluated according to their probability of occurrence. Evaluation indicators are presented in the table below.

¹⁸ www.tradingeconomics.com/guinea-bissau/corruption-rank

¹⁹ Other environmental and social risks are taken into account under item K, PART II and Item C, PART III.

Table 20: Risk indicators

		Impact				
		CRITICAL	HIGH	MEDIUM	LOW	NEGLIGIBLE
Likelihood	CERTAIN / IMMINENT	Critical	Critical	High	Medium	Low
	VERY LIKELY	Critical	High	High	Medium	Low
	LIKELY	High	High	Medium	Low	Negligible
	MODERATELY LIKELY	Medium	Medium	Low	Low	Negligible
	UNLIKELY	Low	Low	Negligible	Negligible	Considered to pose no determinable risk

These indicators are used to assess and characterize the different risks of the project to provide mitigation measures (see table below).

Table 21: Project Risks Assessment and Mitigation Measures

Category	Risks	Impact	likelihood	Risks assessment	Mitigation measures
Political	Government political instability and frequent political post shifts high in government may hinder the project implementation	High	Moderately likely	Medium	Although this risk is outside the jurisdiction of the project, it is deemed a low risk based on experiences made in other projects during times of political instability. In the past, the Government of Guinea-Bissau has shown strong commitment to carry out projects even under political instability. Strong support for the policy changes in key ministries will be generated at the Directorate General level, which have been relatively stable in staffing despite political changes.
	Political resistance/inertia to adjust 'governance frameworks' (i.e. policies, plans, strategies, programmes etc.).	Medium	Likely	Medium	In the framework of the project, an policy expert will be contracted to draft and implement the policies, procedures and guidelines. It is recommended that this expert have already a good level and relations in the national administration. The strong interaction with the national institutions and local stakeholders and their institutions will help to avoid this risk.
	Policymakers or politicians prioritize economic benefits over social and environmental needs	Medium	Moderately likely	Low	Project activities explicitly integrate social, environmental and economic development needs in an integrative framework of climate-resilient agriculture. The project will prioritize low-regrets strategies for resiliency that have proven impact also on farmer income.
Strategic	Reluctance to apply the knowledge and practices for adaptation to climate change Cultural barriers in accepting new techniques can be expected.	Medium	Moderately likely	Low	Strong interaction with local stakeholders and their institutions (e.g. RCCF) with regard to project activities is to reduce reluctance further. Awareness raising and training programs will be developed by the project under team under coordination of the PMU.

Category	Risks	Impact	likelihood	Risks assessment	Mitigation measures
					<p>During the preparation of the project, beneficiaries have been widely consulted and have expressed their strong support for the project. The project provided outreach to beneficiaries. An information, exchanges and communication plan for a full participation of stakeholders will be established in the first year of the project.</p> <p>The project will work in collaboration with community organizations, local NGOS already on the ground in a strategic partnership framework. This will allow to overcome cultural barriers. The communication and awareness strategy of the project will consider this. A strategic plan for knowledge dissemination will be formulated and the communication will be made in local languages.</p>
Institutional	Overlap of interventions of public institutions	Medium	Moderately likely	Low	Clear memorandum of intervention between the project and the different institutions involved in project implementation will take care of this.
	Weak participation and involvement of public services at regional level	Medium	Moderately likely	Low	The RCCF meetings will take place every 3 months. These meetings will include government and civil society members.
	Lack of support from local administrative authorities (Governors of region, Administrators of sectors, etc.)	Medium	Moderately likely	Low	<p>Local administrative authorities are involved in the project design phase through meetings and during public consultation workshop in each region and sectors in project area.</p> <p>The Full Project, the ESMF and other documents of the project was validated through workshops with the effective presence of the Governor of Gabu, the representative of the Governor of Bafatá, all Administrators of sectors or their representatives.</p>
Technical	The low capacity of	Medium	likely	Medium	The activities of capacity building of stakeholders

Category	Risks	Impact	likelihood	Risks assessment	Mitigation measures
	stakeholders to implement the project activities				under the component 1 will help to overcome this obstacle
	The technical practices promoted by the project are confined to the first beneficiaries	Low	Moderately likely	Low	The project plans a strong component 3 on dissemination of lessons learned. For more impact of climate-smart activities, it is recommended the replication of the project in the other regions of the country.
Financial	Bad financial governance and corrupt practices may lead to less funds invested in desired outcomes than planned	Medium	likely	Medium	Strong relationships with the overseeing government department MESD and financial oversight by BOAD with frequent, regular monitoring visits and audits will keep projects on line in terms of delivery and expenditure. Financial management procedures will be established and the coordination of the project will be trained on fiduciary standards.
Climatic	New facets of climate risks emerge during the life of the project	Medium	likely	Medium	The project will work with systems for crisis prevention coordinated by the government, the meteorology services, INPA and the climate change local and national comitees. The project will train the different actors (mentoring technical services and farmers) to better understand and follow the predictions of climate changes to prevent / anticipate crises.
Environmental ²⁰	Exclusive focus on climate change may distract from wider environmental and poverty issues	Medium	Unlikely	Negligeable	The project is designed alongside existing poverty reduction and environmental strategies in order to complement existing measures. An integrated approach to agriculture, livestock, water and forest is designed to minimise this issue.

²⁰ Other environmental and social risks are taken into account under Item C, PART III.

Category	Risks	Impact	likelihood	Risks assessment	Mitigation measures
					The project as planned will help to reduce food insecurity and poverty of the beneficiaries.
	Low integration of environmental and gender issues in the implementation of the project by the producers	Medium	likely	Medium	<p>On the base of the Environment and social safeguards and gender policies of BOAD and Adaptation Fund, an environmental and social management framework (ESMF) is prepared for a better integration of environmental and social issues within the project. The ESMF will be translated into specific Environmental and Social Management Plans for each intervention site. Periodic monitoring will be conducted by the competent services to ensure the effective implementation of the measures.</p> <p>Training and awareness activities are programmed to allow sufficient taking into account of environmental, social and gender issues in the implementation of activities on the sites.</p>
Operational/Management	Failure in coordination of the project	Medium	Likely	Medium	<p>One of the first activities after the establishment of the PMU is the development of a manual of procedures of the project to strengthen the management capacities of the PMU team.</p> <p>Establish a project consultative platform for sharing information and know-how among stakeholders, and promote frequent in person meetings. At national level inter-ministerial meetings will be held</p>
	Failure in project communication	Medium	likely	Medium	An effective communication program is established taking into account the lessons learned from the LDCF project. The capacities of the communication coordination team will be strengthened. Communications expert will be supported by local community organizations and local radio in

Category	Risks	Impact	likelihood	Risks assessment	Mitigation measures
					advocacy. The manuals of good practices will be designed in a box of tool. The local languages will be used according to the village, for a greater ownership of the shares.
	Failure in monitoring of activities due to conflict of interest between stakeholders	Medium	Moderately likely	Low	Des memorandum liant le projet et les autres acteurs impliqués dans le suivi devront être clairement établis. Memorandum between the project and other actors involved in the monitoring will be clearly established.
	Lack of infrastructure monitoring that would be degraded or abandoned as soon as the project is completed	Medium	likely	Medium	Monitoring of the achievements of the project will be integrated in the program of activities and budgets of the related Directorates in the fourth year of the project.

A continuous risk assessment system will be implemented. Risks will be presented annually in the PIR (Program Implementation Report) through a risk assessment matrix, including possible (alternative) mitigation actions. In tri-semester reports risk evaluation matrix will be incorporated, according to type (political, strategic, institutional, financial, operational, environmental, climatic), level (low, medium, critical), type of response (emergency actions, change in plans, other) and evolution of risks (stable, declining, increasing, etc.), and date of risk; also using the annual project report to give a more complete picture on risks and their development

- C. Describe the management measures of environmental and social risks, in line with the environmental and social policy of the Adaptation Fund.

The following table describes the management of risks and impacts of the project in accordance with the Environmental and Social Principles of the Adaptation Fund.

The environmental and social mitigation and enhancement measures are integrated in the project components and activities and budgeted.

Table 22: Environmental and social impact/risks of project and mitigation measures

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
Preparation phase									
Compliance with the Law		Low integration of environmental and social issues relative to the Adaptation Fund ESP principles in the subprojects ESIA and ESMP	Realization of an environmental and social impact assessment of the subprojects by taking into account the 15 principles of the environmental and social policy of the adaptation fund	Number of sites for which Environmental and social impact assessment document has been prepared according to the 15 principles of the Adaptation Funds ESP	BOAD	During the formulation of the subprojects ESIA	AAAC ²¹	General Directorate of Environment (GDE)	Take into account in outputs 2.1.1. and 2.1.2.
Access and equity		Risk of non-access of project resources by one group of the population	Put in place transparent criteria to permanently retain the sites to be developed and the beneficiaries	Level of application of fair criteria for the selection of participants in training sessions organized	PMU	During the final selection of sites	AAAC	GDE	PM
				Effectiveness of the project communication system	PMU				
				Percentage of women, elderly and young people who received training	PMU				
Vulnerable and marginalized groups		Risk of non-profitability of vulnerable and marginalized groups to the effects of the project	Taking vulnerable and marginalized groups into account in the implementation	Percentage of young people and women beneficiaries of the project	PMU	Semi annual	AAAC	GDE	PM

²¹ Competent Environmental Assessment Authority

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
Gender Equality and the Empowerment of Women		Risk of non-integration of gender (men, women, young people, the elderly) in the implementation of the project	Taking gender into account in establishing beneficiary selection criteria	Number of women and young people receiving technical and financial support for the development of irrigated areas	PMU	Semi annual	AAAC	GDE	PM
Climate change	Increased capacity of stakeholders for the development and implementation of resilient approaches to Climate Change		Ensure the effective and efficient participation of women and youth in the various capacity building workshops through project facilitation activities	Number of women and young people able to assimilate the best approaches and practices taught and to pass on the knowledge gained to the other members of the group	PMU	Before the start of the fields activities	AAAC	GDE	PM
Construction phase									
Compliance with the Law		Risk of poor implementation of environmental and social clauses by companies	Integrate the environmental and social clauses of the BDs into the work execution contracts	Level of implementation of environmental and social measures by enterprises	PMU	During infrastructures construction	AAAC	GDE	5 000
			Conduct monitoring missions for indicators	Number of E & S monitoring missions and follow-up report	PMU	During infrastructures construction	AAAC	DGE	
Fundamental labor rights	Job creation		Promoting the use of local labor in the construction of structures	Proportion of local labor used in installation work	PMU	During construction	AAAC	GDE	PM

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
		Risk of injury to workers' health and safety	Require that each company awarded an infrastructure contract prepares and effectively implements an internal operating plan	Number of work accidents due to non-compliance with recommended measures	PMU	During construction	AAAC	DSP	PM
			Require appropriate protective equipment to personal and ensure effective wear	Proportion of workers wearing personal protective equipment	PMU	During construction	AAAC	GDE Public health directorate (PHD)	
	Risk of child labor outside the limits set by the Law	Sensitize enterprises on the disadvantages associated with the employment of children in difficult and risky tasks, including their health and development	Proportion of workers sensitized. Number of reported cases of employment of children in difficult tasks.	PMU	During construction	AAAC	DGE Work Directorate (WD)		
		Inform enterprises on the Labor Code	Number of campaigns organized. Proportion of workers informed and observing the provisions of the Labor Code	PMU	During construction	AAAC	GDE		
		Conduct monitoring of indicators	Number of monitoring mission conducted	PMU	During construction	AAAC	DGE Work Directorate (WD)	5 000	
Vulnerable and marginalized groups. Gender equality and empowerment of women	Improved access to water for irrigation by all		Dimension the water mobilization infrastructures to cover all the plots	Coverage rate of the irrigation network Number of complaints	PMU	During the construction of the structures	AAAC	GDE Generale Directorate of Agriculture (GDA) General Directorate of Water	PM

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
								(GDW)	
Pollution Prevention and Efficient Resource Management		Risk of non-availability of water for downstream populations	Construction of channel to regulate the flow of water at the downstream of the landscaped perimeters	Presence of a channel to ensure the flow of water downstream	PMU	During the construction of infrastructures	AAAC	GDE Generale Directorate of Agriculture (GDA) General Directorate of Water (GDW)	PM
Operation phase									
Compliance with the Law		Producers' low capacity to implement environmental and social measures in accordance with national legislation and the principles of the Adaptation Fund	Organize periodic sensitization campaigns on the national provisions and the E&S principles of the AF	Number of sensitization campaigns organized for producers	PMU	At the start of project implementation	AAAC	GDE	Take into account in the output 1.2.4
			Ensure the effective implementation of the measures proposed by the environmental and social management plans	Level of implementation of proposed mitigation measures on site	PMU	During the implementation of the project	AAAC	GDE	
			Conduct periodic monitoring missions	Number of E & S monitoring missions and report	PMU	During the implementation of the project (Once a year)	AAAC	GDE General Directorate of Agriculture (GDA)	10 000

E & S Principle s of the Adaptati on Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Respo nsible for imple mentat ion	Period	Respon sible for monitri ng	Technica l support institutio n	Cost (X USD)
Human rights		Risks of uncontrolled treatment and unequal treatment of cases of poisoning	Strengthen the intervention capacities of the health centers of the sectors of intervention for an effective and equitable treatment of the cases of poisoning	Level of improvement of the capacity of the health center of the municipality for an efficient and equitable treatment of the cases. Number of complaints cases	PMU	At the beginning of the project	AAAC	Directorate of plants protection (DPVV) DSP ²²	10 000
Fundame ntal labor rights	Relieving child labor and saving time due the availability of domestic water supply		Avoid the use of children during the week of classes Ensuring effective schooling for children	School development of the children of the members of the group. Number of complaints related to the employment of children during the week.	PMU	During operation	AAAC	DPE ²³ GDE	PM
		Risk to health and safety of workers	Raise awareness of workplace hazards	Number of outreach meetings Proportion of sensitized producers Number of workplace accidents related to non-compliance	PMU	During the first two years	AAAC	DSP DiP ²⁴	PM
Require producers to wear appropriate protective equipments	Proportion of producers wearing appropriate protective equipment		PMU	During the implementation of the project	AAAC	GDE GDA	PM		
Designate one or two heads of hygiene-health-environment by production site	Presence of one or two agents whose responsibility is to ensure hygiene, health and environment on each site		PMU	At the start of operations	AAAC	GDA DSP GDE			
Strengthen producers' capacity to use pesticides	Proportion of producers trained and practicing		PMU	Annually	AAAC	DPV	PM		

²² Directorate of Public Health
Child Protection Division

²⁴ Directorate of Labor

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
				recommended measures for pesticide management					
			Conduct missions of indicators monitoring	Number of missions conducted	PMU	During the implementation of the project	AAC	GDE GDA	5 000
		Risk of child labor outside the limits set by the Law	Sensitize farmers on the disadvantages associated with the employment of children in difficult and risky tasks, including their health and development	Proportion of producers of the sensitized group. Number of reported cases of employment of children in difficult tasks.	PMU	Annually	AAAC	GDA	PM
			Inform farmers on the Labor Code	Number of campaigns organized. Proportion of producers informed and observing the provisions of the Labor Code	PMU	At the start of operations	AAAC	GDE GDA	
Access and equity	Improving women's incomes and development		Encourage the effective and efficient participation of women, young people and the elderly in project activities	Degree of involvement of women Proportion of women who have seen improvements in their living conditions	PMU	During operation	AAAC	GDE GDA	PM
Vulnerable and marginalized groups	Improved access to quality inputs by all		Ensure equitable support for the acquisition of quality agricultural inputs	Number of cases of complaints related to the acquisition of agricultural inputs	PMU	During installation	AAAC	GDA	PM
Gender equality and empowerment of women									
Protection of natural habitats		Destruction of vegetation and wildlife habitat	Promote the system of agroforestry and planting trees with nutritional or medicinal value	Level of integration of the agroforestry system in agricultural practices. Reforested area with nutritional and medicinal trees.	PMU	Bi-annually	AAAC	DGF	PM

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
Conservation of biological diversity	Landscape improvement		The sites will be protected against silting with local species and if possible, with endangered species	Types of species used for agroforestry purposes	PMU	During operation	AAAC	DPV	PM
Pollution Prevention and Efficient Resource Management	Sustainable management of water resources		Design structures for the rational management of water and their maintenance	Level of performance of structures in terms of water conservation	PMU	During construction and during operation	AAAC	GDA	
		Contamination of Soils and Water by Pollutants	Capacity-building sessions for actors involved in the pest and pesticides management (Regional Directorate of Plant Protection, National committee on pest and pesticides management, Regional Directorate for Environment and Sustainable Development, regional directorate for agriculture water infrastructures, responsible for the PMU, Regional Directorate for Agriculture, representative of the Governorate of the Region, Competent Authority for Environmental Assessment, Regional Directorate for Public Health, National Laboratory for Agrarian Research (INPA), Members of Perimeters' Management Committee, NGO's	Number of officers trained on non-chemical and coordinated and sustainable pest and pesticide management techniques	PMU	During operation	AAAC	DPV GDE GDA	Take into account in the output 1.2.1 and 1.2.4 And 10 000 for monitoring

E & S Principle s of the Adaptati on Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Respo nsible for imple mentat ion	Period	Respon sible for monit oring	Technica l support institutio n	Cost (X USD)
			representatives in charge of the supervision of the beneficiaries on sites, the PMU and the committee's members of the perimeters						
			Preparation, dissemination and use of the tools box of integrated pests and pesticides management with the support of the FAO Expert	Tools designed and appropriate use of the tools box by the stakeholders of the project	PMU	During the project implementation	AAAC	DPV CNGP GDE GDA	
			Promotion of the integrated pest and pesticides management methods	Penetration rate of integrated pest management	PMU	During operation	AAAC	DPV GDE GDA	
			Strengthen the capacity of the producers on the pesticide and fertilizers management system	Number of sessions organized to build the capacity of the producers on fertilizers and pesticides management	PMU	During the implementation of the project	AAAC	DPV	
			Support to the obsolete pesticides and packaging management	Number of pesticide management and monitoring by plant protection officers	PMU	During the implementation of the project	AAAC	DPV	
				Level of rational management of obsolete pesticides and packages on construction sites	PMU	During operation	AAAC	DPV	
				Quantity of obsolete pesticides and contaminated packaging destroyed	PMU	During operation	AAAC	DPV	
			Support for acquisition of the soil and water analysis equipment	Quality of water and soil quality analysis equipment	PMU	Before operation phase	AAAC	National Laboratory	70 000

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
			Analysis and monitoring of soil and water quality	Number of water and soil quality analysis conducted	PMU	During operation	AAAC	National Laboratory	24 000
		Risk of non-availability of water for downstream populations	Ensure periodic maintenance of the water flow channel for downstream proper operation	Frequency of water flow channel maintenance Operating of the water flow channel Number of complaints from downstream populations	PMU	During infrastructure exploitation	AAAC	GDA GDE	PM
Public health		Risk of poisoning by inhalation or by consumption of water or food contaminated with pesticides or fertilizers	Strengthening producers' capacity to manage pesticides in accordance with pesticides using standards	Number of training sessions on the rational use of pesticides	PMU	At the start of operations	AAAC	DPV	Take into account in the output 1.2.4 And 10 000 for monitoring
				Number of producers educated about the use of pesticides	PMU	During operation	AAAC	DPV	
			Strengthening the capacities of public health officials for the treatment of possible cases pesticide poisoning	Number of public health agents trained for the treatment of cases of pesticide poisoning	PMU	During operation	AAAC	DSP ²⁵ DPV	
				Rational management of pesticides by farmers and individual protection	Percentage of beneficiaries to wear appropriate protective equipment when applying pesticides	PMU	During operation	AAAC	
			Percentage of beneficiaries implementing good pesticide storage and use practices		PMU	During operation	AAAC	DPV	
			Number of cases of pesticide poisoning		PMU	During operation	AAAC	DPV	
Establish a collection	Proportion of contaminated	PMU/	During	AAAC	DPV				

²⁵ Directorate of public health

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
Public health			system for empty pesticide and obsolete packaging	packaging collected (compare to quantities used) and transported for destruction	Producers	operation			
			Sensitize producers on hygiene measures during and after operations	Level of application of hygiene measures at the project site	PMU	During operation	AAAC	DPV	
		Risk of development of waterborne diseases	Informing and sensitizing farmers on diseases related to the presence of water	Number of awareness sessions for health services in the project area to enable them to take into account all new cases of waterborne diseases Evolution of the number of cases of water-borne diseases (malaria, bilharziasis, diarrhea, schistosomiasis, etc.)	PMU	During operation	AAAC	MS	Take into account under outputs 1.2.4 and 2.1.5
	Improving the nutritional status of children and supporting Food Safety		The crop varieties with nutritional value to support food security and improve child nutrition are promoted in the project	Evolution of the nutritional status of children in municipalities of intervention Evolution of diseases linked to child malnutrition intervention sectors Evolution of the rate of food insecurity in the intervention sectors	PMU	During the implementation of the project	AAAC	GDE	Take into account under item 1.2.3. (c)
Cultural and physical		Risk of destruction of physical and cultural heritage	Establishment of a system of recovery of fortuitous discoveries of physical	Number of fortuitous discoveries of cultural heritage notified by producers	PMU	During the implementation of the project	AAAC	DPC ²⁶	5 000

²⁶ Directorate of Cultural Heritage

E & S Principles of the Adaptation Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Responsible for implementation	Period	Responsible for monitoring	Technical support institution	Cost (X USD)
heritage		during fortuitous discoveries	heritage	on building sites					
				Percentage of cases of fortuitous discoveries of cultural and physical heritage taken over by the competent institutions	PMU	During the implementation of the project	AAAC	DPC	
Land and soil conservation		Soil and Land Degradation	Develop sustainable land and soil management practices	Land actually cultivated with modern techniques of water and soil conservation	PMU	During operation	AAAC	DPC	Take into account in the output 2.1.3
				Rate of increase in agricultural yields on sites	PMU	During operation	AAAC	GDA	
				Number of producers who have adopted soil improvement practices	PMU	During operation	AAAC	GDA	
				Proportion of use of organic fertilizer	PMU	During operation	AAAC	GDA	
				Volume of inputs consumed (pesticides, herbicides, fertilizers)	PMU	During operation	AAAC	GDA	
			Support for the acquisition of soil analysis equipment	Quality of water and soil quality analysis equipment	PMU	Before operation phase	AAAC	National Laboratory	See Pollution Prevention and Efficient Resource Management
			Analysis and monitoring of soil quality	Number of water and soil quality analysis conducted	PMU	During operation	AAAC	National Laboratory	
End of project phase									

E & S Principle s of the Adaptati on Fund	Positive impact	Negative impact / risks	Mitigation and enhancement measures	Monitoring indicators	Respo nsible for imple mentat ion	Period	Respon sible for monitri ng	Technica l support institutio n	Cost (X USD)
-		Risk of abandonment of works	Make sure of the retrocession of works to communities to ensure continuous maintenance and their use for agricultural purposes	Proportion of functional works	GDE ²⁷	At the end of the project	AAAC	GDA	PM
Public health		Risk of poisoning by leftover pesticides and contaminated packaging	Collect and destroy obsolete pesticides and contaminated packaging under conditions prescribed by national regulations	Percentage of obsolete pesticide and contaminated packaging collected and destroyed at the end of the project	GDE	At the end of the project	AAC	GDA	PM
			Collect pesticides in good condition under conditions prescribed by national regulations and offer them to agricultural groups for the treatment of crops	Percentage of pesticides in good condition collected and reused in accordance with national regulations	GDE	At the end of the project	AAC	DPV GDA	PM
			Continue water and soil quality analyzes after project closure using analytical equipment acquired under the project	Number of soil quality analysis conduct	GDE	After	AAAC	National Laborator y	See Pollution Prevention and Efficient Resource Managemen t

The cost of monitoring of an Environmental and Social Management Framework Plan is estimated at 144 000 USD (confer item 2.1.5.2. of the budget).

²⁷ General Directorate of Environment

Grievance mechanism in the framework of the project

The proposed project will utilize the existing BOAD grievance mechanism to allow affected to raise concerns that the proposed project is not complying with its social and environmental policies or commitments.

BOAD has established grievance mechanism through its grievance policy and procedures manual which is an independent mechanism whereby those who have suffered injury, resulting from a project financed or implemented by the BOAD may file a complaint with the Bank. The grievance mechanism, which is made available to stakeholders is a part of the environmental, social and economic sustainability to address compliance and grievance cases that arise from projects implemented by BOAD. This manual defines the complaint resolution mechanism in the implementation of any project financed or implemented by BOAD. It aims to establish an effective dialogue between those affected by the projects it finances and all interested parties, to resolve the problem or problems at the origin of a request, without seeking to assign responsibility or fault to any of these parties.

At the BOAD level, the grievance mechanism is coordinated and managed by the Compliance and Regulatory Division (DCR) with the support of Resident Mission of the BOAD in the BOAD's states members. Affected communities and other stakeholders which will be affected by the project can submit complaints to the BOAD, the IE of the present proposal by mail, email, fax or phone. In the project area level, the Project management unit is the contact point for any project related complaints from stakeholders. The Project management unit should respond promptly and appropriately to a complaint with the support of the Resident mission and a report is made to the DCR which is based in Headquarter of BOAD. Where the complaint cannot be managed at the project level, the Project Coordinator will direct the complainants to complete a complaint form for submission to the DCR of the BOAD. The Project coordinator should advise complainants to provide complete information, so BOAD can properly assess and address the complaint.

It will be the responsibility of the PMU, under the control of BOAD, to ensure that all relevant stakeholders are adequately informed of the grievance mechanism. This mechanism will be made available at the Governorate of the region and Administrators of the provinces (sectors). Copies of the manual of grievance mechanism will be made available at the villages' level. It will also posted on the project website and the implementing entity (BOAD) website. The procedures on how to submit the complaint are available on the website of the BOAD (www.boad.org) or directly at <https://www.boad.org/en/policies-procedures-guidelines/> (under item "DOCUMENTS OF CONFORMITY AND GRIEVANCE").

If the DCR finds that a complaint is eligible, the DCR composes internal and/or external experts' team to investigate the case and propose options for the complainant to consider. The table below show summary information on compliance review and grievance response.

	Compliance review	Grievance response
Complainant	Any person or group of persons who may be affected by BOAD-supported activities. While anonymous complaints will not be accepted, requests for confidentiality will be respected.	
Channel	<p>Complainants can contact the Compliance and Regulatory Division (DCR) of BOAD via mail, e-mail, fax or phone.</p> <p>The adresse of the DCR :</p> <p>Banque Ouest Africaine de Développement 62 av. de la Libération, BP 1172 Lomé, Togo Tel : +228 22 21 59 06 Fax : +228 22 21 52 67 E-Mail : boadsiege@boad.org Web : www.boad.org</p> <p>Complainants should provide full details to enable the Bank to assess eligibility. The procedures on how to submit the complaint are available on the website</p>	

	Compliance review	Grievance response
	of the BOAD (www.boad.org) or directly at https://www.boad.org/en/policies-procedures-guidelines/ (under item “DOCUMENTS OF CONFORMITY AND GRIEVANCE”)	
Eligibility requirements	The complaint is directly related to Environmental, Social and Economic Sustainability issues. The issue concerns a proposed or on-going AF/BOAD project.	
Responsibility within BOAD	Compliance and Regulatory Division (DCR) of BOAD with support of resident Missions in Guinea Bissau and thematic experts	
Response	The DCR investigates the complaint and reports findings and recommendations to the President of the BOAD. The BOAD communicates the decisions and steps that BOAD will take in response to the concerns.	The DCR explores mediation, negotiation, conflict resolution, and/or referral to another dispute resolution mechanism.
Possible results and follow up action	Measures to minimize or mitigate negative impacts from project activities. Revision and disclosure of the project. Permanent suspension of the project.	Proposed measures to address or compensate for negative impacts from project activities. Resolution of issue. Public disclosure of the case.

The details procedures to resolve a grievance in the framework of the project is described in the appendix 5.

- D. Describe the arrangements made for monitoring and evaluation (M & E), including the plan budgeted for monitoring and evaluation.

Monitoring and Evaluation (M&E) of all project activities, including environmental and social consequences, are part of the project management responsibilities of the Ministry of Environment and Sustainable Development (MESD). These M&E activities will be supervised by BOAD, the implementing entity. This includes tracking the implementation progress and learning in terms of social and environmental concerns, feedback, and knowledge sharing on results and lessons among the primary stakeholders. The Project Management Unit (PMU) and participating Ministries/technical agencies have built proven capacities in conducting inclusive and consultative processes (e.g. through in the development of Guinea-Bissau's First National Communication on Climate Change and the country's NAPA) which will be essential to mitigate any possible social or environmental risks. Participating farmers and their institutions (RCCF, women's associations, NGOs, etc.) will be key stakeholders in these processes. To screen and assess social and environmental risks, as well as to mitigate potentially adverse impacts, a specific, measurable and time-bound set of indicators reflecting these risks will be integrated in the results framework of the project (to be developed in stage two of this proposal). In general, failure in compliance with the Adaptation Fund's Environmental and Social Policy is believed to be a low risk given that the project focuses strongly on increasing resilience of social and environmental systems in the Project Region.

A monitoring and evaluation of project activities will be set up to assess progress regarding the objectives and outcomes outlined in the project document. It will allow to identify strengths and weaknesses in order to make informed decisions and in time. Monitoring will focus on the implementation of project activities and will be based on the measurement of progress at each critical stage of the process. A first level of monitoring is entrusted to technical project steering committee made up of several actors (State and Non-state involved in the project). At the level of each region of intervention, the regional commission of sustainable development will be the monitoring relay to ensure the smooth running of the project activities. Periodically, the Department of Planning of the Ministry of Agriculture will conduct monitoring and evaluation missions and, produce reports on the level of implementation of the recommendations of the Technical Steering Committee. One of

monitoring tools will be the work and annual expenditures plan which will be validated by the technical steering committee.

The system of M & E of the program will be built around the logical framework as a tool for management, planning and assistance in decision making for all implementing partners.

Several participatory tools will be used to measure project performance. Additional effect/impacts surveys (start, mid-term and completion) and analysis of technical, annual economic and financial performance of farms will measure the project's impact for target groups (improvement of yields, reduction of their poverty and improvement of their resilience). A computerized database will be developed for the project.

Quantitative targets will be approved by the stakeholders at the start of the project when reviewing the logical framework taking into account the intervention sites. A midterm review and a final evaluation are planned in order to assess the changes observed at baseline²⁸. The M & E system will support decision-making for the adoption of actions or activities of resilience for future projects.

The M & E tools will be developed based on existing operational arrangements and the level of ongoing projects (survey sheet, further investigation to assess the effects/impact, monitoring sheets of activities, thematic studies, nominative targeting system, agronomic monitoring system, environmental and social impact, dashboards).

A synergy will be developed between the present project and projects/programs in the regions of Bafatà and Gabù.

The implementing partners are: i) for operational monitoring, the technical services of the ministries involved (environment, agriculture, livestock, rural engineering, hydraulics and rural code); ii) for the dissemination of information on the environment and climate change, NGOs and consulting-services groups (GSC). A regional technical assistance will occur, from time to time, to strengthen quality control.

The monitoring and evaluation will be done through:

- Balance sheet and programming meetings with grassroots actors;
- Weekly Points, monthly, quarterly and annual reviews at the project team level;
- Field visits.

Monitoring and evaluation of the progress made in the implementation of the results of the project will be based on objectives and indicators established in the context of the results framework of the project (see table 27). The activities of monitoring and evaluation will follow the policies and guidelines of the Adaptation Fund as well as those of the BOAD in the matter. Monitoring and evaluation system will facilitate learning, replication and scale upgrading of the results and lessons from the project.

The progress of the project will be checked through the Project Management Unit monitoring and evaluation, the Annual evaluation, the Mid-term evaluation, the Independent Final Evaluation and the Ex-post evaluation. Beyond this, a programme of monitoring and evaluation (M&E), in accordance with Adaptation Fund and BOAD procedures will be carried out by the BOAD Organizational Unit in charge of M&E in collaboration with its Project team and the Directorate of environment and climate change. The BOAD will report to Adaptation Fund secretariat in accordance with the Policies, Guidelines and procedures of Adaptation Fund.

Monitoring and evaluation by the Project Management Unit

For the execution of the project, the PMU will establish a system to monitor the progress of the project. Participatory mechanisms with animators will be put in place for the collection and recording of data to support monitoring and evaluation of the results and activities indicators.

²⁸ A baseline situation will be specified at project start for each intervention site

Continuous monitoring of the project will be the responsibility of the PMU and will be guided by the preparation and execution of annual budgeted working plan, supported by a quarterly progress report. The annual budgeted working Plans will indicate the activities proposed for the next year and will provide the necessary details on the objectives and the quarterly reports that include information on the follow-up to the implementation of activities and the achievement of the objectives of the result. The Steering Committee will meet twice a year to review the progress of the project. They will assess during the meeting of the end of year, the annual report of management of the project from the previous period and the budgeted annual working plan of the next period. The budgeted annual working plan is established in accordance with the results framework to ensure proper compliance with and monitoring of the results of the project. Reports that are prepared by the PMU specifically in the context of the monitoring and evaluation plan are as follows: (i) the report of the project launch workshop; (ii) the annual budgeted working plans; (iii) quarterly reports; (iv) the annual management reports; (v) technical reports; and (vii) the final report.

All the reports prepared by the PMU and approved by the steering committee will be sent to the BOAD which will send it to Adaptation Fund if required.

- **Project launch workshop and report**

After the approval of the project by the adaptation fund and the BOAD and once that the the PMU is set up, the project launch workshop will be organized. This workshop will be organized at the national level and will bring together all actors involved in the implementation and monitoring and evaluation of the project. During this workshop, the tasks of monitoring and evaluation will include: (i) the presentation of the project results framework with; (ii) the review of monitoring and evaluation indicators; (iii) the preparation of projects of clauses that should be included in tender documents to ensure compliance with the functions of monitoring and evaluation; and (iv) the clarification of the distribution of the tasks of monitoring and evaluation among different actors.

After the launch workshop, the PMU will prepare a report of the project in consultation with the Secretariat for Environment and Sustainable Development. The report will include a description of the functions and the institutional responsibilities and coordination of stakeholders in project activities, start-up activities and an update on any changes in external conditions that may affect the project. It will also include a detailed budgeted annual working plan for the first year and a detailed including indicators monitoring plan.

- **Budgeted annual working plan**

The PMU will submit to the Steering Committee a complete annual budgeted work Plan project. The annual budgeted work Plan should include detailed activities to be performed for each of the outcomes of the project during the monthly periods and the dates to which the objectives and steps of the performance indicators will be carried out during the year. A detailed budget for the project activities to be undertaken during the year, as well as all monitoring and necessary supervision activities will also be included.

The Coordinator will circulate a draft budgeted annual working plan to the Steering Committee and the Secretariat for Environment and Sustainable Development for consideration. The budgeted annual working plan will be presented at the meeting of the Steering Committee for approval.

- **Quarterly progress report**

The PMU will submit quarterly progress reports to the Direction of the water mobilization within 10 days of the end of each quarter. Analysis tools will be used to identify constraints, problems or bottlenecks that hinder the execution of the activities of the project in a timely manner in order to take appropriate corrective actions. This report will present the status of implementation of the environmental and social measures of the sub-projects on the sites including the pests and pesticides management. They are assessed on the basis of systematic monitoring of performance indicators and products identified in the framework of the results of the project. The PMU will forward these reports to the members of the Steering Committee and the MESD.

- **Technical reports**

The technical reports will be prepared as part of the project outputs as well as for documenting and disseminating lessons learned. Drafts of all technical reports should be submitted by the PMU to the Secretariat for Environment and Sustainable Development which in turn will be presented to the Executive Committee for review and approval and to the Advisory for their information and possible comments, before they are finalized and published. Copies of finalized technical reports will be distributed to the Advisory Committee, the Executive Committee and other project stakeholders, as appropriate.

Annual evaluation

Annual evaluations that involve the project management unit, the Steering Committee of the project, the Implementing Entity (BOAD) and representatives of the beneficiary communities will be conducted. The secretariat of Adaptation Fund could be involved in this evaluation. They will be organized under the supervision of the Planning Director and in collaboration with the coordinator of the project, the preparation of annual progress reports, including recommendations to be submitted for adoption to the Project Steering Committee. They will take into account the progress toward goals, lessons learned, risks management, status of implementation of environmental and social management plans of the subprojects including integrated pests and pesticides management, grievance management, implemented budgets and difficulties. The inspection by the Project Management Unit will be complemented by the financial monitoring by a competent body.

Mid-term evaluation

Two years after the start of the project, a Mid-term evaluation will be conducted independently with one or more independent consultants. The purpose of the Mid-term evaluation is to review the progress and effectiveness of project execution in terms of the achievement of objectives, outcomes and outputs. The conclusions and recommendations will be crucial to bring about improvements in overall project design and execution strategy, if needed, for the remaining period of the project. The Steering Committee will complete necessary arrangements for the Mid-term evaluation, in consultation with the General Directorate of Environment and Sustainable Development.

The Mid-term evaluation shall include at the least the following elements:

- an analysis of the project's execution in terms of effectiveness, efficiency and compliance with set timeframes;
- an analysis of the effectiveness of the cooperation mechanisms between the parties;
- identifying issues requiring decisions and corrective actions;
- a proposal for interim corrections and/or adjustments to the execution strategy, as necessary;
- status of implementation of environmental and social management plan of the project;
- Status of integrated pests and pesticides management;
- Grievance management;
- a description of the technical achievements and lessons learned arising from design, execution and project management.

Some of the critical elements to which both the Mid-term evaluation must pay particular attention are:

- the degree of acceptance and involvement of the beneficiaries, communities and local organizations in the information and alert systems established;
- the level of incorporation, among the direct beneficiaries, of practices from the agro technology transfer activities;
- the level of understanding and awareness among decision makers and beneficiaries of the need and importance of measures for adapting to climate change;
- the level achieved in terms of preparation, monitoring and adaptation;
- the reduction of negative impacts achieved in different areas (environmental, social, economic);
- the level of incorporation of measures to adapt to climate change in the policies and action plans and territorial development at regional level and their efficient implementation;

- the degree of participation and representation of women in the planning, training, and execution of project activities and the project's effect on the productive activities of the region.

All the institutions involved in the monitoring and the execution of the project will give their support to this independent mid-term evaluation. It is among other: the Steering Committee of the project, the Implementing Entity, the Directorate- General of Environment, Directorate-General of Agriculture, Directorate-General of Water Resources, Directorate-General of Livestock, Directorate-General of Forests and Fauna, Directorate- General of National Meteorology, Local Government, Institute of Women and Children, Regional Centre for the Provision of Drinking Water and Low Cost Sanitation, National Institute of Agrarian Research, National Institute of Research and Applied Technology

The report of the Mid-term evaluation will be submitted to the Minister of Environment who will send it to the Minister of planning, the Implementing Entity.

Independent Final Evaluation

Shortly before the completion of the project an Independent Final Evaluation will be made by one or more independent consultants. The purpose of this evaluation is to describe project impacts, sustainability of results and the degree of achievement of long-term results. The Independent Final Evaluation should also indicate any future actions needed to ensure the sustainability of project results, expand the impact in successive phases, integrate and increase products and practices and disseminate the information obtained amongst the authorities and institutions with competencies in adapting to climate change in rural areas, so as to ensure the continuity of the processes initiated by this project. The independent final evaluation will assess the status of implementation of environmental and social measures including the integrated pests and pesticides management. The independent final evaluation will also assess the grievance management during the project implementation.

Final Report

Within 3 months before the date of completion of the project, the Project coordinator will present to the MESD, the draft of the final report. The main purposes of the Final Report are to provide guidance to ministers and officials on political decisions necessary for following up the project and to present the donor information on the use of funds. As such, the final report will consist of a brief summary of the main products, findings, the global status of implementation of environmental and social measures during the project, lessons learned of the environmental and social management including the integrated pests and pesticides management, grievance management, conclusions and recommendations for the project, the descriptions or technical details. The final report will include an assessment of activities, a summary of training and recommendations expressed in terms of their practical application. This report shall specifically include the findings of the final evaluation. Prior its finalization, a project evaluation meeting should be held to discuss the Final Report draft with the General Directorate of Environment. The final report will be submitted to the Steering Committee for approval.

Ex-post evaluation

In accordance with BOAD procedures, an ex-post evaluation is conducted two or three years after the end of a project. This activity will therefore be financed and conducted by BOAD to measure the impact of the project on beneficiaries.

The costs associated with implementing of M&E system are detailed in the table below.

Table 23: Implementation of M&E system costs

Activity	Responsible Party	Timeframe / Frequency	Budgeted Costs (USD)	Budgetary Reference
Launch Workshop	PMU, GDE ²⁹	the start of the project	5 000	Project management cost (line 4.3.1)
Project Launch Report	PMU	Days after the Launch workshop		
Annual Operating Plan and Budget validation	PMU, Steering Committee	Annual	6 000	Included in project management cost (Steering committee meeting) (line 4.3.4)
Field Impact Monitoring and Progress Evaluation	PMU, GDE,	Annual	5 000	included in project management cost (line 4.3.6)
Quarterly progress Reports	PMU	Quarterly	-	Included in project management cost (work of the PMU members)
Annual Management Reports	PMU	Annual	-	
Evaluation of Technical Reports	GDE, PMU, Steering Committee and with contributions from institutions involved in the monitoring and the execution of the project	Annual	10 000	Included in project management cost (Steering committee meeting) (line 4.3.4)
Mid-term evaluation and report	External consultant/s, Steering Committee contributions from institutions involved in the monitoring and the execution of the project	Halfway through project implementation	9 000	Included in project management cost (line 4.3.7)
Final Evaluation and report	External consultant/s, GDE, PMU Steering Committee and others	Half way through project implementation	10 000	Included in project management cost (line 4.3.8)
Total			44 000	

The Monitoring and evaluation functions of the implementing entity (BOAD) are defined in the table 18. The costs associated with implementing Entity monitoring are detailed below.

Table 24: Implementing entity monitoring /supervision costs

Specialized Technical Services	Responsible Parties at BOAD	Budget US\$	Time frame
Quarterly reports	Programme manager and Monitoring and Evaluation Unit	30 000	Quarterly
Monitoring and Annual progress reports	Programme manager and Monitoring and Evaluation Unit	10,000	At the end of each year
Mid-term Evaluation	Programme manager and Monitoring and Evaluation Unit External Consultants	10,000	At the mid-point of programme implementation.
Final Evaluation	Programme manager and Monitoring and Evaluation Unit External Consultants	10,000	At least three months before the end of programme implementation
Project terminal Report	Programme manager and Monitoring and Evaluation Unit External Consultants	5,000	At least three months before the end of the programme

²⁹ General Directorate of Environment

Audit	Programme manager and internal audit unit External Consultants	30,000	Yearly
Visits to field sites	Programme manager and Internal audit unit Monitoring and Evaluation Unit External consultants Government representatives	10,000	Yearly
TOTAL INDICATIVE COST		US\$105,000	

Environmental and social monitoring program

Despite the knowledge of certain environmental and social phenomena related to generic impacts of the project activities, it nevertheless remains that there is still a degree of uncertainty in the accuracy of other impacts, particularly regarding diffuse impacts and residual impacts. For this reason, it is necessary to develop an environmental monitoring program. The latter shall verify the correctness of the evaluation of certain impacts, assess the effectiveness of mitigation measures implemented and allow to make proposals for possible corrective action when necessary. The environmental monitoring program will present the indicators to monitor the mitigation and improvement measures. Moreover, the environmental and social monitoring will track the evolution of the state of the environment, including the sensitive elements, using relevant indicators on the environmental components established on a consensual basis by the various stakeholders in the execution. The monitoring indicators as well as some parameters should be redefined and refined following completion of detailed environmental studies

Responsibilities of environmental and social risks monitoring

Environmental monitoring and monitoring will be provided by the Competent Environmental Assessment Authority (AAAC) in collaboration with the General Directorate of Environment (GDE) in relation to the Project Management Unit. From the point of view of institutional arrangements, at the central level, environmental monitoring will be the primary responsibility of AAAC. This mission will be carried out in collaboration with the General Directorate of Agriculture (GDA) and other structures involved in the project.

All the results of the monitoring should also be discussed and shared during the sessions of the National Project Steering Committee for validation. At regional and local level, the monitoring and monitoring system defined at the central level will be based on the Regional Environmental Directorates of Gabù and Bafatà in collaboration with the Regional Directorates for Agriculture and other devolved technical services (livestock, water and forest, civil protection, etc).

The capacity-building activities to be carried out include training for these different actors in order to ensure appropriation of the content of the Environmental and Social Management Plan. They also cover field missions in the context of the implementation of the monitoring and environmental monitoring program.

The project implementation manual should take into account the Environmental and social management plan (ESMP) of the project. The Project Management Unit will be responsible for the implementation of the ESMP. As for the AAAC, it will oversee the monitoring and evaluation of the implementation of the ESMP, in accordance with the environmental procedures of Guinea Bissau and taking into account the 15 E&S principles of Adaptation Fund.

In order to overcome the monitoring tasks, the AAAC will be supported by the technical institutions, namely: (i) the Directorate of Plant Protection for all matters relating to the management of pests and pesticides ; (ii) the General Directorate of Environment; (iii) the

General Directorate of Agriculture and its regional services; (iv) the Directorate General of Rural Engineering (v) the Directorate of Forests and Livestock; (vi) Services for water management and village water supply; (vii) the National Institute of Statistics; (viii), the General Directorate of Water and Forests ; (ix) the National Institute for Agrarian Research (INPA) ; (x) the Directorate General of Civil Protection; etc.

Responsibilities for monitoring the Integrated Pest Management Plan

In Guinea Bissau, three technical ministries are mainly concerned with the management of pests and pesticides:

- the Ministry of Agriculture through the Directorate of plant protection (DPV), for pesticides used in agriculture;
- the Ministry of the Environment and Sustainable Development, which is responsible for all chemicals, including pesticides and the framing of measures of their impact on the environment; and
- the Ministry of Public Health, responsible for the treatment of cases of poisoning by pesticides including those used in public health).

In the framework of the present project, the monitoring of the integrated pest and pesticide management plan will be expanded to include the following institutions:

- the Regional Directorates for Plant Protection;
- the national comity of pesticides management (CNGP);
- the Regional Directorates for Environment and Sustainable Development;
- the Regional Directorates of Agriculture;
- the competent environmental assessment authority (AAAC);
- the Regional Directorates of Public Health;
- the representatives of the Governorate of the region
- the civil protection service;
- the National Laboratory for Agrarian Research (INPA);
- the representatives of NGOs.

Supervision by the Implementation entity

All environmental and social monitoring activities will be conducted under the supervision of the implementing entity (BOAD), which will send monitoring reports to the Adaptation Fund.

In accordance with the ES policy of the Adaptation Fund, project monitoring and evaluation by the implementing entity must take into account all identified environmental and social risks and impacts.

The implementing entity will assess the implementation of the integrated pests and pesticides management plan measures through the periodic reports submitted by the PMU and its field verification missions. To this end, the BOAD will oversee the process of recruiting FAO integrated pest and pesticides management Expert for the training of actors involved in the project on integrated management of pests and pesticides. It will oversee all training activities and the application of best practice measures in the field.

The PMU will submit to the BOAD the report on the Environmental and social management plan. This report will take into account the management of the 15 principles of the Adaptation Fund. This report should included the pest and pesticides managements and the grievance management. The BOAD will evaluate the content of the monthly reports of the PMU and give to the PMU its comments on environmental and social management. The IE will verify in each next report if the comments on the previous reports are taken into account and the shortcomings corrected.

In addition, the BOAD will organize every three months a field missions to verify the level of implementation of the ESMP and recommend specific corrective actions that ensure that the project complies with the E&S principles of the Adaptation Fund.

The BOAD may receive the support of external consultants for a second opinion on the performance of the environmental and social measures implementation and the monitoring system. In the event of a grievance, the Environmental, Social and Legal Offices of the BOAD will clarify the situation and find the appropriate solutions to the problems posed. The annual reports to be submitted by the BOAD to the Adaptation Fund on the project implementation will include a section on the status of implementation of the environmental and social management plan and how the environmental and social risks/impacts are avoided, minimized or mitigated. The reports shall also include a description of the shortcomings corrections. The Implementation Entity's annual report will also include a section on the on the pests and pesticides management in the framework of the implementation of the Project Environmental and Social Management Plan. The mid-term and final evaluation reports will also include an assessment of the project's performance in relation to environmental and social risks including pest and pesticides management and grievance management.

To assess the effectiveness of project activities, the environmental and social monitoring indicators are proposed (see table 23).

E. Include a results framework for the project proposal, including milestones, targets and indicators.

Table 25: Result framework

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
General Objective: <i>strengthen practices and capacities in climate-smart agriculture practices in the project region and at institutional level</i>	Number of the project beneficiaries	0	54 516 persons of which (28 075 women, beneficiaries of the 1762 ha irrigated areas with the infrastructures developed to build resilience of the population for their food security with: - 24 516 persons (4000 agricultural groups or households) direct beneficiaries of 1362 hectares developed for rice production - 16800 persons (2800 agricultural groups or households) direct beneficiaries of market gardens production - 6000 persons (1000 breeders groups or household) direct beneficiaries of 1000 ha of pasture - 7200 persons (1200 households) direct beneficiaries of the water supply	Monitoring and evaluation reports	Disponibility of financial resources Political willness of national and local governments Selection of vulnerable and very active people who have shown interest in the project
<i>Component 1: Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and</i>	Level of technical and institutional capacity of national and local government institutions and experts, farmers groups,	Lack of technical and institutional capacity to address the increase of	The capacities of 6 Ministries and local government services (agriculture, livestock, hydraulic, forest, environment, civil protection) are built to	Monitoring and evaluation reports Documents de politiques et plans relatifs au climat	Effective involvement of technical services and ministries

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
<i>planning</i>	private professionals, associations and government to address the increase of climate risk with the adaptation practices and planning Number and type of policies, procedures and guidelines enhanced or put in place which integrated climate-smart related	climate risk with the adaptation practices and planning Lack of guidelines for adaptation risk management and sustainable management of natural resources and social issues	address the increase of climate risk with the adaptation practices and planning 6800 groups or households are informed about climate risk with the adaptation practices and planning 1 national policy document, 4 local and regional development plans incorporate issues related to climate At least 10 policies, procedures and guidelines have been developed, strengthened and updated in application for the rational management of environmental and social issues	disponibles Monitoring and evaluation reports Policy documents and procedures, as well as environmental and social guidelines available	
Outcome 1.1. Technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions enhanced	Number of staff trained to help beneficiaries use climate-smart agriculture practices to respond and mitigate the impacts of climate-related events	Lack of training and documentation (policies, guidelines, etc.) about the adaptation to climate change in majority of the sectors of project area	The capacities of 6 Ministries and local government services (agriculture, livestock, hydraulic, forest, environment, civil protection) are built to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions	Training reports Monitoring and evaluation reports	Full participation of government experts, local and regional technical services and the population affected

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
Output 1.1.1. Socio-climatic vulnerability assessment for East Guinea-Bissau	Number of socio-climatic vulnerability assessment for East Guinea-Bissau	Lack of data related to socio-climatic vulnerability	1 assessment document on socio-climatic vulnerability available for East Guinea Bissau with data for adaptation actions planning 1 Guideline on local socio-climatic vulnerability assessment available	The assessment report The Guideline on local socio-climatic vulnerability assessment	Full participation and involvement of local public services
Output 1.1.2. Assessment of technical capacity building needs of ministries and field operatives for adaptation planning	Number of key ministries with needs in adaptation planning identified	Lack of capacities of key ministries experts in adaptation planning	1 report on assessment of technical capacity building needs of ministries and field operatives for adaptation planning	report on assessment of technical capacity building needs of ministries and field operatives for adaptation planning	Full participation and involvement of government institutions and local services
Output 1.1.3. Formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources	Number of detailed intervention plan for pilot climate-smart agriculture actions prepared Number of policies and plans revised to take in account climate change adaptation issues and natural resources sustainable management	Absence of detailed intervention plan for pilot climate-smart agriculture actions The National agricultural development policy letter, the of the National policy letter for the livestock development; The National Master plan of water and sanitation The Regional development plan of Gabu and local development plan of Pirada and Pitche are reviewed	01 detailed intervention plan for pilot climate-smart agriculture actions for East-Guinea Bissau elaborated The forest management policy is reviewed to take into account the climate change issues The regional development plan of Bafata is reviewed to take into account the climate change issues 3 local development plans are	Detailed intervention plan for pilot climate-smart agriculture actions for East-Guinea Bissau Improved forest management policy Improved regional development plan of Bafata Improved local	Full participation and involvement of national and local development stakeholders (government institutions, local government, NGOs, Associations, private sectors, populations, etc.)

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
	Number of policies, procedures and guidelines elaborated and implemented		<p>reviewed to take into account the climate change issues in the sectors of Sonaco, Contuboeel and Ganadu</p> <p>At least 10 policies, procedures and guidelines drafted to include environmental and social safeguards and gender issues, are approved and implemented</p>	<p>development plans taking into account the climate change issues in the sectors of Sonaco, Contuboeel and Ganadu</p> <p>Documents of policies, procedures and guidelines prepared</p> <p>Implementation report of the policies, procedures and guidelines prepared</p>	
Outcome 1.2. Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, in practice (on-site) and adaptation planning	Number of farmers groups, private professionals of development, associations trained on climate-smart agriculture knowledge to control flooding, to maintain agricultural production, livestock and population water supply in drought periods	267 producers of which 58 women are trained on the techniques on Zai, rotation, association of cultures and transverse plowing in LDCF project	At least 4 000 new producers of which 2060 women are trained on-site in climate-smart agriculture practices	Monitoring report	Full participation and involvement of national and local development stakeholders (government institutions, local government, NGOs, Associations, private sectors, populations, etc.)
Output 1.2.1. Technical trainings on adaptative systems and organizational capacity building for ONGs and identified target groups	Number of NGO trained Number of beneficiaries trained on adaptative systems	<p>The trainings on the consequences of the adverse impacts of climate change and adaptive measures in terms of small-scale irrigation are insufficient in project area</p> <p>267 producers of which 58 women are trained on the techniques on Zai,</p>	<p>Capacities of at least 5 NGOs have been strengthened to organize producer groups into management committees and train them in their mission</p> <p>40 sessions per year in two years (i.e two sessions on each project site) are conducted for beneficiaries to build their capacities on adaptative systems</p> <p>At least 4 000 new producers of which 2060 women are trained on-site in climate-smart agriculture practices</p>	<p>Training report</p> <p>Training reports</p> <p>On-site Practical training on resilient Climate Change Practices report</p>	<p>Involvement of beneficiaries to apply the knowledge and practices for adaptation to climate change</p> <p>Sensitization of beneficiaries to overcome possible cultural barriers</p>

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
	Number of groups whose organizational capacities are strengthened	rotation, association of cultures and transverse plowing in LDCF project Lack of groups organization in finance and management	At least 200 famers groups benefited from financial and management capacities building	Organizational training report	
1.2.2. Technical assistance and rural extension for subprojects	Number and type of technical assistance provided for subprojects development	Lack of technical assistance to producers	100% of beneficiaries benefited from technical assistance of decentralized services	Technical assistance report	Full participation and involvement of public decentralized services
1.2.3. Formulation/Update of contingency plans for climate-risk management on the micro-dams level	Number of formulation/ updated contingency plan to manage flood risks	Contingency plan inexistent in the project areas	01 Conteingency formulated 21 Sites contingency plan adapted At least 75% of beneficiaries population mastered the contingency plan and are able to address climate change risk	Contingency plan Monitoring report	Involvement of target area Civil protection and beneficiaries
Output 1.2.4. Support for famers groups by the government technical experts for adaptation actions	Percentage of producers that benefited from technical support services for the implementation of adaptation measures Level of gender integration and environmental and social measures in the framework of the project	Very lack support of the technical services to producers Non application of environnemental, social and gender issues due to lack of knowledge	100 % of beneficiaries benefited the technical support of decentralized services 100% environnemental, social and gender measures are applied	Basic data collected on sites Trimestrial management report Mid-term evalautaiion report	Full participation and involvement of beneficiaries and public decentralized services

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
Output 1.2.5. Capacity building to prevent forest fires	Number of fire brigades put in place Percentage of fire brigades organized and training on forest fire prevention	Lack of fire brigades in the project area	At least 40 fire brigades are put in place 100 % of fire brigades capacities are built to prevent and combat bushfire	Meeting and training reports	Full participation and involvement of civil protection, forest services, Rural Climate Change Forum (RCCF) and Environmental Vigilance Committees (CRA) Involvement fire brigades members Involvement of the head villages and the population
<i>Component 2: Enhance the resilience of existing agricultural productive systems, including water control</i>	Percentage of the targeted population aware of the adverse impacts on climate change foreseen and the adequate responses	Low percentage of the targeted population aware of the adverse impacts on climate change foreseen and the adequate responses	75% of the targeted beneficiaries aware of the adverse impacts on climate change foreseen and the adequate responses	Monitoring and evaluation of resilience and adaptive actions report	Full participation and involvement of national and local development stakeholders (government institutions, local government, NGOs, Associations, private sectors, populations, etc.)
Outcome 2.1. Agricultural activities are climate-smart and contribute to sustainable increased in productivity and enhanced national food security	Average of increased yield of rice and others crops (kg / ha), measured at site level – showing improvements compared to national and/or regional average (Gabù and Bafatà) due to climate-smart agriculture practices Number of beneficiary who have improved their food security, at least with regard to rice as a staple food	600 kg/ha of rice 10000 kg/ha of potatoes 8000kg/ha of tomato 8000 kg/ha of onion 42% of the needs of rice of the beneficiaries are not satisfied	4000 t/ha of rice 25000 kg/ha of potatoes 22000kg/ha of tomato 23000 kg/ha of onion 100% of the needs of rice of the beneficiaries are satisfied	Annual reports	Reluctance to apply the knowledge and practices for adaptation to climate change Cultural barriers in accepting new techniques can be expected.
Output 2.1.1. Development of lowlands to maintain agricultural production in drought periods	Number of hectare of lowlands developed Water availability to maintain agricultural production in	Lack of infrastructures to develop irrigation	1000 ha of lowlands developed to maintain agricultural production in drought periods	Annual reports	Full participation and involvement of beneficiaries

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
	drought periods				
Output 2.1.2: Construction of micro-dams for irrigation of rice, vegetable crops and livestock water supply	Number of hydraulic infrastructure to raise water for irrigation and livestock Percentage of satisfaction of the water needs of plants	Lack of infrastructures to develop irrigation and prevent site silting Water needs of insufficient plants affecting production (ie. Irregularity of irrigation and not controlled and early drought)	20 micro-dams constructed for irrigation of rice and vegetable crops and rain and storm water retention systems for improved livestock water supply 100% of the water needs of plants met with a controlled irrigation	Annual reports	Full participation and involvement of beneficiaries
Output 2.1.3. Rehabilitation/improvement of soil productivity and small-scale investments into agriculture inputs, machinery and tools	Number of population sensitized about the harms of slash and burn agriculture practice on soil fertility and crop yields Percentage of targeted population applying adaptation measures	Lack of sensitization campaigns on the harms of slash and burn agriculture practice on soil fertility and crop yields 55 % of producers trained in the framework of the LDCF project are applying adaptatives techniques 0 producers trained on techniques of Intensive rice growing system (SRI)	At least 50 000 beneficiaries are sensitized on the harms of slash and burn agriculture practice on soil fertility and crop yields At least 75% of beneficiaries apply climate-smart agriculture practices on the adaptation project sites At least 200 producers of which 110 women are trained on techniques of Intensive rice growing system (SRI)	Sensitization reports Field impact evaluation report Field impact evaluation report	Full participation and involvement of beneficiaries Involvement of the PMU

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
	Nombre de producteurs formés sur la technique de multiplication des semences	28 producers trained on the technique of the multiplication of the rice seeds and produce seeds	At least 400 producers trained on the technique of multiplication of rice and produce seeds	Training report on the multiplication of seeds	
	Average agricultural productivity crops (kg / ha), measured at site level – showing improvements compared to the baseline	600kg/ha for the rice 10000 kg/ha of potatoes 8000kg/ha of tomato 8000 kg/ha of onion	4000 kg/ha for the rice 25000 kg/ha for potatoes 22000kg/ha of tomato 23000 kg/ha of onion	Monitoring report Agriculture campaigns report Data collected by project animators	
	Number of hectare developed for forage production	16.5 hectares of Brachiaria (forage) installed for 468 breeders (or 0.035 ha by people) under the LDCF project	1000 hectare of forage (brachiaria and leguminous plants) installed for 6000 people (0.156 ha by people)		
	Number of breeders and farmers trained on organic fertilizer production	80 breeders trained (40 men and 40 women) on the technical production of fertilizers organic from feces of livestock	At least 500 breeders and farmers which of 250 women trained in the technical production of fertilizers organic from feces of livestock		
	Number of rain gauges	Lack of rain gauges in the	120 rain gauges installed to	Data collected	

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
	<p>installed to support the monitoring of the adaptation of agriculture to climatic disturbances</p> <p>Number of mission of monitoring and analysis of water and soil quality</p>	<p>project area</p> <p>Absence of water and soil quality analysis in the project area</p>	<p>support the monitoring of the adaptation of agriculture to climatic disturbances</p> <p>Equipment of the of the soil and water quality analysis available</p> <p>At least one mission for water and soil quality analysis is carried out per year</p>	<p>Quality of the soil and water analysis equipment</p> <p>Analysis report of technical services</p>	
Output 2.1.4. Construction of drills and ramps for improved livestock and domestic water supply and market gardens development	<p>Number of drinking water points created to supply drinking water to the population</p> <p>Number of hectare developed for market gardening and number of beneficiaries</p>	<p>Lack of drinking water points for home consumption</p> <p>Lack of market gardening undertaken due to lack of water</p>	<p>30 wells of water and 5 ramps to access River Corubal to improve the supply of drinking water for the population and livestock</p> <p>400 ha of new market gardens are developed</p> <p>16 800 persons benefit from gardening activities</p>	<p>Monitoring report</p> <p>Annual report</p> <p>Evaluation report</p>	Full participation and involvement of beneficiaries
<i>Componet3: Knowledge management of lessons learned on climate-smart agriculture and adaptation planning</i>	<p>Strong knowledge management strategy is put in place and operational</p> <p>Lessons learned are dissiminated in the all regions of the Country</p>	<p>Only two sectors of one region are benefited the dissemination of climate-smart agriculture practices</p>	<p>At least 4 regions of the country will benefit the dissemination of climate-smart agriculture practices</p>	<p>Document of strategy for dissemination of knowledge and lessons learned from the project</p> <p>Report of lessons learned dissemination</p>	Full involvement of the PMU and beneficiaries
Outcome 3.1 Sustainable climate-smart agriculture practices and management is disseminated in comparable	<p>Lessons learned from the project are disseminated trough a knowledge management strategy, a</p>	<p>Absence of knowledge management strategy, a manual</p>	<p>knowledge management strategy, manual and other materials on best practices and measures for climate-</p>	<p>Report of lessons learned dissemination</p> <p>Final report</p>	Full involvement of the PMU and beneficiaries

Logic intervention	Indicator	Basic data	Target	Mean of verification	hypothesis / Risk
regions of the country and other West African countries	manual and other materials on best practices and measures for climate-smart agriculture, a website at the local, national and regional level	and other materials on best practices and measures for climate-smart agriculture, a website at the local, national and regional level	smart agriculture, a website at the local, national and regional level will be put in place		
Output 3.1.1. Knowledge management strategy developed	strategy for dissemination of knowledge and lessons learned available	Absence of strategy for dissemination of knowledge and lessons learned	One strategy for dissemination of knowledge and lessons learned available	strategy for dissemination of knowledge document	Full involvement of the PMU and beneficiaries
Output 3.1.2. Project website developed and active	Website available for project information diffusion	Absence of Website for project information diffusion	Operationalization of project website	Operational website on project information dissemination	Full involvement of the PMU and beneficiaries
Output 3.1.3. Manual and other materials on best practices and measures for climate-smart agriculture are developed	Number of manuals of good practice on climate-smart agriculture developed and disseminated	Absence of manuals of good practice on climate-smart agriculture	One manuals of good practices on climate-smart agriculture developed and disseminated	manuals of good practice on climate-smart agriculture	Full involvement of the PMU and beneficiaries
Output 3.1.4. Dissemination of results to other regions of Guinea-Bissau and West Africa	Number of regions and populations affected by the dissemination of the results of the project	The climate smart agriculture has not yet experienced expansion in many regions and in West Africa countries	The dissemination of the project results and lessons learned has been effective in, at least, of 4 regions and in West Africa countries	Lessons learned dissemination report	Full involvement of the PMU and beneficiaries

F. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

Table 26: Aligns of the project with the Results Framework of the Adaptation Funds

Project Objective (s) <u>19</u>	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (X 1000 USD)
OS1. Develop technical and institutional capacity of government and civil society (private sector, local communities, NGOs) to address increasing climatic risk in climate change adaptation planning	Number of beneficiaries informed about issues related to climate risk through the actions of meteorological services, the soil and water analysis and the actions against flooding and bushfires	Outcome 1: Reduced exposure at national level to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	700
	Level of technical and institutional capacity of national and local government institutions and experts to address the increase of climate risk with the adaptation practices and planning	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. Number and type of targeted institutions with increased capacity to minimize exposure to climate variability hazards	
	Number of the local population beneficiaries of the project aware of the negative impacts of climate change and appropriate responses	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of the target population aware of the negative impacts of climate change and appropriate responses	
	Percentage of beneficiaries who have adopted the climate-smart agriculture practices		3.2. Modification in behavior of targeted population	
	Number and type of policies, procedures and guidelines enhanced or put in place which integrated climate-smart related	Outcome 7: Improvement of policies and regulations that promote and enforce resilience measures	7. Climate change priorities are integrated into national development strategy	
OS2. Enhance the resilience of existing agricultural productive systems and contribute to the diversification of production, including via implementation of	Number of small-scale irrigation infrastructure, micro-dams and drills put in place to control flooding, to maintain agricultural production, livestock and population water supply in drought periods	Outcome 4: Increase of capacity to adapt to climate change within development areas and regarding the relevant natural resources	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	7 550

climate-resilient water control and management actions to minimize risks from intense droughts and floods	Percentage of the target beneficiaries by means of resilient livelihoods to climate change suffered	Outcome 6: Diversify and strengthen livelihoods and sources of income for vulnerable people in targeted areas	6.2. Percentage of the target population by means of resilient livelihoods to climate change suffered	
OS3. Promote knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning to other regions of the country, other countries in West Africa and to international climate change negotiations and fora, including the UNFCCC process	Strong knowledge management strategy is put in place and operational Lessons learned are disseminated in the all regions of the Country	Outcome 1: Reduced exposure to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	150
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant amount (USD)
Outcome 1.1. Increased technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions	Number of staff trained to help beneficiaries to use climate-smart agriculture practices to respond and mitigate the impacts of climate-related events Capacity of national and regional staff to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions Number of policies, procedures and guidelines enhanced or put in place which integrated climate-smart strategies and practices	Product 2.1 : Capacity building of centers and national and regional networks to respond quickly to extreme weather events Output 7: Improved integration of climate-resilience strategies into country development plans	2.1.1. Number of staff/agent trained to respond to and mitigate the impacts of climate-related events 2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased 7.2. No. or targeted development strategies with incorporated climate change priorities enforced	242.5

Outcome 1.2 Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, environmental, social and gender in practice (on-site) and adaptation planning	Number of farmers groups, private professionals of development, associations trained on climate-smart agriculture knowledge to control flooding, to maintain agricultural production, livestock and population water supply in drought periods	Output 3 : Targeted population groups involved in sensitization activities for the adaptation and risk reduction	3.1.1 Number and type of risk reduction actions or strategies introduced at local level	457.5
Outcome 2.1. Agricultural and livestock activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security	Number of small-scale irrigation infrastructure, micro-dams and drills put in place to control flooding, to maintain agricultural production, livestock and population water supply in drought periods Reduction rate of food insecurity in the project area with the climate-smart agriculture practices	Output 4: Physical, natural and social vulnerable assets strengthened in response to the impacts of climate change, including climate variability Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	4.1.2. Number of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by type of assets) 6.2.1. Type of income sources for households generated under climate change scenario	7550
Outcome 3.1 Sustainable climate-smart agriculture practices and management is disseminated in comparable regions of the country and other West African countries	Lessons learned from the project are disseminated through a knowledge management strategy, a manual and other materials on best practices and measures for climate-smart agriculture, a website at the local, national and regional level	Product 7: Better integration of climate resilience strategies into national development plans	7.1. Type and sector of policies introduced or adjusted to meet the risks of climate change	150
Total				8 400

The Adaptation Fund core indicators suggested to be monitored during the project implementation are below.

The Adaptation Fund core indicators suggested to be monitored during the project implementation are below.

Table 27: **Adaptation Fund Core Impact Indicator “Assets Developed”**

Adaptation Fund Core Impact Indicator “Assets Developed”				
Date of Report				
Project Title	Scaling up climate-smart agriculture in East Guinea Bissau			
Country	Guinea Bissau			
Implementing Agency	WEST AFRICAN DEVELOPMENT BANK (BOAD)			
Project Duration	05 YEARS			
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion
AGRICULTURE AND LIVESTOCK				
Targeted Asset Developed				
Development of small-scale irrigation infrastructure, micro-dams and drills to control flooding, to maintain agricultural production, livestock and population water supply in drought periods	0	Development of : <ul style="list-style-type: none"> - 5 small-scale irrigation systems to develop 750 ha of lowlands with dykes and dams of retention and fragmentation, of anti-erosion protection and of the slopes management against the silting up ((output 2.1.1) - 15 micro-dams to develop 912 ha for irrigation of rice and vegetable crops and rain and storm water retention systems for improved livestock water supply (output 2.1.2) 		
Drinking water supply				
Water supply with drills and ramps	0	- 30 drills and 5 ramps for improved livestock and domestic water supply and 100 ha of market gardens development (output 2.1.4)		

Table 28: Adaptation Fund Core Impact Indicator “Number of Beneficiaries”

Adaptation Fund Core Impact Indicator “Number of Beneficiaries”				
Date of Report				
Project Title	Scaling up climate-smart agriculture in East Guinea Bissau			
Country	Guinea Bissau			
Implementing Agency	WEST AFRICAN DEVELOPMENT BANK (BOAD)			
Project Duration	05 YEARS			
AGRICULTURE AND LIVESTOCK	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion ³⁰
Direct beneficiaries of the 1762 irrigated areas with the infrastructures developed to build resilience of the population for their food security	0	54 516 beneficiaries of the 1762 ha irrigated areas with the infrastructures developed to build resilience of the population for their food security with: <ul style="list-style-type: none"> - 24 516 persons (4000 agricultural groups or households) direct beneficiaries of 1362 hectares developed for rice production (Output 2.1.1. and 2.1.2) - 16800 persons (2800 agricultural groups or households) direct beneficiaries of market gardens production - 6000 persons (1000 breeders groups or household) direct beneficiaries of 1000 ha of pasture - 7200 persons (1200 households) direct beneficiaries of the water supply 		
Women direct beneficiaries of the 1762 irrigated areas with the infrastructures developed to build resilience of the population for their food security	0	At least 28 075 women beneficiaries of the 1762 ha irrigated areas with the infrastructures developed to build resilience of the population for their food security (Output 2.1.1., 2.1.2, 2.1.4)		
Indirect beneficiaries of the project	0	44 454 indirect beneficiaries of the crops production for their food security (Output 2.1.1., 2.1.2, 2.1.4)		
Female indirect beneficiaries of the irrigated areas with the modern techniques systems to build resilience of the population for their food security	0	22 893 womens indirect beneficiaries of the crops production for their food security (Output 2.1.1., 2.1.2, 2.1.4)		
Youth indirect beneficiaries of the irrigated areas with the modern techniques systems to build resilience of the population for their food security	0	462 960 young indirectly beneficiaries of 1000 hectares of developed sites through modern irrigation techniques (Output 2.1.1.)		

³⁰ At project completion, the proponent could report on % targeted population reached or successfully supported (the absolute numbers could then be deduced from that figure)

- G. Include a detailed budget with budget notes, a budget on the use of management fees Implementing Entity, and an explanation and breakdown of implementation costs

In accordance with the PCN endorsed by the Board of the Adaptation Fund by Decision B.27/9 during its 27th meeting on 17 and 18 March 2016 in Bonn, Germany, the total cost of the project amounts is USD 9,979,000.

Implementing Entity (BOAD) Specialized technical services budget

The implementing entity fee will be utilized by BOAD 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.

Table 29: Implementation technical services budget

Step	Indicatives services	Indicative cost
Identification, Sourcing and Screening of ideas	<ul style="list-style-type: none"> - Provide information on substantive issues in adaptation associated with the purpose of the Adaptation Fund (AF). - Engage in upstream policy dialogue related to a potential application to the AF. - Verify soundness and potential eligibility of identified idea for AF. 	US\$ 35,000
Feasibility Assessment / Due Diligence Review	<ul style="list-style-type: none"> - Provide up-front guidance on converting general idea into a feasible project; - Source technical expertise in line with the scope of the project; - Verify technical reports and project conceptualization; - Provide detailed screening against technical, financial social and risk criteria and provide statement of likely eligibility against AF requirements; - Determination of execution modality and local capacity assessment of the national executing entity; - Assist in identifying technical partners; - Validate partner technical abilities; - Obtain clearances from AF. 	US\$ 90,000
Development & Preparation of project	<ul style="list-style-type: none"> - Provide technical support, backstopping and troubleshooting to convert the idea into a technically feasible and operationally viable project; - Source technical expertise in line with the scope of the Project needs; - Verify technical reports and project conceptualization; - Verify technical soundness, quality of preparation, and match with AF expectations; - Negotiate and obtain clearances by AF; - Respond to information requests, arrange revisions; - etc. 	US\$ 108,000
Selection of the sub-project	<ul style="list-style-type: none"> - Conduct subprojects screening; - Control the preparation of the TOR of subprojects environmental and social impact assessments; - Deliver no-objection on the TOR; - Supervise the selection of consultants to prepare subproject ESIA; - Reviews the sub-projects ESIA reports and ensures that assessment have been completed in accordance with the 	US\$ 40,000

Step	Indicatives services	Indicative cost
	AF Policy; <ul style="list-style-type: none"> - Oversee subprojects approval; - Disclose the subproject ESIA reports and give information to the people concerned and others stakeholders. 	
Implementation of the project	<ul style="list-style-type: none"> - Technical support in preparing TORs and verifying expertise for technical positions; - Oversee the process of recruiting consultant (FAO experts) for the training on integrated pests and pesticides management ; - Oversee all training activities and the application of best practice measures in the field ; - Provide technical and operational guidance project teams; - Verification of technical validity / match with AF expectations of inception report; - Manages the grievance process and ensures that the complainants have been satisfied with the resolution of their complaint ; - Provide technical information as needed to facilitate implementation of the project activities; - Provide advisory services as required; - Provide technical support, participation as necessary during project activities; - Provide troubleshooting support if needed; - Provide support and oversight missions as necessary; - Receipt, allocation and reporting to the AF of financial resources - Allocate and monitor Annual Spending Limits based on agreed work plans; - Oversight and monitoring of AF funds; - Return unspent funds to AF. 	US\$ 285,000
Project monitoring and reporting	<ul style="list-style-type: none"> - Provide technical support in preparing TOR and verify expertise for technical positions involving in the monitoring and reporting; - Provide technical monitoring, progress monitoring, validation and quality assurance; - Receives and analyzes the monthly report from the PMU on the subproject ESIA implementation - Conduct field monitoring missions to verify the concrete implementation of the ESMP including integrated pest and pesticides management and recommend specific corrective actions to ensure that the subprojects complies with the E&S principles of the Adaptation Fund; - Monitor the implementation of the agreement of compliant resolution; - Verify the implementation of adaptation actions planned under the project; - Submit annually to the Adaptation Fund, the report on the status of implementation of subprojects ESMP. 	US\$ 105,000
Project evaluation and reporting	<ul style="list-style-type: none"> - Provide technical support in preparing TOR and verify expertise for technical positions involving evaluation and reporting; - Conduct the evaluation field missions on the different 	US\$ 118,000

Step	Indicatives services	Indicative cost
	aspects of the project namely: technical, environmental, social, pest and pesticides management, grievance management, budget, etc.; <ul style="list-style-type: none"> - Include in the midterm and final evaluation report of the project, the status of implementation of the environmental and social management plans of the subprojects; - Participate in briefing / debriefing; - Verify technical validity / match with AF expectations of all evaluation and other reports; - Undertake technical analysis, validate results, and compile lessons; - Disseminate technical findings. 	
TOTAL		US\$ 781,000

Project Budget for the Adaptation Fund

The project will be fully funded by the Adaptation Fund. However, the taxes are supported by the Bissau-Guinean State. The following table presents the budget of the Adaptation Fund.

Table 30: Adaptation Fund summary budget

COMPONENT	Total HT (X 1000 USD)	Taxes (1000 USD)	Total TTC (X 1000 USD)
Component 1: Development of technical and institutional capacity to address increasing climatic risk in adaptation practices and planning	700	133	833
1.1. Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning	242,5	46,075	288,575
1.2. Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, in practice (on-site) and adaptation planning	457,5	86,925	544,425
Component 2: Enhance the resilience of existing agricultural productive systems, including water control	7550	1434,5	8984,5
2.1: Agricultural activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security	7550	1434,5	8984,5
Component 3: Knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning	150	28,5	178,5
3.1: Sustainable climate-smart agriculture practices and management is disseminated in comparable regions of the country and other West African countries level	150	28,5	178,5
Component 4: Project execution cost	798	51	949
4.1. Investisment	13	21	134
4.2 Recurent cost	723	18	741
4.3. Monitoring and Evaluation	62	12	74

BASIC COST	9 198	1 647	10 945
Project/Programme Cycle Management Fee charged by the Implementing Entity	781		781
TOTAL PROJECT	9 979	1 647	11 726

The detail budget of Adaptation Funds for each component is presented in the following table (see column colored in green). In fact, the project has three main components, plus the project management component.

Component 1: Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning

Activities	Unity	Total Quantity	Unit cost	Basic cost planning (X 1000 USD)					Total (USD)		
				year 1	year 2	year 3	year 4	year 5	HT Adaptation Fund	Tax (Government Bissau-Guinéen)	TTC
1.1. Technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions enhanced											
1.1.1. Socio-climatic vulnerability assessment for East Guinea-Bissau	Nbre	1	20,0	20,00	0,00	0,00	0,00	0,00	20,00	3,80	23,80
1.1.2. Assessment of technical capacity building needs of ministries and field operatives for adaptation planning	Nbre	1	10,0	10,00	0,00	0,00	0,00	0,00	10,00	1,90	11,90
1.1.3. Formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources	-										
Formulation of detailed intervention plan for pilot climate-smart agriculture actions	Nbre	1	10,0	0,00	10,00	0,00	0,00	0,00	10,00	1,90	11,90
Enhancing policies, procedures and guidelines of the country through integration of issues related to climate change, gender and natural resources sustainable management	FF	1	150,00	37,50	75,00	18,75	18,75	0,00	150,00	28,50	178,50
Development of a monitoring and evaluation system	FF	1	12,50	12,5	0,00	0,00	0,00	0,00	12,5	2,375	14,875
Sub-Total 1.1.				80,00	85,00	18,75	18,75	0,00	202,50	38,48	240,98
1.2. Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, in practice (on-site) and adaptation planning											
1.2.1. Technical trainings on adaptative systems including integrated pests and pesticides management and organizational capacity built for ONGs, identified target groups and technical services	FF		50,00	27,50	7,50	7,50	7,50	0,00	50,00	9,50	59,50
1.2.2. Technical assistance and rural extension for subprojects	Nb of sites	99	1,00	33,00	33,00	33,00	0,00	0,00	99,00	18,81	117,81
1.2.3. Formulation/update of contingency plans for climate-risk management	FF	1	5,00	5,00	0,00	0,00	0,00	0,00	5,00	0,95	5,95
1.2.4. Support for farmers groups for adaptation actions implementation and integrated pest and pesticides management, tools box design, dissemination and appropriate use											
Support for farmers groups by the government technical experts	FF	5	15,00	15,00	15,00	15,00	15,00	15,00	75,00	14,25	89,25
Proximity support by sites facilitators/animators	H/M	810	0,12	10,80	21,60	21,60	21,60	21,60	97,20	18,47	115,67
Design, dissemination and appropriate use of integrated pest and pesticides management tools box	FF		30,00	30,00	0,00	0,00	0,00	0,00	30,00	5,70	35,70
1.2.5. Capacity building to prevent forest fires											
Capacity building and operationalization of fire brigades	FF	5	25,00	25,00	25,00	25,00	25,00	25,00	125,00	23,75	148,75
Enhancing technical and organizational capacities of Rural Climate Change Forum (RCCF) and Environmental Vigilance Committees (CRA) for better operationalization	FF	4	4,08	4,08	4,08	4,08	4,08	0,00	16,30	3,10	19,40
Sub-Total 1.2.				150,38	106,18	106,18	73,18	61,60	497,50	94,53	592,03
TOTAL 1				230,38	191,18	124,93	91,93	61,60	700,00	133,00	833,00

Component 2: Enhance the resilience of existing agricultural productive systems, including water control

Topics	Unity	Cost per unit HT (X1000 USD)	Basic cost (1000 USD)					TOTAL (1000 USD)		
			Year 1	Year 2	Year 3	Year 4	Year 5	HT (Adaptation Fund)	Tax (Government Guinea Bissau)	TTC
2.1: Agricultural activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security										
2.1.0 Support for subproject selection and design										
2.1.0.1 Support for subproject selection		1	50	0	0	0	0	50	9,5	59,5
2.1.0.2. Complementary studies of APD, Subprojects ESIA realization, ESMP updated, DAO, supervision and control of works	Nb	8	160	0	0	0	0	160	30,4	190,4
2.1.1: Development of lowlands to maintain agricultural production in drought periods										
2.1.1.1. Development of lowlands in the framework of the adaptation fund projects	unity of 50 ha	50	250	750	0	0	0	1000	190	1190
2.1.1.2. Scaling up of partially developed sites within the old LDCF project	ha	1	662	0	0	0	0	662	125,78	787,78
2.1.2: Construction of micro-dams for irrigation of rice, vegetable crops and livestock water supply										
2.1.2.1. Construction of micro-dams with the irrigation systems	unity of 50 ha	175	875	2625	0	0	0	3500	665	4165
2.1.3. Rehabilitation/improvement of soil productivity and small-scale investments into agriculture inputs, machinery and tools										
2.1.3.1. Sensitization/Education about the harms of slash and burn agriculture practice on soil fertility and crop yields and dissemination and strengthening of climate-smart agriculture practices										
Sensitization/Educatin about the harms of slash and burn agriculture practice on soil fertility and crop yields	Sessions	1	0	5	15	0	0	20	3,8	23,8
Dissemination and strengthening of climate-smart agriculture practices	FF	10,0	0	10	10	10	0	30	5,7	35,7
2.1.3.2. Support access to improved seeds, resistant and short cycle										
Support to groups for the acquisition and multiplication of quality seeds	unity of 50 ha	3	0	15	45	0	0	60	11,4	71,4
Construction of seed banks	Nb	1,5	0	7,5	22,5	0	0	30	5,7	35,7
2.1.3.3. Support to groups for the acquisition of quality fertilizers, pesticides and crops conservation	unity of 50 ha	10	0	50	150	0	0	200	38	238
2.1.3.4. Support for the adaptation of the cultural calendar to climate disturbances										

Topics		Unity	Cost per unit HT (X1000 USD)	Basic cost (1000 USD)					TOTAL (1000 USD)		
				Year 1	Year 2	Year 3	Year 4	Year 5	HT (Adaptation Fund)	Tax (Government Guinea Bissau)	TTC
	Installation of 120 rain gauges (pluviometers)	Nb	0,05	6	0	0	0	0	6	1,14	7,14
	Support of meteorological services to famers groups for better adaptation of agriculture to climate disturbances	FF	5	5	5	5	5	5	25	4,75	29,75
2.1.3.5. Support for plowing and the acquisition of equipment /materiels for the production and valorization of products on a demonstrative basis		—									
	Support to groups for clearing and plowing sites	ha	0,1	0	20	80	0	0	100	19	119
	Support for the acquisition of power tillers (motor cultivators)	Nb	10	0	200	0	0	0	200	38	238
	Support for the acquisition of weeders	Nb	0,01	0	10	0	0	0	10	1,9	11,9
	Support for agropastoralists for the harnessing of oxen for plowing and crops transporting	Nb	4	0	240	0	0	0	240	45,6	285,6
	Support for the acquisition of dehullers	Nb	7,2	144	0	0	0	144	288	54,72	342,72
2.1.3.6. Support for the production of forage for livestock (Cultivation of brachiaria, moringa, fruit trees, etc,) and increase organic manure production		—									
	Support for the acquisition of brachiaria seed and others nutritive seed and cultivation for the production of forage	ha	0,05	5	10	10	10	15	50	9,5	59,5
	Construction of hangars for feed storing	Nbre	0,2	3	10	7	0	0	20	3,8	23,8
	Support for the specialization of breeding groups in the production of brachiaria seeds	FF	10	0	10	10	0	0	20	3,8	23,8
	Support to the prevention of livestock diseases through vaccination	FF	15	0	15	0	15	0	30	5,7	35,7
	Promotion of the production of organic manure	unity of 50 ha	2	0	10	30	0	0	40	7,6	47,6
2.1.3.7. Support for the analysis of soil and water quality and subprojects ESMP monitoring											
	Support for the analysis of soil and water quality	FF	70	70	3,5	3,5	3,5	3,5	84	15,96	99,96
	ESMP monitoring	FF	12	12	12	12	12	12	60	11,4	71,4
2.1.4. Construction of drills and ramps for improved livestock and domestic water supply and market gardens development		—									
2.1.4.1. Construction of drills for improved livestock and domestic water supply and market gardens development		—									
	Geotechnical studies APD and works supervision	Nb	1	0	30	0	0	0	30	5,7	35,7

Topics		Unity	Cost per unit HT (X1000 USD)	Basic cost (1000 USD)					TOTAL (1000 USD)		
				Year 1	Year 2	Year 3	Year 4	Year 5	HT (Adaptation Fund)	Tax (Government Guinea Bissau)	TTC
	Construction work for human-powered drilling combining feeders (abreuvoirs) for livestock	Nb	14	0	140	0	0	0	140	26,6	166,6
	Construction of manually operated drilling for market gardens	Nb	14	70	210	0	0	0	280	53,2	333,2
	Support for the development and enhancement of vegetable growing gardens	ha	1	0	25	75	0	0	100	19	119
2.1.4.2. Construction of ramps for improved livestock and domestic water supply											
	Complementary studies of APD, Subprojects ESIA realization, DAO, supervision and control of works for ramps construction	Nb of ramps	1	5	0	0	0	0	5	0,95	5,95
	Construction of access ramps to the Corubal river for livestock watering	Nb of ramps	22	0	110	0	0	0	110	20,9	130,9
TOTAL 2.				2317	4523	475	55,5	179,5	7550	1434,5	8984,5

Component 3: Knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning

Activities	Unity	Total Quantity	Unit cost	Basic cost planning					Topics			
				An 1	An 2	An 3	An 4	An 5	HT Adaptation Fund	Tax	TTC	
3.1: Sustainable climate-smart agriculture practices and management is adopted in comparable regions of the country and disseminated to other West African countries, contributing to resilience and development needs in those regions												
3.1.1: Development of knowledge management strategy	Nb	1	14	0	14	0	0	0	14	2,66	16,66	
3.1.2: Development and animation of project website	FF	1	10	5	1,25	1,25	1,25	1,25	10	1,9	11,9	
3.1.3: Manual and other materials on best practices and measures for climate-smart agriculture are developed	Nb	10	3	0	18	12	0	0	30	5,7	35,7	
3.1.4: Dissemination of results to other regions of Guinea-Bissau and West Africa	Sessions	6	16	0	0	0	48	48	96	18,24	114,24	
TOTAL 3				5	33,25	13,25	49,25	49,25	150	28,5	178,5	

Component 4: Project execution cost

Rubriques	Unity	Cost per unit HT (x 1000 USD)	Basic cost (1000 USD)					Total (X 1000 USD)			
			Year 1	Year 2	Year 3	Year 4	Year 5	HT		Tax	TTC
								Adaptation Fund	BOAD	Gouvernement of Guinea Bissau	
4.1. Investments											
4.1.1. Development / rehabilitation of local											
Rehabilitation of local (Bissau, Bafatà et Gabù)	FF	2,00	2,00					2,00		0,38	2,38
4.1.2. Equipment and Logistics											
Office equipment	FF	3,00	3,00					3,00		0,57	3,57
Laptop	Nbre	0,80	5,60					5,60		1,06	6,66
Audio visual equipment (cameras, video projectors, CD-DVDs)	FF	2,00	2,00					2,00		0,38	2,38
Purchase of vehicles	Nbre	45,00	90,00	0,00	0,00	0,00	0,00		90,00	17,10	107,10
Rehabilitation of the LDCF vehicles Project	Nbre	5,00	10,00	0,00	0,00	0,00	0,00		10,00	1,90	11,90
4.1.3. Financial management and auditing											
Audit des comptes	FF	4,00	0,00					0,00		0,00	0,00
Sub-total 4.1.			112,60	0,00	0,00	0,00	0,00	12,60	100,00	21,39	133,99
4.2. Recurring costs											
4.2.1. Salaries / Staff Allowance											
Project Coordinator	H/mois	2,00	24,00	24,00	24,00	24,00	24,00	120,00			120,00
Technical Coordinator of the project - Expert Agronomist-Based in Gabù	H/mois	1,40	16,80	16,80	16,80	16,80	16,80	84,00			84,00
Technical Coordinator Project Assistant - Climate Change Adjustment Expert - based in Bafatà	H/mois	1,40	16,80	16,80	16,80	16,80	16,80	84,00			84,00
Specialist in Policy and Regulatory Development and Capacity Building	H/mois	1,40	16,80	16,80	16,80	16,80	16,80	84,00			84,00

Rubriques	Unity	Cost per unit HT (x 1000 USD)	Basic cost (1000 USD)					Total (X 1000 USD)			
			Year 1	Year 2	Year 3	Year 4	Year 5	HT		Tax	TTC
								Adaptation Fund	BOAD	Gouverment of Guinea Bissau	
Communication expert	H/mois	0,90	10,80	10,80	10,80	10,80	10,80	54,00			54,00
Accountant, Procurement Specialist	H/mois	1,30	15,60	15,60	15,60	15,60	15,60	78,00			78,00
Executive Secretary	H/mois	0,50	6,00	6,00	6,00	6,00	6,00	30,00			30,00
Driver - Gabù	H/mois	0,40	4,80	4,80	4,80	4,80	4,80	24,00			24,00
Driver - Bafatà	H/mois	0,40	4,80	4,80	4,80	4,80	4,80	24,00			24,00
Driver - Bissau	H/mois	0,40	4,80	4,80	4,80	4,80	4,80	24,00			24,00
cleaning women (Gabù)	H/mois	0,10	1,20	1,20	1,20	1,20	1,20	6,00			6,00
cleaning women (Bafatà)	H/mois	0,10	1,20	1,20	1,20	1,20	1,20	6,00			6,00
watchman (Gabù)	H/mois	0,10	1,20	1,20	1,20	1,20	1,20	6,00			6,00
watchman (Bafatà)	H/mois	0,10	1,20	1,20	1,20	1,20	1,20	6,00			6,00
4.2.2. Fees for Missions											
Project Coordinator	H/jour	0,05	0,75	1,00	1,00	1,00	1,00	4,75		0,90	5,65
Specialist in policy and regulatory development and capacity building climate change and environment	H/jour	0,05	0,50	0,75	0,75	0,75	0,75	3,50		0,67	4,17
Technical Coordinator of the project - Expert Agronomist-Based in Gabù	H/jour	0,01	0,40	0,80	0,82	0,82	0,81	3,65		0,69	4,34
Technical Coordinator Project Assistant - Climate Change Adjustment Expert - based in Bafatà	H/jour	0,01	0,40	0,80	0,80	0,80	0,80	3,60		0,68	4,28
Communication expert	H/jour	0,01	0,10	0,20	0,20	0,20	0,20	0,90		0,17	1,07
Driver - Gabù	H/jour	0,01	0,40	0,80	0,82	0,82	0,81	3,65		0,69	4,34
Driver - Bafatà	H/jour	0,01	0,40	0,80	0,80	0,80	0,80	3,60		0,68	4,28
Driver - Bissau	H/jour	0,05	0,75	1,00	1,00	1,00	1,00	4,75		0,90	5,65
4.2.3. Maintenance and Operation											
Operation Vehicle Gabù	Véhi/an	4,00	4,00	4,00	4,00	4,00	4,00	20,00		3,80	23,80
Operation Vehicle Bafatà	Véhi/an	4,00	4,00	4,00	4,00	4,00	4,00	20,00		3,80	23,80

Rubriques	Unity	Cost per unit HT (x 1000 USD)	Basic cost (1000 USD)					Total (X 1000 USD)			
			Year 1	Year 2	Year 3	Year 4	Year 5	HT		Tax	TTC
								Adaptation Fund	BOAD	Gouvernement of Guinea Bissau	
OperationVehicle Bissau	Véhi/an	2,00	2,00	2,00	2,00	2,00	2,00	10,00		1,90	11,90
Office Supplies Bissau	an	1,00	1,00	1,00	1,00	1,00	1,00	5,00		0,95	5,95
Office Supplies Gabù	an	0,40	0,40	0,40	0,40	0,40	0,40	2,00		0,38	2,38
Office Supplies Bafatà	an	0,40	0,40	0,40	0,40	0,40	0,40	2,00		0,38	2,38
General expenses (water, electricity, telephone ...) Bafatà	an	0,60	0,60	0,60	0,60	0,60	0,60	3,00		0,57	3,57
General expenses (water, electricity, telephone ...) - Gabù	an	0,60	0,60	0,60	0,60	0,60	0,60	3,00		0,57	3,57
Sub-total 4.2.			142,70	145,15	145,19	145,19	145,17	723,40	0,00	17,75	741,15
4.3. Project planning, monitoring and evaluation											
4.3.1 Launching workshop and reports	FF	5,00	5,00	0,00	0,00	0,00	0,00	5,00		0,95	5,95
4.3.2 Acquisition of project management software	FF	5,00	5,00	0,00	0,00	0,00	0,00	5,00		0,95	5,95
4.3.3 Reinforcement of the Capacity of the PMU and project risk continuous evaluation	Session	1,20	1,20	1,20	1,20	1,20	1,20	6,00		1,14	7,14
4.3.4 Organization of Supervisory Meetings of the National Steering Committee (CNP)	Nbre	1,60	3,20	3,20	3,20	3,20	3,20	16,00		3,04	19,04
4.3.5 Working assignment of the UGP with the implementing entity (BOAD) in Lomé, Togo	FF	3,00	0,00	0,00	3,00	0,00	3,00	6,00		1,14	7,14
4.3.6. Field impact annual evaluation	FF	1,00	1,00	1,00	1,00	1,00	1,00	5,00		0,95	5,95
4.3.7 Mid-term evaluation of project actions	FF	9,00	0,00	0,00	9,00	0,00	0,00	9,00		1,71	10,71
4.3.8 Final evaluation of project actions and report	FF	10,00	0,00	0,00	0,00	0,00	10,00	10,00		1,90	11,90
Sub-total 4.3.			15,40	5,40	17,40	5,40	18,40	62,00	0,00	11,78	73,78
Total			270,70	150,55	162,59	150,59	163,57	798,00	100,00	50,92	948,92

H. Include a disbursement schedule time-bound

Table 31: Adaptation Funds disbursement schedule time-bound
 1 USD= 500 FCFA

Scheduled Date	Upon Agreement signature	Year 1	Year 2	Year 3	Year 4	Total
Project Funds (X 1000 USD)	2891	4578	840	384	505	9198
Implementing Entity Fee (X 1000 USD)	143	140	200	190	108	781
Total (X 1000 USD)	3034	4718	1040	574	613	9979

Table 32: Schedule for implementation of the project

TOPICS	Years					
	1	2	3	4	5	6
Component 1: Development of technical and institutional capacity to address increasing climatic risk in adaptation practices and planning						
Outcome 1.1. Technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions enhanced						
Output 1.1.1. Socio-climatic vulnerability assessment for East Guinea-Bissau						
Output 1.1.2. Assessment of technical capacity building needs of ministries and field operatives for adaptation planning						
Output 1.1.3. Formulation of detailed intervention plan for pilot climate-smart agriculture actions and policies, procedures and guidelines related to climate change, gender and natural resources						
Outcome 1.2. Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, environmental, social and gender in practice (on-site) and adaptation planning						
Output 1.2.1 T Technical, organizational capacity building for NGOs and identified target groups						
Output 1.2.2 Technical assistance and rural extension for subprojects						
Output 1.2.3 Formulation/Update of contingency plans for climate-risk management						
Output 1.2.4 Support for famers groups by the government technical experts for adaptation actions implementation						
Output 1.2.5 Capacity building to prevent forest fires						
Component 2: Enhance the resilience of existing agricultural productive systems, including water control						
Outcome 2.1. Agricultural and livestock activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security						
Output 2.1.1 Development of lowlands to maintain agricultural production in drought periods						
Output 2.1.2 Construction of micro-dams for irrigation of rice, vegetable crops and livestock water supply						
Output 2.1.3 Rehabilitation/improvement of soil and pasture productivity and small-scale investments into						

TOPICS	Years					
	1	2	3	4	5	6
agriculture inputs, machinery and tools						
Output 2.1.4 Construction of drills/wells and ramps for improved livestock and domestic water supply and market gardens development						
Componet 3: Knowledge management of lessons learned on climate-smart agriculture and adaptation planning						
Outcome 3.1 Sustainable climate-smart agriculture practices and management is adopted in comparable regions of the country, and disseminated to other West African countries, contributing to resilience and development needs in those regions						
Output 3.1.1. Development of knowledge management strategy						
Output 3.1.2. Creation and animation of project						
Output 3.1.3. Development of manual and other materials on best practices and measures for climate-smart agriculture						
Output 3.1.4. Dissemination of results to other regions of Guinea-Bissau and West Africa						

FINANCING PLAN

The project financing plan is as follows:

Table 33: Adaptation Fund disbursement plan

COMPONENT	TOTAL HT (1000 USD)	An 1	An 2	An 3	An 4	An 5
Component 1: Development of technical and institutional capacity to address increasing climatic risk in adaptation practices and planning	700	230,375	191,175	124,925	91,925	61,6
1.1. Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning	202,5	80,00	85,00	18,75	18,75	0,00
1.2. Farmers groups, private professionals of development, associations and government experts have integrated knowledge on climate-smart agriculture, in practice (on-site) and adaptation planning	497,5	150,38	106,18	106,18	73,18	61,60
Component 2: Enhance the resilience of existing agricultural productive systems, including water control	7550	2317	4523	475	55,5	179,5
2.1: Agricultural activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security	7550	2317	4523	475	55,5	179,5
Component 3: Knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning	150	5	33,25	13,25	49,25	49,25
3.1: Sustainable climate-smart agriculture practices and management is disseminated in comparable regions of the country and other West African countries level	150	5,00	33,25	13,25	49,25	49,25
Component 4: Project execution cost	798	170,70	150,55	162,59	150,59	163,57
4.1. Investisment	12,60	12,60	0,00	0,00	0,00	0,00
4.2 Recurent cost	723,4	142,70	145,15	145,19	145,19	145,17
4.3. Monitoring and Evaluation	62	15,40	5,40	17,40	5,40	18,40
BASIC COST Adaptation Funds	9198	2723,075	4897,975	775,765	347,265	453,92
Project/Programme Cycle Management Fee charged by the Implementing Entity	781					
TOTAL Adaptation Funds	9979	2723,075	4897,975	775,765	347,265	453,92

Considering that the roads are very bad, it is paramount to put at the disposal of the PMU, four-wheel vehicles to ensure that the project can be successfully managed. Knowing that, the Adaptation Fund can't finance the vehicle acquisition, the implementing Entity (BOAD) will provide a grant of 100 000 USD to Guinea-Bissau to finance two new four-wheel vehicles for 90 000 USD and 10 000 USD to rehabilitate the two LDCF project vehicles. The table below presents the disbursement plan of the BOAD.

Table 34: BOAD disbursement plan

COMPONENT	TOTAL HT (1000 USD)	An 1	An 2	An 3	An 4	An 5
Component 4: Project execution cost						
Acquisition of vehicles	90	90				
Rehabilitation of the LDCF Project vehicles	10	10				
Total BOAD	100					

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

A. Record of endorsement on behalf of the government³¹ *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:*

Mr. Viriato Luis Soares Cassama National Program of Climate Change Ministry of Environment and Sustainable Development Tel: +245 96 678 40 46 Email: Cassamavilus@gmail.com	Date: September, 4 th , 2017
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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 (The National Communication to the UNFCCC, the National Adaptation Programme of Action (NAPA), the National Poverty Reduction Strategy Paper (PRSP) The Nationally Determined Contributions (NDC)) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

MBENGUE Almamy

Implementing Entity Coordinator - BOAD

Date: September, 4th, 2017;

Tel. and email: Tel: +228 99 86 86 60 / 22 23 25 24

Email: ambengue@boad.org

Project Contact Person: AMEGADJE Mawuli Komi

Tel. And Email: Tel: +228 90 04 62 54 Email: mawulikomi@yahoo.fr

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

ANNEX

Annex list

- Annex 1: Letter of endorsement
- Annex 2: Certificate of Environmental Compliance
- Annex 3: Report on lessons learned
- Annex 4: Potential sites identification report
- Annex 5: Procedures to resolve a grievance in the framework of the project
- Annex 6: List of public consultation during PCN preparation
- Annex 7: List of public consultation during potential sites identification
- Annex 8: List of public consultation during lessons learned study
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Annex 1: Letter of endorsement

Letter of Endorsement by Government
Government of Guinea Bissau

Bissau, 16th August, 2017

To : The Adaptation Fund Board
C/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Project "Scaling up climate-smart agriculture in East Guinea Bissau".

In my capacity as Designated Authority for the Adaptation Fund in Guinea Bissau, I confirm that the above project proposal is in accordance with the Government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Guinea Bissau.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by Banque Ouest Africaine de Développement (BOAD) and executed by General Directorate of Environment/ State Secretariat of Environment of Guinea Bissau.

Sincerely.



Mr. Viriato Luis SOARES CASSAMA
National Designated Authority (NDA)
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Bissau, Guinea Bissau



Annex 2: Certificate of Environmental Compliance


REPÚBLICA DA GUINÉ-BISSAU
SECRETARIA DE ESTADO DO AMBIENTE
O SECRETÁRIO DE ESTADO

DECLARAÇÃO DE CONFORMIDADE AMBIENTAL

DCA N°006/SEA/2016

O Secretário de Estado do Ambiente enquanto Autoridade Ambiental Competente e no uso das suas competências atribuídas pela Lei n° 10/2010 de 24 de Setembro no seu artigo 45° alínea b, conjugado com o artigo 27°, número 2, concede a presente Declaração, que aprova a viabilidade sócio ambiental do projeto de forma condicionada, a favor da Direcção Geral do Ambiente para implementação do “Projeto de Agricultura Inteligente no Leste da Guiné-Bissau, sito na Região de Gabu, concretamente nos Sectores de Pitche (Bucuré Boboti, Copiro e Sago/Fulamori), Sector de Pirada (Soncocumba, Sissaucumba, Durabali e Sambataco), Sector de Gabu (Cumpaghor e Bada) e Sonaco (Colicunda) e Região de Bafatá, concretamente nos Sectores de Contuboel (Madina Sara, Manatu Mansona, Calugada, Sanecumba e Suna Nhamabé) e Sector de Ganadu (Cuncana, Pacua e Cantacunda)”.

Por ter reunidas as condições dispostas no número 1, do Artigo 32° da Lei supra citada, esta Declaração constitui a expressão formal do reconhecimento pelo cumprimento das Políticas de Salvaguarda Ambiental e Social.

Por ser verdade, lhe foi outorgada a presente Declaração, assinada por mim e autenticada com carimbo á óleo em uso nesta Instituição.

Bissau, 12 de Dezembro de 2016



Eng. Bernardo Braima Mané


EMITIDO A: 12/12/2016

VALIDO ATÉ: 12/12/2017

Annex 3: Report on lessons learned



ADAPTATION FUND



THE REPUBLIC OF GUINEA BISSAU=====

SCALING UP CLIMATE CHANGE-SMART AGRICULTURE IN EAST GUINEA BISSAU

**Lessons learned from GEF/UNDP Project “Strengthening adaptive capacity and
resilience to Climate Change in the Agrarian and Water Resources Sectors in
Guinea-Bissau” 00077229**

Report

July 2016



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ACKNOWLEDGMENTS

The consultant would like to acknowledge and thank all who graciously shared their time, information, and inputs for the interviews and consultations that took place as part of this study. In particular, he would like to thank Eng. Variato Cassama (national coordinator of the Resilience Project), Mr. Mr. Dauda Sau (UNDP CO Programme officer), Dr. Lourenço Vaz, Mr. Casimiro Sanca and Mr. Garcia Embaló from SEAT/DGE for their valuable time and support during this study, and Mr. Benjamin Djabare and Mr. Mangla Nantchia for their important contributions to this report.

1. INTRODUCTION

1.1 Context

The West African Development Bank (BOAD) submitted the project idea “Scaling up climate-smart agriculture in East Guinea Bissau” (GNB/RIE/Agri/2015/1) to the Adaptation Fund Board Secretariat, on behalf of the Secretariat of State for Environment and Sustainable Development of Guinea-Bissau (SEAT/DGA) as national executing agency. The project concept note (PCN) was accepted for Full Proposal Development by the Fund’s Secretariat in March 2016.

The PCN proposes to intensify the activities of the GEF / UNDP Fund for the Least Developed Countries (LDCF) Project entitled "Strengthening Climate Change Adaptation and Resilience in the Agrarian and Water Resources Sectors in Guinea-Bissau" (00077229) - in short resilience or LDCD project - to further promote integration of adaptation into development planning and build institutional capacity for climate risk planning in the country. Between April 2011 (signature of contract) and now the Resilience Project had initiated climate-smart agriculture pilot projects in 14 tabancas in the eastern savannah regions of the Gabú ‘region’. The new project is aiming towards solidification and expansion of those experiences. This upscaling process refers to new activities in both the 14 original tabancas of the ongoing LDCF project and an additional ~26 tabancas in the ‘regions’ of Gabú and Bafatá, with total beneficiary target population for the new project foreseen at approximately 37,000 people in East Guinea-Bissau.

In this context, a problem encountered during the PCN review process was the lack of identified lessons learned and best practices from the LDCF project (e.g. effectiveness and efficiency of organizational structures, or of technological choices in the field), and how these could support the new project.

It can be understood, in part, based on the observation that the LDCF project is still under development, with finalization foreseen for the end of this year, making it impossible for the project proponent to refer to its main achievements comprehensively, or explain how the proposed project would build on it. However, “lessons identifying lessons on strengths or weaknesses in preparation, design, and implementation that affect performance, outcome, and impact” (OECD, 2002) provide an opportunity to avoid past mistakes and improve performance of the new project. This includes lessons learned both about procedural activities (especially project and financial management) and project activities at national (capacity building and policy integration) and local level (climate-smart agriculture subproject implementation).

The present report contributes to closing this knowledge gap.

1.2 Purposes of the study

The objective of this study is to identify and analyze the relevant lessons learned from the GEF/UNDP LDCF “Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau” (00077229) project implementation, in order to support the Full Proposal development of the “Scaling up climate-smart agriculture in East Guinea Bissau” (GNB/RIE/Agri/2015/1).

Specifically, this report aims to respond to these two questions raised by PCN reviewers of the Adaptation Fund Secretariat:

- Question 1: What have been the main achievements of the LDCF funded project at the end of the project, and has its implementation resulted in opportunities to achieve higher cost-efficiency in the investments in the proposed project; and
- Question 2: How will the project make use of the lessons learned and best practices from the LDCF project?

Within the context of these questions, the lessons learned include the “identification and analysis of constraints, opportunities, and approaches to be considered for the new Adaptation Fund Full Project, focusing on all relevant aspects (technical, environmental and social, organizational, institutional, legal, financial, etc.) that enabled the implementation of project activities and the achievement of the expected results under the LDCF project” (translation from TOR by author).

Furthermore included are descriptions of best practices for adaptation to climate change in the Gabú LDCF project region, focusing on projects that have proven their adaptability to adverse effects of climate change and climate variability, soil management and appropriate management of pesticides.

1.3 Scope and methodology

This study on lessons learned is undertaken in support of the Full Proposal development of the project “Scaling up climate-smart agriculture in East Guinea Bissau” (GNB/RIE/Agri/2015/1). This report aims to answer the two questions posed in section 1.2. It does neither constitute a final evaluation of the LDCF project nor a M&E report of climate-smart agriculture projects, and therefore does not give a complete validation of the project’s development strategy or its intervention logic (UNDP, 2009). Instead, this study can be seen as a rapid assessment of the LDCF project, based on a review of the project documents made available, a limited number of semi-structured interviews with the project team, and participant observation in short field visits.

Under the term ‘lessons learned’ this report understands ‘Generalizations based on evaluation experiences with projects, programs, or policies that abstract from the specific circumstances to broader situations, [which] frequently, lessons highlight strengths or

weaknesses in preparation, design, and implementation that affect performance, outcome, and impact' (OECD, 2002).

Particular focus of this report is on responding to these two questions: (1) what worked in the project; and (2) what could be improved in the project. These questions are responded to both in terms of project design and formulation and at the project implementation level.

In order to organize the research for this report a simple matrix was developed to methodologically assess the relevant information pertaining to lessons learned:

- Left column: slightly adapted set of research questions from the LDCF project's mid-term evaluation (Quese and Jandi, 2013) that inquire about the most relevant results and lessons learned in terms of project design and formulation and at the implementation level;
- Middle column: the most recent status of the LDCF project pertaining to the particular research question or set of research questions; and
- Right column: summary of lessons learned and best practices regarding to the particular research question/set of research questions and based on the observation of the actual status of the project in relation those same questions, and how lessons could contribute to the new Adaptation Fund project.

This work was divided into two distinct parts: (i) a five-day visit to Guinea-Bissau for data collection and interviews, with four days in the capital Bissau and a one-day Gabú field visit (20–24 June 2016); and (ii) five days for writing up of results into a report and revisions. During his stay in Guinea-Bissau the consultant met with the relevant institutions involved in the implementation of the LDCF project in the capital of Bissau, the Project management unit (PMU) members at Gabú, and beneficiaries at project implementation level in Gabú region. Field trips were organized by Global Lead together with LDCF project coordination. Additional data collection and analysis with project target group and LDCF project was carried out in order to complement information received during two earlier missions to Guinea-Bissau in 2015 (July 2015, and November 2015 by Global Lead). The semi-structured interviews in Bissau and Gabú were held in Portuguese where possible, and carried out with help of translators in Gabú where local dialects were spoken.

Two important limitations restrict the drawing of lessons learned from the ongoing LDCF project:

1. Access to information: internal project documents of the LDCF project – annual technical and financial reports, project memos, other – could not be consulted for the identification of lessons learned, given restrictions by UNDP Guinea-Bissau (LDCF implementation agency) regarding the dissemination of these documents (information provided by LDCF project coordinator Mr. Viriato Cassama, on 21 June 2016).
2. Data availability: up to date not comprehensive Vulnerability Reduction Assessment (VRA) (see LDCF PRODOC) has been undertaken to understand the contributions of the small-scale project interventions at local scale to climate change adaptation, including the identification of possible best practices for adaptation, their adaptability to adverse effects of climate change and climate variability, soil management and

appropriate management of pesticides. Therefore, the identification of best practices for adaptation to climate change at the *project implementation level* in the Gabú 'region' is limited. To cope with this limitation, Global Lead did preliminary work with members of project management unit and the beneficiaries to have the key results of LDCF project. This report is drafted in Portuguese to be sure that it is very comprehensive for the Bissau Guinean. The report in Portuguese is attached to the present report (see annex 1).

2. BRIEF PRESENTATION OF INTERVENTIONS: PROJECT AND DEVELOPMENT CONTEXT

The "Strengthening adaptive capacity and resilience to Climate Change in the Agrarian and Water Resources Sectors in Guinea-Bissau" – or short Resilience Project – is an ongoing initiative of the Government of Guinea-Bissau, with support from UNDP and the Global Environment Fund's (GEF) Least Developed Countries Fund (LDCF), at a total volume of US\$ 4.200.000. Project duration was originally set from 2011 to 2015, but a no-cost extension has been granted and project termination is now foreseen of end of 2016.

Its overarching objective is to *support the country's water and agricultural sectors in becoming more 'resilient' to current climatic variability and longer term climate change impacts*, with measures and activities aimed at (i) integrating adaptation needs and climate risk into key national policies, plans and programs, in order to allow for integrated water and agrarian resource management under climatic change; (ii) implementation of cost-effective small-scale adaptation interventions targeted at family farmers located in 14 tabancas of the country's eastern savannah Gabú 'region', in the 'sectors' Pitche and Pirada (each 7 tabancas) which suffer from increasing drought and flood risk, particularly related to improved water and drought management, and increasing productivity and income in agriculture (seed banks, bio-fertilizer, diversified planting techniques, wider market access etc.) and livestock raising (smaller livestock keeping, reducing water-related conflict, construction of wells, etc.) via participatory trainings and technology deployments; and (iii) dissemination of lessons learned and best practices from activities into national plans and policies, including the development of a Rural Climate Change Forum (RCCF) and establishment of a basis for the replication of all site level activities in the future (PRODOC, 2011).

In this, the Project uses the term 'resilience' as creating 'resistance to shocks and stresses' *and* 'developing sets of skills and behaviors needed to overcome challenges by both anticipated and unanticipated climate-induced stresses' (PRODOC, p. 41). This puts emphasis on technological modernization of smallholder agriculture and livestock raising in the region, but importantly also and capacity building measures, particularly investments into social and human capital for project beneficiaries, from local to institutional to systemic levels. The project intervention logic is summarized in Box 1.

In this context, the Resilience Project has been developed in hindsight of removing these

barriers that impede successful resilience building:

1. Key stakeholders have limited capacity to plan and respond to climate change risk and to incorporate adaptation measures in the conceptualization and implementation of development frameworks;
2. Limited capacities at local intervention level to implement new measures and utilize improved technologies in agriculture and water resource management, increasing vulnerability of already vulnerable communities as a result of climate change; and
3. Climate change risk analysis in Guinea-Bissau is still at very early stages and poorly quantified at a significant scale, both spatially and temporally. Furthermore, information is not widely available that would encourage a shift away from the 'reactive & ad hoc' climate change response paradigm towards more 'anticipatory & deliberative' practices (PROCOC, 2011).

Box 1: Intervention logic of LDCS project

First, the project's beneficiary communities will have greater knowledge and understanding of climate issues. They will have access to improved information on future climate predictions tailored to their needs, and will be able to interpret this information practically to help them make decisions relating to their own livelihoods. Secondly, stakeholders at the local level will correspondingly be able to apply improved practices with respect to water and agricultural resource management: practices that will be particularly useful in the context of a changing climate. These include examples of: water conservation techniques, water management, improved livestock management and livestock choices, more appropriate, resilient crops and cropping techniques, appropriate agroforestry techniques, improved seed banks, crop storage and protection, and safety nets and stimulation of livelihood diversification through micro-grant schemes and other group activities. Thirdly, an essential corollary to these schemes is a supportive and enlightened institutional environment. Finally, by project completion, critical capacity will have been created through training and developing a strong cadre of national experts and advocates – people who understand the climate stakes for Guinea-Bissau's future and can continually influence policy development processes. Considerable amounts of finance are expected in the future relating to climate change in Africa. Thus it is essential that Guinea-Bissau has the national capacity to obtain, absorb and distribute funds and investment for their greatest effect in ensuring food and water security for its people. With this longer-term perspective in mind, capacity development on climate change will provide significant ongoing benefits for the nation. The project will consistently invest in documenting information, analysis, experiences and lessons, particularly those lessons that will be extracted 'on-the-ground' from site-level implementation, as well as directly investing in capacity building and training. This will ensure the dissemination of knowledge, practices and project results to a wide range of audiences.

Source: PRODOC (2011).

Key institutional partners in the project are NGOs, public sectors and private entities, especially related to the knowledge and technology transfers in agrarian and water sectors.

3. ACHIEVEMENTS AND WEAKNESSES OF THE PROJECT APPROACHES: KEY FINDINGS AND LESSONS LEARNED

The following matrix summarizes the identified key findings from the interim review of the LDCF project: first regarding program design and implementation, and secondly, at the implementation level. These lessons learned will be implemented concretely should the current proposal be accepted for funding.

Research question	Lesson(s) learned	
	LDCF project context and outcomes <u>What has worked and What could be improved?</u>	Best practices proposed for the new project
3.1 Program design and formulation		
3.1.1 Quality and pertinence of the project process formulation		
3.1.1.1. Is the project's logical framework sufficiently clear and appropriate, including indicators with baseline and target values, and have activities and products of the project been clearly related to the impacts of the project?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> The project mid-term evaluation noted that the project's logical framework was, in general, well designed. This included clearly defined institutional mechanisms and a logical theory of change that are reflected in the project's three outputs: (i) integration of adaptation and climate risk into national policies and plans; (ii) implementation of cost-effective small-scale adaptation interventions at local level; and (iii) dissemination of lessons learned; which in return support the overarching project objective. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> It is unclear if the field interventions linked to the logical framework (e.g., building of small dams, dissemination of organic fertilizer, creation of contingency plans) in isolation and without market development are sufficient to support resilience building at local level, or is they would fit under a general climate-smart agriculture framework (see questions 8-10). It is also unclear if conservation and sustainable resources use activities of the LDCF project fit the logical framework. (For more information see questions 8-10 below). Several PRODOC project <i>objective level</i> and <i>outcome level</i> indicators were not considered SMART (specific, 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> A new project can rely on the existing logical framework and theory of change (see question 10.2). Field intervention activities should be enhanced in an updated logical framework. This is discussed in detail under questions 8-10. Project intervention logic with regards to capacity building through climate-smart agriculture should be better integrated and more substantial at local level. UNDP or FAO or experiences from community-based adaptation networks could provide substantial input to these measures (see more question 9). Also biodiversity services need to be considered to a larger degree. Project indicators for the Adaptation Fund project proposal need to be designed more carefully in order allow for consistent M&E of the project. The mid-term evaluation has given examples for changing indicators of the LDCF project (p. 10-11). These changes are relatively easy to implement.

	<p>measurable, achievable, relevant and time-bound). An example: <i>objective level indicator 2</i> (“Government budget and international funding allocated to managing climate change risks increased”) was not formulated as an indicator, but as an effect, and was thus considered unspecific. As a consequence this indicator could not be reasonably measured in the LDCF project, compromising M&E efforts in the project.</p>	
<p>3.1.1.2. Are project activities and expected outputs and outcomes, as defined in the Project Document (PRODOC), relevant to the needs and priorities expressed by the beneficiaries of the project?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Institutions and experts interviewed during the mid-term evaluation confirmed that project activities, expected outputs and outcomes are relevant to the needs and priorities of the beneficiaries. It was specifically noted that planned project activities were aligned with women’s needs. The review of literature undertaken for PCN development further highlighted this observation. LDCF project activities addressed key vulnerabilities in agriculture and water resources management, and thus contributed to immediate and longer-term development and resilience needs of extremely vulnerable farmers. As such, the project was in line with the recommendations of the UNFCCC Nairobi Work Programme and the best available scientific evidence on climate change impacts, vulnerability and adaptation in agriculture, water resources as well as food security. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Those work activities and expected outputs of the LDCF project that focus on field interventions for smallholder farmers and extremely vulnerable groups (elderly, women, etc.) provide a sound basis for developing the new project’s logical framework and intervention logic. (Suggestions for improving the intervention logic are presented in questions 8-10 below.)
<p>3.1.1.3. Was project formulation conducted in a timely fashion?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Project formulation was considered timely. Start of the project was delayed by the coup d’état in 2012 and small delays in the contracting between the Guinea-Bissau and UNDP. <p><u>What could be improved:</u></p>	<ul style="list-style-type: none"> • The possible linkages and interactions with other projects or programs should be realistically assessed at project start in order have a clear picture of what these initiatives can provide to the new Adaptation Fund project, and what not. Such an assessment may reduce possible conflicts at the beginning of the project.

	<ul style="list-style-type: none"> Minor delays at project start affected some field activities. For example, it was assumed that the UNDP Community-Based-Organizations' Support Project in Gabú Region (OCB) and the African Development Bank project PRESAR would support quality seeds to the LDCF project. But these projects were already ending their activities during initialization of the LDCF project, and therefore seeds could no longer be supplied. 	
3.1.2 Project relevance to the political context of Guinea-Bissau		
<p>3.1.2.1. Are the project and its activities aligned with national priorities?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> The project supports relevant government policies and plans including the Poverty Reduction Strategy (2011-2015) and NAPA priorities, as well as priorities of other ministries and agencies, such as those of the General Directorates of Water Resources, Agriculture or Livestock. Partnership protocols signed during LDCF project implementation highlight common objectives and possibilities for collaboration clearly. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> The identification of project initiatives outside government may have been insufficient, as this has been highlighted during the review process by the Adaptation Fund. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> A thorough identification of relevant projects in the project area should be undertaken in order to identify overlaps and possibilities for collaboration. This has been done already during Project Concept Note development. This includes partners that are not directly involved in the project activities and to other initiatives that may occur in the area new Adaptation Fund project, as well as strengthening partnerships with other interventions that may occur in the same areas as the Adaptation Fund project, and which could complement the activities initiated by the new project (see also recommendations #14 and #16 of mid-term evaluation). The Intended Nationally Determined Contributions (INDC) may be taken into account the new project
3.1.3 Status of risks and assumptions formulated in the PRODOC		
<p>3.1.3.1. Were the assumptions and risks identified during project formulation relevant and clearly in the project</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> In general assumptions and risks identified in the PRODOC were relevant and clearly identified. Two identified risks ("bad financial management and 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> Identified risks and risk hypotheses were relevant and clearly identified. Therefore, the new Adaptation Fund project could rely on updated risk hypotheses based

<p>identification sheet and the project document?</p>	<p>corruption undermines project development” and “exclusive focus on climatic change reduces interest of target group”) did not materialize during the project.</p> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Not all difficulties that eventually arose during LDCF project development were initially anticipated in the PRODOC (see questions 3.2 and 3.3 below). These included (i) in part ineffective participations by key policy stakeholders, for example, DG Agriculture in Gabú (Report Mangla), and despite signed MOU with SEAT; and (ii) in part difficulties with NGO, especially regarding community mobilization and non-payment to local personnel. 	<p>on LDCF project assumptions.</p> <ul style="list-style-type: none"> • Updated risk hypotheses for the Adaptation Fund project should take into account the learning on risks from the LDCF project. These alterations are easy to implement for the project entities and may improve overall managerial capacity of project team, including adaptive management.
<p>3.1.3.2. Were risks and assumptions always validated and did new risks appear throughout the project?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Risk validation was undertaken by the project team throughout the project. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Throughout the project risk validation seems to have been carried out on an ad-hoc basis with no continuous risk assessment, such as recommended by the mid-term evaluation team (see question 3.3.), although those new risks do not seem to affected overall project outputs. For example, two coup d'états in April 2012 and 2015 led to partial embargos to the country, including restrictions on financial resources, but still the project seems to have continued quite firmly in developing its activities. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Based on the review of the project documents and interviews it does not seem that risk appreciation and validation was insufficient to cause serious problems for LDCF project development.
<p>3.1.3.3. Has a risk management system been implemented? And did this work when new risks appeared?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • In general new risks did not affect project development: next to political uncertainty (see question 3.2) problems arose in a partnership with one nat'l 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • The project managed to maintain operations despite difficult political situations and other emerging risks. This indicates that political risks were sufficiently

	<p>NGO, whose contract with the project had to canceled just a few months into the project due to a lack of managerial capacity and possible misuse of allocated funds. (For example, local community mobilizers were paid, but did not show up for work.) As a consequence the project team diversified partnerships with NGOs/CBOs in order to guarantee sustainability of interventions at local community level. These examples show that that the project management unit was able to react to new risks, also taking potentially unpopular measures.</p> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Continuous risk assessment: As of December 2013, no system for risk management was set up for the LDCF Project. On this basis the mid-term evaluation suggested to incorporate a risk assessment matrix in the quarterly and annual reports and complete Risk Log systematically on an annual basis during the preparation of PIR (Project Implementation Report). • A risk not anticipated was inaction on behalf of other project partners at the policy level, despite signing of MOU, affecting particularly planned water infrastructure works of the project which were essential for community resilience building. However, it is unclear how this negative development affected the effectiveness of adaptation interventions at the community level – given the lack of an effective M&E for field interventions (see question 1.1). 	<p>anticipated, and that risk management was appropriate under the circumstances.</p> <ul style="list-style-type: none"> • In the current political and institutional context of Guinea-Bissau risks should be systematically identified and assessed according to type (environmental, financial, operational, political, regulatory or policy), level (standard or critical), the response category (emergency plan, monitoring or other) and changes in risk (mitigated, stable, increasing, problem) and date of risk identification. Risk hypotheses with regards to political risk will need to be developed with care, given the continuing political instability in the country. • Following the recommendations of the LDCF project mid-term evaluation, it is suggested that a continuous risk assessment system should be implemented. Risks should be presented annually in the PIR (Program Implementation Report) through a risk assessment matrix, including possible (alternative) mitigation actions. The project will aim to implement a continuous risk assessment should the Adaptation Fund decide to fund this PCN. In tri-semester reports risk evaluation matrix should be incorporated, according to type (environmental, financial, operational, political, regulatory or strategic), level (low, medium, critical), type of response (emergency actions, change in plans, other) and evolution of risks (stable, declining, increasing, etc.), and date of risk; also using the annual project report to give a more complete picture on risks and their development. Although staff has attended several courses, some additional needs are felt by the technical staff of the project team in terms of capacity building. Should
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		<p>current workload of the project team not permit these activities it is further suggested that the project hires a consultant for supporting the project management unit, which could also improve building capacities in adaptive management in the project.</p>
<p>3.1.4. Project management structures and contribution to effective and efficient project development</p>		
<p>3.1.4.1. Are annual work plans coherent and of good quality?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> PTAs (Annual Work Plan) were judged to be of good quality, according to the mid-term evaluation. (This author did not have access to these reports which are internal to the project management unit and UNDP.) <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> Submission of plans was sometimes delayed, causing several delays in project development. The LDCF project is implemented on the basis of PTA (Annual Work Plan) and quarterly programs. PTAs require validation from the Project Steering Committee (PSC) for implementation to proceed. This has caused several problems: difficulty to gather PSC members (consisting of representatives of key institutions, beneficiaries and local and regional authorities), lack of interest of the parties concerned, and frequent changes in the institutions that make up the PSC. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> Following the mid-term evaluation team suggestions it is suggested that PTAs should be submitted earlier, and also discussed in advance with the Project's steering committee. Development and submission of status reports: necessary to allow for early validation, thus enabling provision of funds and start of activities early in the year. This particularly includes putting into place annual procurement plans which detail purchases and can speed up administrative and financial procedures. For this the Project Management Unit personnel for the Adaptation Fund project should be recruited by call of application, to be trained on fiduciary, environment and social standards.
<p>3.1.4.2. Has governance of the project been effective and did it provide sufficient strategic directions to project development?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> In general governance of the project been effective and did provide sufficient strategic directions to project development. This included a project steering committee (PSC) including participants from civil society and key line ministries. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> The overall governance structures of the project should be improved, in order to strengthen overall effectiveness and strategical guidance for the project. The Project Steering Committee (PSC) should contribute to the submission of status and other reports through continuous monitoring and more

	<p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • The PSC did not have the role laid out in the PRODOC regarding LDCD project implementation and strategic guidance. Meetings were infrequent and key stakeholders did not participate or participate infrequently. • In general, the project team consisted of experienced and committed people, but their dispersion created for communication and project activity planning. The training of the project team in specific areas should receive more attention from the start of the project to allow better serve beneficiaries. • Int'l experts to support the project development were not always hired as planned, or did not contribute to the project as planned when hired. For example, the CTP recruited to fulfill overall a leading function in the project was incapable to support the project team, including lack of Portuguese and French language knowledge. • Governance of the ground team was hampered, as the ground team had no official responsible for ensuring coordination and liaison with other local actors. Communication problems arose also as local partners did not interact with local staff, but spoke directly with Bissau. The local project team in Gabú did not have a responsible coordinator, nor sufficient financial means to assure coordination and collaboration with other local interventions. Overall conditions improved during LDCF project development, but similar errors may occur in case of a Bafatá office. • Financial resources for Bissau and field staff in Gabú were often insufficient to implement work activities given bureaucracy linked to procurement processes 	<p>frequent meetings. The interim report specifically calls for a strengthening of participatory and consultative mechanisms in this respect, which the project team should strive to realize under a new project.</p> <ul style="list-style-type: none"> • Given the complexities of the LDCF project (and the complexities of the new project, which will likely invest in more integrated mitigation and adaptation interventions) it will be important to invest into training and new motivated staff. One option to increase staff capacity would be to look for young Guinea-Bissau experts with university degree and curricula in adaptation project management and development that are currently localized outside the country, and aim to bring these people back to the country via the project. This motivated staff personnel could increase the project impact of the new project. Strong international contacts of LDCF project coordination may support this. • International consultants could help in increasing the performance of the project team, even if hired for short periods of time. However, the hiring process of int'l specialists should be reassessed and undertaken with strict rules. It is suggested that UNDP in Guinea-Bissau supports the hiring process of a new Adaptation Fund process, and that the consultants hired stay in Bissau with the project team in the office, especially in the case of long-term specialists. • Local staff needs to have resources to be able to allow them keep up administrative management and technical activities in a satisfactory manner, with stringent financial management in place. The mid-term evaluation suggested an annual procurement
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	<p>and other. In direct response a project account was opened in 2013 in order to allow SEAT to access funds for the trimester and facilitate quick payments. But contrary to what had been expected, the making of payments continued to take much time, and many activities could have been terminated earlier if it weren't for the lack of resources. Transport possibilities (including 4x4) were limited for project development.</p> <ul style="list-style-type: none"> • Capacity building of the local team should receive specific attention: it was planned to contract specialists in specific knowledge areas, such as adaptation, agronomy, agro-pastoral systems, community development, climate information etc., but hiring did not occur. 	<p>plan which details planned purchases to speed up the administrative and financial procedures is a good idea to facilitate payments. Other mechanisms to facilitate payments should be discussed with the Adaptation Fund and other partners at the beginning of the project. It would be an idea to think now about procurement plans could be developed jointly in order to reduce delays and problems. It is likely that the project donor office needs to provide support/facilitate and better administrative and financial procedures for this. In this the project team could be act quicker and be more proactive (pp. 19-20).</p>
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3.2 Implementation level

3.2.1 Functionality of project partnerships established

<p>3.2.1.1. To what degree have partnerships realized for project development been established with relevant stakeholders active in the country and region targeted by the project?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • The LDCF project established relevant partnerships with national partners (through six partnership protocols) and regional and local government. Further partnerships were established with nat'l and local NGOs. In general, these partnerships were effective and helped project development. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Despite successful signing of partnerships agreement the outcomes of these agreements were not always realized. As mentioned above, in one case a contracted NGO did not deliver the contracted services, and thus had its contract terminated. In other cases the power of the project team is more limited: in case of the six partnership protocols not all partners 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Existing partnerships with NGOs should be maintained and strengthened, and partnerships with CBOs should be broadened in the new project in order to ensure sustainability and a more effective replication and diffusion of activities and results.
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	<p>did engage as promised, e.g. affected the delivery of water works in the project region.</p>	
<p>3.2.1.2. To what degree do national, regional and local government institutions participate actively in the project implementation? To what degree are other institutions (other than government) participating in the project?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Local and regional government institutions participated in the project, leading to the Gabú Region Development Plan and similar plans for Pitche and Pirada sectors. In general these plans establish important connections between water and agricultural sector development and climate change adaptation. Further important regional and local contributions were harnessed through the implementation of the Rural Climate Change Forum (RCCF) which consists of relevant stakeholders, including particularly vulnerable groups such as elderly and women. • Strategic partnerships were strengthened through project contributions to the Carta de Política de Desenvolvimento Rural (CPDA), Programa de Investimento Agrícola (PNIA), Plano de Desenvolvimento da Pecuária, Esquema Diretor de Água e Saneamento, Documento de Estratégia Nacional de Luta Contra a Pobreza (DENARP), Plano de Desenvolvimento Regional de Gabu (PDR), Plano de Desenvolvimento Local de Setor de Pitche and the Plano de Desenvolvimento Local de Setor de Pirada. These collaborations were done via workshops with active participation from key line ministries, including also the Ministérios de Interior (Serviço de Proteção Civil, and also Finanças (Alfândegas)). <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • The signing of partnership protocols did not always result in concrete action by partners. This was attributed to the political instability in the country and 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Social mobilization – The RCCF has been very important for this kind of mobilization, it has been an ‘open school’, a very efficient mechanism, and the new Adaptation Fund project should invest in this forum also for the Bafatá region, as well as build capacity at the local tabanca level. • The project should aim to extend and strengthen partnerships with CBOs to ensure durability and more effective dissemination and replication of activities and effects of the LDCF project, which is also to be followed in a possible Adaptation Project. Problems of forest fires - vigilance committees first attempt to stop this; but the project did not accompany these committees very well, and voluntarism has cooled off significantly again. These committees will likely need more supervision and contributions from the local project staff – which probably requires the development of a strategy. • Ways to turn partnerships and partnership protocols more effective should be discussed with partners, e.g. through budget support, stronger control, or re-strengthening of Project Steering Committee which has been used unfrequently. • Participating NGOs should provide work and financial plans, use bookkeeping and undergo monitoring and evaluation (M&E), including financial monitoring – experiences from German Liaison Office in Guinea-Bissau with NGOs and small-scale project development shows very little project failure (1 project of ~50 projects a total failure), showing the capacity

	<p>frequent changes in key ministerial positions of partner institutions. As such, some partnerships left to be desired, for example the DG Agriculture and Water Works Agency do not deliver, negatively affecting project implementation.</p> <ul style="list-style-type: none"> • Integration of community-based organizations (CBOs) could have been more pronounced: CBO engagement has been found limited due to organizational weaknesses of these bodies (see also question 2). An example is the participation of environmental vigilance committees which started off well, but later saw a drop in participation and motivation. As a result, illegal hunting or slash-and-burn agriculture may have continued in the region where the role of the environmental vigilance committees was to contribute to reducing these. On the side, it has to be considered that, in general, the process with NGOs and rural technicians has been very good and essential; about 85%-90% of planned deliverables were achieved, which is a very relevant figure. • Strategic partnerships and documents were not well disseminated to core users, which would be necessary to reinforce capacity building in resilience and adaptive capacity in the agriculture and water sectors at the policy level. 	<p>and success of these approaches for small-scale project development in the country. Furthermore, the mid-term evaluation suggested to maintain existing partnerships with NGOs and to define, in a consultative manner with NGOs partners, and with the support from the UNDP monitoring and evaluation service, a tool for monitoring their performance in terms of mobilization in the villages. Where collaborations worked out fine, it was found that the contracts between project team and NGOs/CBOs had well defined plans and responsibilities. Otherwise, training and using dedicated staff for NGO/CBO engagement maybe a good idea.</p> <ul style="list-style-type: none"> • Work with NGOs will require strict supervision, both in technical and financial terms. NGOs should submit technical and financial plans for each subproject, to be approved by Bissau or local office. Also expenses need to be verifiable and verified by Bissau (using nota fiscal). Experience with other projects in the country (including by the German Government – mentioned in the point above) show that project failure this way can be minimized significantly.
<p>3.2.2 Adequacy of monitoring and evaluation mechanisms</p>		
<p>3.2.2.1. A monitoring and evaluation plan containing SMART indicators has been set up and assessments are conducted during the implementation of the project?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Monitoring and evaluation indicators were identified in the PRODOC initially, and then reviewed at project inception stage. This start-up workshop was welcomed by stakeholders and helped provide project information to partners and stakeholders, to clarify certain activities and certain indicators. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • The PRODOC foresaw a VRA – Vulnerability Reduction Assessment – as key indicator, but no baseline has been established in the LDCF project. As mentioned already, the lack of capacity to show impact will have direct consequences on leveraging additional finance in the future, and also leaves

	<p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • No M&E plan seems to have been developed, despite being planned for in the 2013 PTA. This has turned the assessment of effectiveness of measures and activities very difficult. In addition, project M&E indicators were not consistently SMART, and baselines were not established for any indicator (see 1.1.). • Furthermore, until 2013 (mid-term evaluation) the project management team lacked clear procedures on including the frequency of data collection missions, sharing responsibility for collecting data for each indicator, identification and capitalization of best practices, etc. In response, UNDP held two training workshops in results-based management monitoring which allowed for correction of some flaws in information production and evaluation process. However, the training does not seem to have been followed up with practical responses in M&E activities and planning (2014, 2015 and 2016). • Important: For <i>objective level indicator 3</i> (“Scores of UNDP’s Vulnerability Reduction Assessment (VRA) to be applied upon inception, mid-term and end-of-project in project-site communities”) neither a baseline was defined at project start, nor a follow-up monitoring was undertaken. In this context existing reporting procedures on productivity increases, participation in events, etc. were judged to be inadequate as an indicator for impact of field interventions. As a consequence, the contribution of the project to local (community) vulnerability reduction is currently difficult to qualify and quantify, and this will likely affect capacity to obtain further financing in the future. (The 	<p>doubts regarding the impact and cost-effectiveness of measures. In this context SMART indicators and reference/baseline values are particularly relevant to measure project success of climate-smart agriculture interventions. These will include measuring increases in productivity, resilience (adaptation), reduction or removal of greenhouse gases (GHG) (mitigation), and enhancing achievement of national food security and development goals.</p> <ul style="list-style-type: none"> • Hiring of a dedicated int'l consultant/team of consultants to develop project baseline and methodology for subproject vulnerability impact assessment at the beginning of the Adaptation Fund project is one option, especially those which have experience in community-based adaptation (CBA) or ecosystem-based adaptation (EBA). Another option could be collaborations with universities/research institutes which could do M&E at low cost and provide research assistant help to carry out field work during project. This cooperation should also include UNDP Guinea-Bissau as a key supporting actor.
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	lack of M&E efforts and lessons learned has been criticized strongly by the reviewer of the current Adaptation Fund PCN.)	
3.2.2.2. Have M&E results been utilized for adaptive management of the project?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> No consolidated M&E system has been installed in the project, but project coordination submitted annual and trimestral reports in which issues pertaining to project operational planning, steering, management of processes, learning and strategy design were discussed. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> The mid-term evaluation noted that report submitted lacked clarity, with a focus on presentation of data on results and outputs, but not adaptive management. In turn, adaptive management of the project might have benefitted from a more systematic reporting on steering, management of processes, learning and strategy design issues. However, it is unclear if a stringent M&E system might have been implemented by the project team with current resources – with the project team already engaged in many activities and otherwise limited resources. Nevertheless, use of adaptive management is a process that should be strengthened during project development, but may require support from outside consultants and/or UNDP. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> A new project under the Adaptation Fund should invest strongly into a consolidated M&E system for the project, in order to facilitate adaptive management. Strengthening capacities in this regard will likely have benefits for overall project coordination.
3.2.2.3. Are stakeholders being consulted in the implementation?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> The RCCF regularly brought together different stakeholders active in the region, enhancing the dialogue between these stakeholders around the aspects of climate change and emergency response. The level of involvement of different line ministries was judged positive, especially were MOUs were signed. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> Institutional communication and collaboration with institutional partners should be strengthened. This is with regards to Partnership Protocols and their implementation (see above).

	<p>Communities, including women, were involved and consulted in all activities implemented.</p> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • The communication, collaboration and dissemination of information with institutional partners which are not directly involved in the implementation of project was judged inadequate by some project partners, and could be strengthened to maximize overall project outreach. 	
<p>3.2.2.4. Equity issues and gender equality are taken into account and included in the implementation of the project?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Gender and equity dimensions have been incorporated into project activities relatively strong. Women and women’s groups are well integrated at local level, having benefitted capacity building courses on different agricultural technologies, water management, health and animal feed (women’s participation in these courses ranges from 30% to 50%). Specifically the project encourages women’s participation in the context of male-dominated rural communities, and disseminates project activities specifically focused at women (e.g., horticulture and gardening in which men show little interest in the project region). In some outputs produced by the project, such as contingency plans, there are sections showing the conversations and needs identified specifically by women in preparation of project activities. • Gender and equity concerns have also been integrated into the project’s communication strategy, where climate change is discussed in linkages to human and women’s rights, women’s participation, AIDS, biodiversity, etc. are clearly integrated. Community radio programs support this outreach strategy. Functional alphabetization manuals now also integrate 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • The new project should make efforts to better communicate links between discussions with women, their opinions, the activities developed together with them and possible outcomes, and the evaluation by women. Gender aspects should specifically also be incorporated into the M&E system. • Gender sensitivity of community forest protection should be studied more closely, given that male household members are largely responsible for slash-and-burn agriculture. • Initial vulnerability assessment is necessary in order to identify vulnerable community groups.

	<p>this knowledge, based on a MOU with the Instituto Nacional de Desenvolvimento da Educação (INDE). The project thus also contributes to cultural change in the country.</p> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • The documentation of the project impact on equity and gender issues is insufficient, which can be linked to lacking M&E efforts and baselines in the project (see 1.1, 6.4.). • In some cases the benefits of gender were not fully realized, e.g. regarding biodiversity conservation and environmental services it is often the male members of a household that deforest and do slash-and-burn agriculture, and strategies should be specifically designed to address this problem. • Not in all cases the most vulnerable populations were really addressed (some populations were not really the most vulnerable). • The current project team seems to have few female members, and no direct gender specialist. 	
<p>3.2.3 Effectiveness of project implementation</p>		
<p>3.2.3.1. What has been the progress in achieving the objectives and effects of the project so far?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Overall, activities and capacity building will contribute to realization of three work packages. Project activities seem to have been carried out in a relatively satisfactory manner. In the following a short summary of achieved outputs is presented. Due to the lack of M&E activities the results here presented can only be quantitative in nature, but not qualitative. Results are taken directly from LDCF project reports, or based on participant observation and/or interview data: 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • The construction of water infrastructure needs to start early in the project. It is only that way that farmers can learn to use and maintain more complex 'hard' infrastructure during project execution, with almost immediate benefits for households, agriculture and livestock. In the current LDCF project, seemingly due to operational rather than technical problems, small dams and wells are only implemented this year, implying there is (i) no direct connection to the

	<ul style="list-style-type: none"> • Outcome 1 ('Climate change risks and adaptation measures integrated into key national policies, plans and programs for integrated water, agriculture and livestock management'): relatively successful at regional and local level, e.g. through the integration of climate change concerns into the Regional Development Plan of the Region Gabú and local development plans of Pirada and Pitche. At national level climate change is now part of country plans to reduce poverty, and partnership protocols with relevant partners have been signed. • Outcome 2 ('Small and medium scale climate change adaptation practices for water, agriculture and livestock management are demonstrated and implemented in selected sectors'): numerous field interventions developed at community-scale with focus on capacity building, including training on climate-resilient agricultural practices (crop rotation, terracing, intercropping, conservation of water and soils, etc.), introduction of rice short-cycle varieties, introduction of forage crop for animal consumption, installation of demonstration fields, building of veterinary pharmacies, introduction of improved poultry, goat and sheep breeds (more resilient to heat stress), creation of cereal banks, implementation of seed banks, construction of waterholes and wells, contingency plans against flooding in villages, among other. • Outcome 3 ('Lessons learned and best practices from pilot activities are disseminated and integrated in national plans and policies'): knowledge and institutional capacity has been strengthened, e.g. via technical and human resources capacity building of the National Institute of Meteorology, or the elaboration of 	<p>already developed field work and (ii) no way for farmers to learn use this infrastructure as the LDCF project will terminate end of this year – this would, however, change if a new project, e.g. through the Adaptation Fund, will commence, building upon the LDCF outputs.</p>
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	<p>an agro-climatic vulnerability maps for the Gabú region, as a direct result of identified knowledge gaps.</p> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Water infrastructure needs to be better integrated into the subproject development at village level. This is discussed more below. • As noted above, it is unclear if subproject activities contribute to resilience building – given that no baseline has been established and no systematic M&E undertaken, the contribution those activities have for family farmers cannot be clearly analyzed and affirmed. • A related point to the subproject activities is that, albeit having a focus on agricultural practices, livelihood, and contingency plans, overall vulnerability reduction may be limited as activities have been implemented largely in a dispersed manner, without a clear commercialization strategy/market model or water supply measures. This point is further discussed below. 	
<p>3.2.3.2. Has the project followed its guidelines and relevant procedures for implementation?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • In general the LDCF project seems to have followed its guidelines and procedures, yes, although management decisions seem to have been based more on ad-hoc decisions than on adaptive management. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • A lack of guidelines seems to exist regarding communication between project team units in Bissau and in the field, but also regarding communication with other partners. For example, on several occasions local project partners such as NGOs contacted Bissau 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Communication channels and procedures should be strengthened in a new project, e.g. setting key times and rules for communication, bringing local teams to meetings in the capital and vice versa. . Furthermore, communication structure in possible Gabú and Bafatá stations should be strengthened, including internet access. Assigning a field coordinator (not existent in ongoing LDCF project) may also be necessary to fully coordinate field interventions. • Mechanisms should be sought to make other functional structures, in order that the Comité Inter-

	<p>directly to resolve issues, although communication should have been directly with the local Gabú personnel. This may have created frictions and undermined authority of the local team. The new project would likely benefit from investments into better internal communication procedures and organization of the team.</p> <ul style="list-style-type: none"> • Participation of project steering committee and other organs was insufficient (see above). • Distances of participating communities one to another in the Project were high, although the PRODOC clearly stated this should not happen in the project to avoid high costs. This should be avoided in a new project. 	<p>Ministerial para o Ambiente, Comitê para as Alterações Climáticas, and the Comitê Diretiva do Projeto (CDP) can contribute to the efficiency and effectiveness of the project. These organs are even more important given that other such as composed of senior government officials (Ministers and Secretaries of State, etc.) do not always contribute fully due to political instability, or lack of time or interest. Building and supporting these intermediate structures may have great benefits for the project.</p> <ul style="list-style-type: none"> • In the Adaptation Fund project currently developed care should be taken to assure that villages are relatively close to each other in order to maximize impact and reduce cost for the project.
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3.2.4 Cost-effectiveness relationship of project in terms of time and budget

<p>3.2.4.1. What is the level of achievement in terms of outputs and outcomes in light of the investments undertaken, and, specifically, are the small-scale interventions cost-efficient?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Overall cost-effectiveness has been judged positively in mid-term evaluation, despite low overall density of subprojects in the field. Spending of resources has, in general, occurred according to the project's financial plan, although political interferences at times affected spending. Overall, there is little evidence that outputs could have been achieved with fewer financial resources. No newer information has been obtained which would contradict the information gathered from the mid-term evaluation. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • It has been noted that investments into water infrastructure (wells, small dams, etc.) were mostly started in the project's final year. This may have negatively affected the results from disseminating climate-resilient agricultural practices, e.g. crop 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • As mentioned the project started with activities that absorb less funds such as awareness raising or training, both prerequisites for laying the foundations for subproject execution. These activities could be carried out simultaneously with the procedures for preparation for the construction of infrastructures given that those take a longer time to construct. This would allow that project processes are finalized early and that water supply can support climate-smart agriculture activities in the project.
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	<p>rotation, conservation of water and soils, terracing or intercropping as agricultural activities in the region rely fundamentally on water supply. As such the contributions of the field interventions to agricultural production, and as such also farmer income, may have been more limited.</p>	
<p>3.2.4.2. Is the project complementary to other active interventions in the project region?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • In general, the project is complementary to ongoing initiatives in the target region. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Despite complementarity interactions with existing projects seems to have been relatively low, and in other cases possible connections to relevant projects in the target region (esp. those with environmental focus) had not been identified. This shortcoming has been mentioned in the Adaptation Fund reviews of the PCN. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • It is important that connections to complementary projects in the target region are identified clearly, and that communication is established with those projects already in the development phase of the project. (Observation: relevant programs and projects have been identified in pre-proposal, and are listed in Annex B of this document.)
<p>3.2.5 Project contribution to building of adaptive capacities of the beneficiaries</p>		
<p>3.2.5.1. Are the targeted beneficiaries being reached?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Through focus group meetings, collection of testimonies during the mid-term evaluation, and participant observation, it can be affirmed that the targeted population has been reached by the project, in general. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Distances between the tabancas and bad road conditions were not taken sufficiently into consideration from a project operational perspective. This reduced the number of beneficiaries that could be effectively covered by the project due to low population densities 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Beneficiary selection should be based on stringent criteria to avoid mis-selection of ineligible candidates for subprojects. This will be relatively easy to implement, and probably will only amount to a more stringent application of existing selection criteria used for the LDCF project. • Already known: higher population densities in tabancas and more resources will permit a larger beneficiary population. This can be identified at project beginning, but should always consider the selection criteria above.

	<p>in most tabancas. Furthermore, in several cases it was noted after start of subproject activities that beneficiary vulnerability was lower than originally believed – in other words, they should not have been chosen as beneficiary as they were not eligible. In those cases the originally targeted population was not reached as planned.</p>	
<p>3.2.5.2. To what degree has the project contributed to improving the resilience of local communities?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Implementation of a number of small and medium scale climate change adaptation practices and infrastructure for water, agriculture and livestock management in 14 tabancas of the project region, including capacity building of farmers in best agricultural practices (crop rotation, seed production), forage production, dissemination of quality seeds, creation of seed banks, but also contingency plans, use of climate information and alphabetization programs, among other. Based on information from the project team especially forage production (brachiaria, or signalgrass) and no-tillage agriculture are working, with positive effects on income generation and food production. Brachiaria is a particular success case, as it has expanded to over 80 tabancas. It is a genus of plants in the grass family native to tropical and subtropical regions of Africa, with excellent growing conditions in savannah landscapes and some semi-arid lands. Brachiaria can be used cultivated as forage, as done in LDCF project, and it is the opinion of the project team that this contributing to livelihoods of cattle raisers in the region. This is also very clear from project reports, according to project team. • Food stocks and feed stocks were not directly requested by farmers but nevertheless seem to 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • It is recommended to allocate more resources to field interventions. This is already addressed. Allocate more resources to field interventions. This is already addressed: the Adaptation Project concept note foresees investments in the amount of US\$ 7 55 million for this project component, including investments in capacity building of fire brigades to prevent project fires (project component 1). • Overall the LDCF project is focusing a lot of water interventions that need government support. The LDCF project are relevant in this regard, may do not provide the necessary adaptive capacity building component required for climate adaptation given its lack of market development strategy, and integrated system development at community level. Decentralized water supply, for example through rooftop rainwater harvesting or other methods, could improve food and nutrition security if used in community gardens or individual gardens during longer time of the years. Cisterns would turn communities less dependent on uncertain government interventions (for example, in one case a deep well has already installed nearby the village of Benfica during a road construction project, but after workers left this well was not kept up for community –

	<p>support resilience building.</p> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> • Vulnerability reduction of family farmers in project region is addressed through mainly building capacity in water resources and agriculture management at project-level and through strengthening institutions to integrate climate change into their planning. The following observations relevant to increasing the outputs from these activities can be made: <ul style="list-style-type: none"> - Quality seed dissemination of dry cereals needs to be better disseminated and used, especially horse corn seeds, which are most popular with farmers in the region; - Farmers should have incentives to practice cultivation of cash crops, including cotton and sesame. This is yet limited in the project region, also due to lack of purchasing power in the region and lack of adequate market structures; - Improve agro-forestry-pastoral production in the project region, including through capacity building. This is especially important as cashew-nut dependence together with declining prices have led to manifestation of poverty traps, affecting not only negatively farmer income and food security, but leading also to deforestation in the region; - Building hydraulic infrastructure (mini-dams and rainwater retention basins) aimed at collecting and storing rainwater for irrigation and livestock, and focus also on household water access through rooftop rainwater harvesting, a very effective 'social technology' utilized in dry regions in NE Brazil. Such 'soft' adaptation infrastructure can complement 'hard' 	<p>decentralized water access avoids these kind of problems).</p> <ul style="list-style-type: none"> • Food stocks and feed stocks are also important for family farmers, although communities initially did not directly request this activity as it is a new concept for family farmers in the region. These storage capacities are also relevant for seeds and tools. • Hydrological infrastructure will likely have substantial impacts, including on family farmer income, but this is yet not possible to see because infrastructure hasn't been implemented. Linking agriculture and livestock activities with the infrastructure will be very important to leverage those benefits. Water works need to be built at beginning of project – not at end. This way the clear potential of water infrastructure in the field interventions was not capitalized upon. In ongoing project – also due mismatch in project planning which included lack of commitment from other national agencies – these activities were only recently begun, so that no real impact can be felt in the field until now. On any account, increasing water stress due to climate change will require strong investments reduce hydrological deficits in the region. • Contingency plans: could go further. In some cases, such as Benfica, existing plan inadequate or ineffective to reduce harm from floods – material was bought, but rock formation near topsoil leads to flooding from belowground in the tabanca, and not from nearby rivers. Tabancas likely will require more help to address these problems than thus have a few tools and an idea where to go to when the flood arrives – risk for houses to collapse continues. • Activities to reduce slash-and-burn agriculture and
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	<p>investments such as dams, and can support irrigated agriculture (with clear gender benefits, and mostly women work in gardens, next to food security and income increases) through drip irrigation systems, for example;</p> <ul style="list-style-type: none"> - Raise more awareness in communities, especially of women, as regards to the practice of horticulture together water from wells or boreholes constructed to maximize their use, as well as other – cheaper – rainwater harvesting methods. The integration with the water infrastructure, in general, has been low as most investments were only to be carried out in 2016 – with decentralized rainwater harvesting water access would have likely been assured earlier as construction is easier and does not depend on motivation of partner institutions or complex engineering interventions; - Encourage communities to increase grain production and consequently crop diversification, and increase of area under cultivation. • It was noted that field interventions respond only in part to community needs because local needs for vulnerability reduction are very numerous and because available resources for field interventions in the project are limited (US\$ 632.000). A direct consequence was that in order to benefit all 14 participating tabancas only few interventions could be implemented in each tabanca. • The review process of the Adaptation Fund project made clear that there is a need to focus on reducing slash-and-burn agriculture and forest fires. These activities were not comprehensively integrated in the LDCF project. Erosion protection and soil compaction are important environmental side in the project region, 	<p>forest fires should be integrated into the project. The new project should address this via (i) organizing rural fire brigades, (ii) training them to combat forest fires that endanger agricultural production and biodiversity in the project region, (iii) provide them with tools to do so, (iv) sensitize fire brigades on good practices to avoid fire, and (v) train fire brigades to sensitize rural populations before any drought season on fire risks and good practices to avoid them. Forest fires should also be covered by the project's contingency plans for climate risk management.</p> <ul style="list-style-type: none"> • Continue outreach efforts in agricultural techniques, livestock and water management improved distributed in the villages, in order to limit the risk of non-ownership communities of these techniques and to promote greater ownership. • The mid-term evaluation (Quesne and Jandi, 2013) and scientific evidence on livelihoods and socio-climatic vulnerability (Eakin et al., 2014; Porter et al., 2014) clearly point out that vulnerability reduction for poor dryland farmers will rely on project-scale interventions (capacity building and technology access) together with broader interventions in political institutions, health, education and infrastructure. While these were beyond the scope of the original LDCF project – and would continue to be beyond the scope of the current project proposal – starting discussions and aligning strategies between different institutional partners is a way forward. As a consequence, the LDCF project signed six (6) partnership protocols with relevant institutional partners in the areas of water resources management, small infrastructure, environmental and
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	<p>but were not adequately addressed. This leads to the assumption that the social impact may have been larger than the environmental benefit. Regarding resilience it will be important to consider environmental aspects of subproject development – not only social impacts matter. For example, uncontrolled forest fires are a threat to forests and socioeconomic activities. Each year thousands of hectares are being destroyed because of uncontrolled slash-and-burn agriculture, which later are occupied by cashew nut monoculture at the detriment of crops for food security and biodiversity.</p> <ul style="list-style-type: none"> • A literacy program was started in most tabancas, seeing that access to education is a key factor for adaptation, with participation particularly strong from women. One of the aspects that could be improved is the selection of teachers, which in some cases did have difficulty to grasp the content of the training manuals and transmit their content to their students. This is partly due to the fact that teachers were chosen from local literacy teachers, with the intention of minimizing costs, however, at the detriment of quality. Maintaining quality standards will be essential to make alphabetization a success. • Seed distribution and information campaign: while farmers benefited from training, these activities were not regularly followed by INPA in their activities because of the institutions non-inclusion in the program budget for this activity. Due to this many farmers continue to use their usual seeds, or are not prepared to buy quality seeds if they are not subsidized. • Lack of interest of some communities in technologies 	<p>livestock and agriculture in order to increase integration of strategies. The new project should invest heavily in increasing these partnerships as well as building new partnerships in the areas of health or education in order to support vulnerability reduction in a more integrated approach.</p> <ul style="list-style-type: none"> • The LCDF project originally did not focus on performance criteria in the partnership agreements signed with NGOs and project providers as studios proximity monitoring could compel the partners and recipients of implementation of the project to the objectives that were assigned to them. Monitoring of pilot project activities had also not begun at the time of the mid-term evaluation so that changes in food security and access to safe drinking water could not be assessed (Quesne and Jandi, 2013). In order to measure the impact of the project on livelihoods and climate change vulnerability and increase efficiency and effectiveness of the program the new project should therefore include a stronger monitoring and evaluation system.
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	<p>due to perceived lack of climatic risk (p. 13 Mangla).</p> <ul style="list-style-type: none"> Limited reach of several community radios and constant technical problems, particularly during rainy season, affect the project's outreach strategy. 	
3.2.5.3. What is the likelihood of achieving the expected impacts?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> Overall likelihood seems high – although this document is unable to assess this given lack of information and analysis. But take into account limited money available for field interventions, lack of market integration/broader approaches, and lack of M&E. <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> In cases of some subprojects, the project team observed a certain drop in animation after ending of the interventions. Part of the reason is that local government was unable to give further support to those subprojects either materially or financially. In those cases subproject may not be sustainably in the long term. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> Only few funding was available for on the ground measures, so that impacts in terms of adaptive capacity and resilience building necessarily had to be limited. Increased budget for on the ground activities in new project (US\$ 7.8 million) will help to increase project impact at local level.
3.2.6 Sustainability of activities and the impacts achieved by the project, and replication potential		
3.2.6.1. What is the level of local ownership?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> In general, project ownership seems high. Communities are involved in all activities, either directly or represented through the RCCF or Environmental Vigilance Committees (CRA). Furthermore local communities were involved in the project design and seeking of solutions from the beginning of the LDCF project. This has been confirmed by the project's mid-term evaluation and reports by the project team. It was not possible to confirm project ownership during the field visit for this report given that most interventions were utilized given actual drought conditions in the 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> It is unclear what has led to low participation and ownership in the cases here presented. One reason could be badly planned or unannounced meetings, lack of knowledge in participatory planning methods or unmotivated personnel which is not willing to use such methods, or cultural barriers which cannot be easily deciphered. Hiring quality personnel, especially young motivated technicians for field and Bissau stations, may support an ownership building process. Working with specialists from different areas, including community development, environmental

	<p>region – a problem which had been experienced also in 2015.</p> <p><u>What can be improved:</u></p> <ul style="list-style-type: none"> • Active participation of beneficiaries and communities was low on occasions: Although beneficiaries show that they are aware of climate change and the need to take measures to reduce its negative effects, ownership and adoption of technological innovations is quite weak, especially among men. Surprisingly this was also noted in meetings to plan water supply and use frameworks in some tabancas, where it would seem that water access is pivotal to climate change adaptation in the region. 	<p>education, adaptation, anthropology and community facilitators, with strong knowledge in interdisciplinary approaches may benefit not only local mobilization, but also overall project outcomes.</p>
<p>3.2.6.2. Have any efforts been made to review and publish the lessons learned from the implementation of the project?</p>	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • The project led the development of a comprehensive communications strategy, conducted numerous outreach and communications activities at the base and has set up some institutional communication tools (website, community radio, Facebook page, project newsletter). Currently the internet site for knowledge dissemination is a bit out of date in terms of information and also design. <p><u>What can be improved:</u></p> <ul style="list-style-type: none"> • Given the lack of continuous M&E efforts most information provided through the project cannot yet be categorized in terms of lessons learned. This is problematic particularly when aiming to disseminate and scale-up technologies for climate-smart agriculture approaches as there are no information on their effectiveness in reducing vulnerability. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Elaborate communication strategies may contribute to raising interest to the case of Guinea-Bissau, especially in the international climate finance context. Building a strategy to access these potential funds may be a good way to support future project development in the country. Systematic M&E will be an essential support to achieve this objective.
<p>3.2.6.3. Do project effects</p>	<p><u>What has worked:</u></p>	<p><u>Lessons learned:</u></p>

<p>present a potential for replication?</p>	<ul style="list-style-type: none"> • Mid-term evaluation suggested to develop an accurate replication strategy (Recommendation #16). • The project had not developed a document on good practices and lessons learned from the LDCF project, in part undertaken in this report. • The LDCF project is a pioneer project that strongly invests in capacity building of family farmer to build resilience against adverse climatic change, using both immediate and long-term adaptation measures in development policies, plans, programs, projects and actions. Through outputs organized in three work packages/outcome indicators, the project addressed key vulnerabilities in agriculture and water resources management in one of the most affected regions of Guinea-Bissau, and thus contributed to immediate and longer-term development and resilience building of extremely vulnerable farmers, with a particular focus on extremely vulnerable groups: women, elderly and children. However, the LDCF has limited scope in terms of particularly regarding (i) regional outreach (only Gabú Region); (ii) financial resources (few resources available for subproject development); (iii) sustainable natural resources use (lacking activities to curb slash-and-burn agriculture and conserve forests); and (iv) no integrated approaches to vulnerability reduction (lack of integrated approaches). Building on the LDCF project while increasing the scope of its activities may thus clearly contribute to overall vulnerability reduction in East Guinea-Bissau while contributing to a development in the region which is sustainable in term of its environment, water resources, economy and social systems. 	<ul style="list-style-type: none"> • It is suggested that a replication strategy should be developed on basis of the existing logical framework and theory of change, including the work activities of the LDCF project. • New planned work packages taking into consideration the necessity of upscaling. • Effective climate adaptation will require on a significant upscaling of current outreach and knowledge dissemination as through the LDCF project (a) many tabancas in the project region were not covered and (b) in some participating tabancas adoption of new technologies and practices was still low in 2013. Continued focus on Guinea-Bissau's dry East regions the project is expected help reach a critical mass that can avoid non-appropriation of techniques by communities, and thus turn LDCF impact more sustainable. This lesson will be taken in account within the new project. • Given the success of the LDCF project and a projected increasing socio-climatic vulnerability in the Gabú and Bafatá regions a replication of existing actions and increasing focus on prevention of slash-and-burn agriculture and forest fires is seen as an important step towards broader climate change adaptation in agriculture and water resources sectors. The current proposal is based on this key finding. • Esp. with Bafatá entering: opportunity to get young and motivated technical personnel? This may be MSc students from outside, with G-B citizenship. The motivation of the current staff leaves to be desired. Get personnel to Gabú and Bafatá station, improve communication with Resilience office. Feeling that a bottleneck is number of staff and, in lesser degree,
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		difficulties to work in Gabú.
3.2.6.4. What is the potential for environmental, financial and economic sustainability of the project?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> • Overall potential for sustainability is large: the activities aim to contribute to the socioeconomic development of a region strongly hit by climatic extremes and change, while protecting the region's environmental resources and contribute to recuperation of degraded lands. But additional investments and scaling-up of activities would be required in order to maintain activities and support integration into daily routines of farmers. 	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> • Due to the fragility of the State, continuity of activities after the project would rely largely on own interest by the farmers and support from decentralized structures established by the LDCF project, which, however, may have limited resources to contribute to on-the-ground interventions. • Establishing means for such continuous involvement should be discussed at the start of the new Adaptation Fund project. One option would be the creation of a Local Initiative Fund that could support CBOs in developing subprojects relevant for their communities, for example combat against forest fires, reforestation or income generation. Information exchange between tabancas, such as field visits, workshops, etc., could also be supported, based on the experiences with the 'Seja Dono de Fogo' community forest program. The Fund should focus on climate-relevant activities and grant support to those communities which are already highly affected by climatic variability and change.

ANNEX

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A. List of references consulted

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Other documents (not published) were also consulted and integrated into this report.

B. Interaction with other projects and programs in project region

The Adaptation Fund project proposal has synergies and complementarities with other other relevant recent or on-going programs in agriculture and water management in the planned target regions of Gabú and Bafatá, not limited to adaptation to climate change. These synergies and complementarities occur in the following domains: (i) improvement of technical and institutional capacity of stakeholders; (ii) increase of agricultural productivity and food security; (iii) construction of water infrastructure; (iv) management of natural resources; and (v) diversification of crop production.

In the domain of (i) improvement of technical and institutional capacity of stakeholders, the proposal project enter in complementarity with:

- Rural and Agricultural Sector Rehabilitation Project (PRESAR) supported by the African Development Bank. PRESAR's three objectives include the strengthening of rural organizations' capacity to support small-scale farmers and infrastructure in several Regions of Guinea-Bissau, including Bafatá and Gabú;
- The Intensification and Valorization of Local Agricultural Products project (DIVA) from 2008-2011 (US\$ 1.500.000). Carried out with support by the Italian Government in both Bafatá and Oio regions, the project helped in the capacity building of producers and their institutions;
- UNJP/GBS/301/PBF Gender Promotion Initiative (until 2015) with a US\$ 146,796 budget aimed to improve economic security and women's rights including in rural areas, investing in initiatives that ensure their economic and social empowerment through small-scale business activities; promotion and protection of women's rights and strengthening of organizational capacity of coordinating institutions;
- The Local Governance and Income Generating Activities support project was financed by the Dutch government from 2010-2013 with US\$200,000. The project aimed to improve governance by local communities and them in developing income-generating businesses and activities that would contribute for the improvement of their living conditions. Measures included micro-credit for agricultural and livestock production, provision of agricultural training, and technical assistance to prepare community plans.
- UNDP/GEF National Capacity Self-Assessment (2009-2011) made important progress in assessing the national capacity to implement the Rio Convention and developing a Strategy and Action Plan for Capacity Building on Environment Management, points that have directly contributed to the LDCF project development.

In the domain of (ii) increase of agricultural productivity and food security the proposal project has synergies and complementarities with the following projects:

- Several initiatives coordinated by the UN's Food and Agriculture Organization (FAO), including the International Fund for Agricultural Development (IFAD). FAO is implementing a number of projects, programs and initiatives that support Guinea-Bissau in the implementation of the Charter for Agricultural Development Policy, its action plan and what is part of the National Program of Food Security. FAO has projects in the whole country and also in the two project regions. It is worth mentioning two particular interventions: (1) The Food Security Project, which targets a number of policy, structural and on-ground interventions to address the now recurring issue food

security in Guinea- Bissau; (2) Project for diversification and intensification of agriculture and valorization of agricultural production;

- GCP/RAF/461/SPA Strengthening Capacity of ECOWAS for Effective Comprehensive Africa Agriculture Development Program (CAADP). Implementation in West Africa (until 2015) aimed to improve the food security and nutrition situation in West African States and concrete progress of ECOWAS Member States towards achieving the UNMDG1, measured by increased and sustained agricultural growth in line with the six percent CAADP annual agricultural growth target (US\$4 million);
- TCP/SFW/3402 Support to Policy Initiatives for the Development of Livestock/Meat and Dairy Value Chains in West Africa (end 2014). The project with a US\$ 500.000 budget aimed to subsidize the creation of a suitable environment for the development of value chains for livestock and livestock products to achieve food security, poverty reduction and reduction of dependency on food imports. A successful implementation of the project would contribute also to integration of livestock producers into markets, job creation, improvement of living standards and sustainable increase of livestock production and productivities. The envisaged impacts of the project were in line with the objectives of ECOWAP. The project impact is also in line with the objectives of MDG, FAO's Strategic objective B and the Priority Area 1 of FAO Africa;
- WB/EU Emergency Project for Food Production (2009-2012) with an approximate budget of \$9 million, and other recent/ongoing emergency programs. The mentioned project sought to assist the recovery of 5,000 hectares of mangrove soils and lowland continental soils for rice growing and vegetable production. The aim was to increase rice production and reinforce food security at community level;
- UNDP's Community-Based-Organizations' Support Project in Gabú Region (OCB) (2008-2012). This project was financed from UNDP core funds for \$1.5 million and its implementation extended from 2008-2012. The project was active in the Gabú region and wanted to support several local community-based-organizations' members to develop agrarian production (crops and livestock) for their self-sufficiency, thus improving their food security;
- Project for agricultural production in urban and peri-urban areas which includes the (i) development of operational plans for the improvement in short-cycle animal husbandry in the wildlands (including Gabú and Bafatá regions), (ii) implementation of micro-projects for breeding, processing and marketing of animal products, and (iii) development of partnerships with private sector and support services (until 2016);
- Several other programs (e.g. by the Ministry of Agriculture) aim to retrieve former production values for cashew nuts and rice, with a particular focus on women's integration in the production chain. Further initiatives focused on community development and rural rehabilitation in Guinea-Bissau.

Regarding to the domain (iii) construction of water infrastructures, the proposal project has strong links to the following programs and projects:

- The Rural and Agricultural Sector Rehabilitation Project (PRESAR) which is implemented by the Ministry for Agriculture and Rural Development of Guinea-Bissau (MADR) with support from the African Development Bank. PRESAR three objectives include the reorganization and rehabilitation of water and agrarian structures.
- The proposal project also enters in synergy with the Program of Work of the General Directorate for Water Resources (DNGHR). Within the framework of the Sub-Regional Program to Fight against Poverty, the Government of Guinea-Bissau has been

receiving significant finance for water resource management, as a member of UEMOA (the West African Monetary Union) and from OMVG (the Basin Organization for the Management of the Gambia River). One of two interventions are particularly relevant to mention: (i) UEMOA's Rural Hydraulics Program in Guinea-Bissau, under which a total 300 water points are foreseen to be built, 50 of which are in the Gabú Region, plus a community capacity strengthening program on self-sustained water point management, including sensitization and training in hygiene and basic sewerage; (ii) Integrated water resource management for the hydrographical basins of river Kayanga-Geba, financed through a grant, within the framework of African Water Facility, under which it is foreseen that an Integrated Water Management Plan for the Kayanga-Geba basin will be prepared, as well as the financing of studies for the exploration of basin's irrigation potential with respect to the part of the various river that flows into Guinea-Bissau. The Kayanga-Geba basin is located in the same sites selected for this project application (project running until 2017).

With regards to biodiversity conservation, as fragmentation and pressures on natural resources increase throughout West Africa, areas such as Guinea-Bissau's Forest Belt have become important refuges for threatened species, providing also important national and transnational biological corridors and migration routes for large mammals in the region. In this domain of (iv) management of natural resources principal complementarities are with these projects and programs:

- The UNDP/GEF Project SPWA - Support for the Consolidation of a Protected Area System in Guinea-Bissau's Forest Belt project which supported the consolidation of protected areas (PAs) in the Forest Belt through establishment of an interlinked protected area system containing of two inland PAs (Boé National Park, Dulombi National Park) and three biological corridors (Tchetche, Cuntabane-Quebo, and Salifo), located at the junction of Gabú, Bafatá and Tombali 'Regions' in central south Guinea-Bissau. Furthermore, the project supported preliminary assessments on primary threats to biodiversity, including its root causes; undertook a detailed stakeholder analysis for PA implementation; and carried out an initial assessment of climate change risk on Guinea-Bissau's biodiversity. This latter study highlighted potentially disastrous impacts on land, water, and forest resources, with strong relevance for rural livelihoods across the entire Forest Belt region. This project builds on the findings of the GEF/UNDP-3650 project in that it (i) targets key root causes identified (persistent rural poverty, weak institutional capacity and lack of coordination among authorities) through small-scale productive interventions and mainstreaming of adaptation into development planning; and (ii) reduces potential environmental pressures on the Forest Belt via conservation agriculture and agroforestry (including positive impacts via reduced slash-and-burn agriculture). In cases where project beneficiaries are located near or around the Forest Belt, rural extension and capacity building components will be used to incentivize beneficiaries to prevent deforestation and overuse of natural resources. Potential subprojects near the project belt will be shortlisted as soon as the project starts in order to allow for timely implementation of these actions.
- UNDP/GEF Sustainable Land Management Project SLM. With a total budget of less than \$0.5 million, the long term aim of the project is to contribute to the recovery of degraded land through institutional and individual capacity building. It is doing so by integrating sustainable land management issues into national development strategies, completing the National Action Plan to Combat Desertification (PAN/LCD), reinforcing, harmonizing and integrating the institutional, technical, organizational and legal

capacities in the policy for SLM.

- The Rural and Agricultural Sector Rehabilitation Project (PRESAR) which is support by the African Development Bank. One of tree objective of PRESAR focuses on capacity building in integrated natural resource management and land management at the level of villages.

Finally, regarding (v) diversification of crop production this proposal enters in complementarity with:

- The School Horticultural Activities Support Project which is developed in collaboration with World Food Program (WFP). This project targets, among other, 50 schools in the Gabú region and aims to diversify and intensify of agriculture as well as valorization of agricultural production.
- The Intensification and Valorization of Local Agricultural Products project (DIVA) from 2008-2011 (US\$ 1.500.000) which also focuses on the intensification and diversification of agricultural production in Guinea-Bissau.

Annex 4: Potential sites identification report



ADAPTATION FUND



THE REPUBLIC OF GUINEA BISSAU

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SCALING UP CLIMATE CHANGE-SMART AGRICULTURE IN EAST GUINEA BISSAU

POTENTIAL SITES IDENTIFICATION REPORT

July 2016



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I. INTRODUCTION

Guinea-Bissau is located in West Africa, it is a small country of 36.125 km² and a population of approximately 1.700.000 inhabitants.

The climate divides the country into three agro-ecological zones. The study area (northeast) is characterized by a Sudanese climate with two distinct seasons: a dry season between November and May and a rainy season from June to October. Precipitation in the site identification area varies between 1,100 and 1,400 mm / year. The evapotranspiration rate is 2,507 mm and the average annual temperature is 27,4 ° C. Currently, almost 80% of the annual precipitation falls during the months of July, August and September.

As part of the preparation of the project, a team composed of Mr Apá da Costa, Rural Hydraulic Engineers and Mangla Nantchia, agronomist, started from 3 to 9 November 2016 in the different Sectors of the regions of Bafata and Gabu. The mission was carried out in collaboration with regional and sectoral technical authorities, traditional authorities, farmers and herders. The objective of the mission is to identify sites vulnerable to climate change for possible support in the implementation of the project while proposing technical solutions to mitigate the impacts of climate change on the daily lives of producers and breeders. Support is provided for hydro-agricultural development (shallow water), the construction of drinking troughs (rainwater retention basin or mini-dam) for livestock and water points for the supply of clean drinking water for population..

II. CONTEXT

During the 1950s, the project area was very rich in water. The water resources come from a part of the rains, on the other hand from the contributions of the basins of the rivers Corubal, Geba and Cachéu. Rain is the main freshwater resource for agricultural production. However, a trend reduction in recent years is recorded for rainfall as well as for the rainy season. If in the 1950s the dry and rainy periods were each spread over half the year, the rainfall trend in the last 50 years shows a quantitative and qualitative decrease in rainfall. This implies an increase in the water deficit period for agropastoral activities. Today, the dry period gained a month on the rainy season. In this area, the rainy season extends from June to October.

Despite this modest freshwater potential, its distribution in space and time is very irregular with periods of excess (August, September) and deficit periods (October to June), with the monthly deficit exceeding 100mm (January To May). Thus, the lack of hydraulic infrastructure for stormwater management is a problem that does not always allow food crops to complete their vegetative production cycle, which contributes to a chronic decline in yields, and thus drought and lack of productivity, make livestock production more difficult and less productive.

Human activities related to the irrational exploitation of forest resources and the decentralization of agriculture in watersheds have contributed to deforestation and soil degradation not only in the plains but also at the lowlands. Soil erosion, caused by runoff during the rainy season, resulted in the silting of several plains, particularly in the regions of Gabú and Bafatá.

In this context, it becomes imperative for producers to adapt to climate change by adopting hydraulic systems and infrastructure needed to control and manage water for crop and livestock production that can meet food needs..

III. LOGICAL CHOICE OF SITES AND TARGET GROUPS

The selected sites are part of an effort to support the efforts of farmers (farmers and herders) to adapt to climate change to maintain and increase plant and animal production essential for food and nutrition security, namely rice, meat and milk. The corridor, consisting of the administrative sectors of Pitche, Pirada, Gabú and Sonaco in the region of Gabu and Contubuel and Ganadu in the Bafatá region, is most affected by the effects of climate change, which is more vulnerable in terms of infrastructure, Adaptation and where the water deficit is greatest at the country level, food and nutritional insecurity is more pronounced.

The target group would be all small-scale producers and ranchers, particularly rice-producing women and breeders who are often the first victims, but also the main actors in the fight against food insecurity, grouped in a village and / or group Of villages sharing a common area, whose interests converge, producers and / or pastoralists already engaged, with experience in the fields of activities where the will marked by a concrete initiative.

IV. SITES IDENTIFIED BY THE MISSION

4.1. Methodological approach

A first list of potential villages and sites was established during the working sessions with the regional directorates of agriculture and livestock of Gabu and Bafatá. The targeted area was deliberately restricted to the regions of Gabú, Pitche, Pirada, Gabú and Sonaco and Bafata, sectors of Contuboel and Ganadu, in accordance with the logic described in paragraph 3 above and whose adaptable rice potential and Number of livestock are important. The mission then visited pre-selected villages for interviews with farmers (farmers and / or herders) and on their respective sites for the recognition and diagnosis of exploitation problems.

During the mission, the team visited several villages and sites in both regions. In each region and village, the team exchanged information on their agropastoral activities and the main constraints with regional authorities, producers, rice farmers and herders. Discussions are followed by joint visits to the sites proposed by the villagers. During the exchanges, the observations and information gathering are made from the explanations of the resource persons and the producers / breeders.

In all the villages / sites visited by the mission, the major constraint identified by farmers and ranchers, which contributed to the decline in yields of agropastoral activities, is the deficit in irrigation water to complete the vegetative cycle. Beyond the water problem, the lowlands are confronted with problems of declining fertility, with the corollary, the strong presence of weeds of grass families and some legumes, especially Striga. Potential beneficiaries also

noted the lack of agricultural equipment, equipment and inputs, post-harvest conservation equipment and insufficient technical support.

With regard to livestock activities, the lack of water has led to a decline in the water level in the wetlands, resulting in a reduction in the growth and production of fodder plants and in the increase in the difficulty of watering livestock. Breeders are obliged to draw water in the majority of cases to a depth that varies between 10 to 30 meters to water, sometimes, more than 100 head of cattle. Also, most breeders are obliged to practice long-distance transhumance.

Vegetable activities are practiced in almost all villages as a source of very important income for women to cover the costs of schooling and medical care for children. But the main constraints for the development of market gardening are the lack of water, the invasion of animals and the lack of access to small agricultural equipment and inputs.

4.2. Sites selected by the formulation mission

A total of 18 sites have been selected for possible interventions of the project in preparation, namely:

1. Bucuré Boboti site - Gabú region, Pitche area
2. Copiro site - Gabú region, Pitche area
3. Sago / Fulamori site - Gabú region, Pitche area
4. Soncocunda site - Gabú region, Pirada area
5. Sissaucunda site - Gabú region, Pirada area
6. Durabali site - Gabú region, Pirada area
7. Sambataco site - Gabú region, Pirada area
8. Cumpaghor - Gabú region, Gabú area
9. Bada site - Gabú region, Gabú area
10. Colicunda site - Gabú region, Sonaco area
11. Madina Sara site - Bafatá region, Contuboel area
12. Manatu Mansona site - Bafatá region, Contuboel area
13. Calugada site - Bafatá region, Contuboel area
14. Sanecunda site - Bafatá region, Contuboel area
15. Suna Nhamabé site - Gabú region, Contuboel area
16. Cuncana site - Bafatá region, Ganadu area
17. Pacua site - Gabú region, Ganadu area
18. Cantacunda site - Gabú region, Ganadu area

V. BRIEF DESCRIPTION AND SYNTHESIS OF DIAGNOSIS OF IDENTIFIED SITES

5.1. Sites in the region of Gabú

5.1.1 Site of Bucuré Boboti

The village of Bucuré Boboti is linked to the Gabu-Bruntuma regional road by a rural road of 7 km. The runway is designed for limited traffic in one direction at a time. This trail is characterized by numerous points highly degraded by runoff and watercourses which render it, during the heavy rains, uncontrollable. The village is small sizes with about fifteen houses, inhabited by farmers and breeders whose population is about 138 inhabitants.

The method of land acquisition in Bucure Boboti is by inheritance. The land is in no case to be rent, but it can be loaned without interest. There are therefore no land conflicts at this site.

The identified shoal is located in the vicinity of the village and consists of a depression with a potentially exploitable surface of about 50 hectares, broad and flat. It is fed with water by the runoff of a small watershed and a rise of the water table.

According to the operators, the flooding of the lowest part is only verified in August and dries almost immediately after the rainy season.

In general, in the plains, the natural forest of the valley drainage basin is deforested because of human activity and therefore susceptible to erosion.

Despite the low yield, rice production is practiced at this level by the rice farmers in the four villages: Bucure-Boboti, Bucure-Dulo, Sintchã Dara and Sintchã Barros. In 2015, the site was flooded.

Soil preparation is manual for most working women. A small number of women are supported by their husbands who plow with the ox plow. Sowing is on the fly. Producers do not use inputs such as chemical fertilizers and pesticides. They use seeds of local varieties.

Although the size of the villages is average, the inhabitants have a large number of livestock. By the data of the regional veterinary service, for all the villages around Bucure Boboti, the number of livestock is estimated at 1100 head of cattle. To ensure water for hundreds of livestock breeders dig and draw traditional well water. At 400 meters from the village, the rural trail linking it to the regional road crosses a stream with a small lake that keeps water until January. The relief of this small watercourse allows, with a development, to create a culinary basin for the watering of the livestock of the zone.

In terms of village water supply, the village does not have a drinking water point for human consumption, nor for livestock, nor for students at school.

The main problems diagnosed for the villages in the area are as follows:

- ✓ Watersheds, practically without vegetation cover

- ✓ Difficulties of drainage of plots located at the center of the shoal during floods and flooding of plots during intense rains
- ✓ Lack of knowledge about how to do the adoption of adaptation measures to address water deficit problems for crop irrigation and livestock watering.
- ✓ 4. Lack of water supply infrastructure for livestock.

5.1.2 Site of Copiró

The village of Copiro is located at 1 km from regional road Gabu-Bruntuma and bound to it by a track. It is a large village with a population of 138 inhabitants.

At the level of this site there is no land without owner and the mode of acquisition of the land in this village is by inheritance and each family know the limits of his land and managing the needs of all members. In case of lack or abundance, it can be borrowed or lent without interest. There is no land conflict at the level of this site.

In terms of village water, the village boasts a water point equipped by a manual pump for the water. This watering can not meet the needs of the population.

Rice field site is not visited by the mission, because the beneficiaries encountered, water for rice production is not a major problem and the water courses that watering livestock dries on the eve of the rainy season. The village has a shallow of 111 hectares, cultivated by 10 villages including the village of Copiro: Binam, Sintchan Mali, Sintchan Malam, Madina Copiro, Cupe, Rauna, Canhamando, Afia and city of pitch. The bottom was partially built by the OMVG in 2007.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn plows.

The main problems faced by operators of lowland are:

- ✓ No control of water and low soil fertility } 3.,
- ✓ The silting and the strong presence of weeds grasses and legumes family especially Striga,
- ✓ The lack of agricultural equipment and inputs, post-harvest equipment and technical support.

5.1.3 Site of Sagoia/Fulamori

The village of Fulamori is located in the left bank of the Corrubal River, just a dozen meters away. It is 12 km south-east of the town of Pitche and connected by a rural track, recently developed by OMVG. It ends at Fulamori in the form of an access ramp to the ferry that ensures the crossing of the river towards the Republic of Guinea.

The village is small with about fifteen houses, with a population of about 138, but it is surrounded by several villages whose main activity is livestock. Its proximity to the perennial water source transforms it into a true pasture center during the most water-deficient months. Data from the regional veterinary service indicate that for all the villages around Fulamori, the number of livestock is estimated at 1100 head of cattle. The herds come from the villages of Sagoia, Rauna, Benfica, Paiama, Canhamando, and Bentem Misside.

The Corrubal River has a permanent watercourse and is the most used water source for watering the livestock of the area, despite its very difficult access for animals. During our visit the difference between the coastline of the natural terrain and the coast of the body of water was approximately 15 meters and a slope of about 1/2. Certainly, during the low (the months of April, May and June) the difference mentioned above will be more important.

Currently, the ferry access ramp is also used by the herds of cattle to drink. Of course, this situation complicated the management of the limelight in particular and transports in general and endangers the lives of each other. During the construction of the runway, the construction of specific ramps for the watering of livestock was considered, but a reason, without knowledge of the populations, the work was not realized.

A possible development of several ramps to the River will facilitate the herding by the breeders of the area.

The main problems diagnosed for villages in the area are the following:

- ✓ The Access to the source of water for the watering of livestock is difficult
- ✓ The high probability of accident in the operation of the access ramp to the ferry for carriers and water for herds.
- ✓ Lack of infrastructure of water supply for the livestock.

5.1.4 Site of Soncocunda

The village of Soncocunda is located south of the town of Pirada. It is linked to the regional road Gabu-Pirada by a small rural trail of 5 km. It can be used throughout the year thanks to its low slope and absence of rivers.

In terms of size, the village of Soncocunda is large and populous by 1300 inhabitants. Soncocunda share the same space for rice than for grazing with 5 villages namely: Soncocunda, Sissaucunda Samanco, Sissaucunda Aliu, Golere, Sintchan El Laube. The population of the area is estimated to have 3,000 people and the number of livestock is assessed in addition to 2,000 head.

The site of paddy field operated by whole villages is located 1.5 km from the village Soncocunda. It is very large with a potential conversion of 150 ha. The rice is part of the plain of the river Bidigor. In topographical terms, the site is flat with a small courtyard of ill-defined water which dries quickly after the rainy season. The rice field is supplied with rainwater from a small watershed. That is a few hours after the rains bottom remains without water because they flow to the river Bidigor just some metres to the bottom. This year, the phenomenon arrived in the midst of flowering of rice and threatening the production of the majority of the plots in the bottom. Lack inputs, agricultural materials, the decline in the fertility of the soil, the strong presence of weeds of grass family and some legumes as well as Striga, silting of bottom caused by water erosion are rice production constraints at the level of site.

Soil preparation is manual for the majority of women and the minority is in bovine plow with the support of their husbands. Producers apply direct seeding on fly and use the following local varieties: Herbel (60 days); Mussé Hu1 (C4 - 90 days); Adulai, Fulantcho and Nhada (120 days).

Concerning farming, there is a lack of water. To feed the livestock water farmers dig and get the water from traditional wells with depths ranging between 10-15 meters

The main problems diagnosed for the village-site of the area are the following:

- ✓ The slopes, practically without vegetation cover
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge about how to do the adoption of adaptation measures to address water deficit problems for crop irrigation and livestock watering.
- ✓ Insufficient water supply infrastructure for livestock

5.1.5 Site of Sissaucunda Aliu

The village of Sissaucunda Aliu is located on the same axis with the village of Soncocunda. The two villages share the same track and paddy field, and Sissaucunda is 2 km south of Soncocunda.

The village of Sissaucunda and the surrounding area (villages of Sissaucunda Aliu, Sissaucunda Samanco, Nhapo, Golere, Soncocunda and Sintchã El Laube) benefited from a mini-earth dam with a reinforced concrete threshold built by OMVG but its lake In February, according to the peasants this is due to the silting of the lake by the runoff during the heavy rains. The fact was noted by the mission. In the current state the mini-dam does not solve the problem of livestock watering in the area. While this is a real headache for breeders. To address this problem, there will need to be a one-time intervention.

5.1.6 Site of Durbali

The village of Durbali is close to the historic village of Cansala (Capital of the Gabu Empire). Easy access, linked to the Gabu-Pirada regional road by a 3 km rural trail. It is accessible all year round.

The entire population of villagers who farm the rice field is approximately 600 people divided into three villages, namely: Durbali, Madina Bocar and Lumbutugo. At the level of this site there is no land without belonging and the method of acquisition of the land in this village is by inheritance and each family knows the limits of its land and manages it at the need of all the members. In case of insufficiency or abundance, it can be lent without interest. There is no land conflict at the site level.

The Durbali rice field has an area of about 60 hectares and in topographic terms, it presents a configuration not homogeneous, flat, narrow width not exceeding 40 metres and quite long. The site is well supplied with fresh water by a watershed and has a Court of temporary water. His cross slope is accentuated, while the longitudinal is low. Despite the complexity of its configuration and its ill-defined bed (the side of the bed is almost equal to the coast from the rest of lowland), the surface runoff and storm water drainage goes fairly well, even after heavy rains. The watershed is partially deforested for the practice of agriculture of plateau and this is compounded by intense pastoral activity.

At site level, the mode of preparation of the soil is manual and animal traction (the plough). Rice is grown in nurseries and transplanted after 30 days in a final field. The varieties used

are local and are: cural (drought-resistant 90 days); Sorilumbato, Bissau and Rasta all (more at least 120 days). Farmers use no fertilizer and pesticides.

The constraints of rice production to the level of this site are: the presence of weeds of grass family and some legumes, the lack of materials and agricultural inputs, lack of post-harvest facilities and technical support.

The main problems diagnosed for the village-site of the area are the following:

- ✓ The slopes, practically without vegetation cover.
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge about how to do the adoption of adaptation measures to address water deficit problems for crop irrigation and technical support.

5.1.7 Site of Samba Taco

The site of Samba Taco regroups several villages around the valley of the river Bidigor. The total population of all the villages is 500 people. At this site, the land acquisition method is inherited and each family knows the boundaries of its land and manages it if necessary of all the members. In case of insufficiency or abundance, it can be lent without interest. There are no land conflicts at the site level. Part of the valley is exploited exclusively for pasture grazing.

The Valley of Samba Taco has an area estimated in 50 ha, of which about 20 ha are grown for rice production. The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn plows. The constraints of rice production to the level of this site are: the presence of weeds of grass family and some legumes, the lack of materials and agricultural inputs, lack of post-harvest facilities and technical support.

In topographical terms, it presents a smooth, flat and with a variable width configuration. The Valley is well supplied with fresh water by a watershed and has a temporary minor bed that runs only in January. The cross slope of the plateau to the bottom of the Valley is accentuated, while the longitudinal is low.

Samba Taco and nearby villages have a significant number of livestock. By the data of the regional veterinary service, for all of the villages, the number of livestock is estimated at 2,000 head of cattle.

The watershed is partially deforested for the practice of farming and this is exacerbated by intense pastoral activity in the area.

The main problems diagnosed for the village-site of the area are the following:

- ✓ Slopes, practically without vegetation cover
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge about how to do the adoption of adaptation measures to address water deficit problems for crop irrigation
- ✓ Lack of water supply infrastructure for livestock.

5.1.8 Site of Cumpaghor

The village of Cumpaghor is close to Gabú, easy access; it is on the Gabú-Pirada regional road. The total population of all the villages totals 500 people.

The method of land acquisition in Cumpaghor and other villages is by inheritance and at this site there is no land without belonging to an individual. Each family estate is known by the villagers and each family manages its land at the need of all the members. The land is in no way subject to rental, but it can be loaned without interest. There are no land conflicts at the site level.

The Cumpaghor paddy field has a usable area of approximately 100 hectares and in topographic terms it has a homogeneous, flat, narrow configuration, the average width of which does not exceed 50 meters. It is long and serves several villages, such as Cumpaghor, Canhanque, Sintchan Aladje, Sintchan Luntam, Sintchan Bricama, Amedalae. The site is well supplied with freshwater by a relatively large catchment area with a permanent watercourse during the months of August, September, October and November. The configuration of the Cumpaghor site, despite its poorly defined bottom (the bottom's rib is almost equal to the coast of the remaining shoal), the surface runoff and storm water drainage goes fairly well, even after Heavy rain. For wet years this situation favors production, but on the contrary for the dry years the situation aggravates the deficit in irrigation water. The shoal was partially developed by an NGO in 2007.

Soil preparation is done manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn plows. The most widely used varieties are: Nerica L14 and Nerica L19- 120 days, DEPA-90 days, Sahel 94-115 days. The rice is grown in nurseries and transplanted after 30 days in a definitive field.

Main lowland constraints are: total uncontrolled water, the decline in the fertility of the soil, the strong presence of weeds from the family of grasses and some legumes, silting caused by water erosion, lack of agricultural machinery, lack of agricultural inputs, the lack of post-harvest facilities, the lack of technical support.

The watershed is completely deforested for the practice of agriculture of plateau, which makes it very vulnerable to silting by water erosion.

The main problems diagnosed in the village / sites are as follows:

- ✓ The slopes, practically without vegetal cover
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge about how to do for adoption of adaptation measures to address water deficit problems for crop irrigation

5.1.9 Site of Bada

The village of Bada is located in the vicinity of the town of Gabu. It is located along the regional road Gabú-Pirada. It is a large village, with a hundred houses, whose population is about 1000 inhabitants. The way land is acquired, as in the majority of villages in Guinea-Bissau, is by inheritance, each household has its own land that it can lend without interest.

Land conflicts are rare and if it happens, are usually settled amicably or through wise men of the village.

The paddy field serve not only the population of Bada and the villages of Coiada, Djibata, Sancalancunda, Lenquirim, Mamadu Embalo and part of the population of Gabu and part of the plain of the river Campossa with a suitable potential area of 150 hectares. In topographical terms, the bottom is deep and flat, powered by a fairly large watershed and groundwater that is almost at the surface of the shallow freshwater. The watershed is completely deforested for the practice of agriculture of plain farming and this is aggravated by the high density of the population. The site suffers from degradation due to erosions and also due to the solid waste of households from the city of Gabu. Part of this valley was subject to a development by an NGO in 2008.

The practice of preparation of the soil is manual by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn plows. The most widely used varieties are: Nerica L14 and Nerica L19 - 120, DEPA-90 days, Sahel 94-115 days. Among the constraints of production faced by producers include the decline in the fertility of the soil, the strong presence of bad herbs family of grasses and some legumes, the lack of materials and agricultural inputs, post-harvest facilities and lack of technical support.

The main problems diagnosed in the village / site of the zone are as follows:

- ✓ Slopes, practically without vegetation cover
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge about how to do for the adoption of adaptation measures to address water deficit problems for crop irrigation
- ✓ Degradation of agricultural land through silting and deposition of inorganic solid waste from urban residents of Gabú.

5.1.10 Site of Colicunda

The Colicunda site serves several villages around the valley, including: Nemataba, Velingara, Sintchã Bacar and Iero Maro. The total population of all villages is 1,500 people. At this site, the land acquisition method is inherited and each family knows the boundaries of its land and manages it if necessary for all the members. In case of insufficiency or abundance, it can be lent without interest. There are no land conflicts at the site level.

The Colicunda Valley has an estimated 70 ha in area. In topographical terms, it has a non-homogeneous configuration, flat in its central part and with a width, from upstream to downstream, variable of a few tens of meters to more than 50 meters. The Valley is well supplied with fresh water by a watershed and has a temporary minor bed which dried up in December. The cross slope of the Valley is accentuated, while the longitudinal is low.

Despite the chronic problem of lack of water to complete the vegetative cycle and several constraints of production, such as: the decline in the fertility of soils and performance, the strong presence of weeds, the lack of materials and agricultural inputs and the lack of technical support and guidance, the paddy field is 90% cultivated. The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn plows.

A belt of the forest round is well preserved, throughout the two immediate side of the Valley. Despite forest conservation from the slope, the risk of silting remains a problem for the operators of the rice field.

The main problems diagnosed in the village / site is as follows:

- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge about how to do for the adoption of adaptation measures to address water deficit problems for crop irrigation.

5.2. Sites of Bafatá

5.2.1. Site of Madina Sara

The village of Madina Sara is located on the national road Bafatá-Cambadju (border Senegal) near Contuboel, easy acces. The total population of all the villages is 500 people.

The mode of acquisition of land at Madina Sara and other villages is by inheritance and at the level of this site there is no land without belonging to an individual. Each family estate is known by the villagers and each family manages his land for the needs of all members. The land is in no way to rent, but it can be lent without interest. There is no land conflict at the level of the site.

The paddy field in Madina Sara has a usable area of about 50 hectares, and in topographic terms, it has a homogeneous, flat, narrow and well sitting configuration, which the average width does not exceed 35 metres. It is long and serves several villages, such as Madina Sara, Cansama, Sitcha Demba Djau, Sintcha, Django, Bricama, Sindja Demba and Sintcha Mamadu. Further upstream, this lowland is shared with the villages of Galugada, Talto, Sare Djeno, Cambadju and Sintcha Djida. At the level of the village, Madina Sara, the site is well supplied with freshwater by a relatively large watershed, with a permanent water courses during the months of August, September, October and November. Despite the fact that in some places the river bed is poorly defined, especially upstream of Madina Sara, the surface run-off and stormwater drainage runs quite well, even after heavy rains. For wet years this situation favors production, but on the contrary for the dry years the situation aggravates the deficit in irrigation water.

True that the slopes are covered by a layer of semi-dense forest, the road that runs through the Valley is the main factor of silting up of the rice fields.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn ploughs. The technique used is the transplanting. Rice is grown in nurseries and transplanted after 30 days in a final field. The varieties used are: uancaran, Banimalo, Demeremedjel all 90 days and Marosirem 120 days. This same bottom is used by women in activities of outstanding gardening during the dry season.

The main constraints of shallow are: the decline in the fertility of the soil, the strong presence of weeds from the family of grasses and some legumes, lack of agricultural inputs, post-harvest facilities and equipment and the lack of technical support.

Madina Sara and nearby villages have a significant number of livestock. By the data of the regional veterinary service, for all of the villages, the number of livestock is estimated at 2,000 head of cattle. But, thanks to the support of the Spanish Cooperation, the village benefits from a large-scale drilling equipped with a high cistern, powered by solar electric pump and two concrete drinking troughs.

The main problems diagnosed in the village / sites are as follows:

- ✓ Siding of the rice fields
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge about how to do the adoption of adaptation measures to address water deficit problems for crop irrigation

5.2.2. Site of Manato Mansona

The village of Manato Mansona is 4 km from the Bafata-Cambadjú national road (Senegal border). It is connected to the national road by a narrow track that branches off at the level of the Madina Sara village. The trail is accessible all year round, but with very critical points during the rainy season. The village is small in size, with about ten houses and a population of about 100 people.

The method of land acquisition in Manato Mansona and other villages, with which the rice fields share, is by inheritance and at the level of this site there is no land without belonging to an individual. Each family estate is known by the villagers and each family manages its land at the need of all the members. The land is in no case for hire, but it can be loaned without interest. There is no land conflict at the site level.

The rice field of Manato Mansona, which is 3 km from the village, has a usable area of approximately 120 hectares and in topographic terms it has a homogeneous, flat and well-seated configuration, the average width of which exceeds 100 meters. It is long and serves several villages, such as Sintchã Samba Djiba, Djabel, Cuncusira, Sintchã Mama, Fataco fula, Sintchã Turé, Braima Soló, Manato II and Sintchã Bilali / Brale.

The shallow water is well supplied with freshwater by a relatively large watershed, with a permanent stream that dries up just after the rainy season. Its configuration favors the natural drainage of runoff water, despite its defined bed. For wet years this situation favors production, but on the contrary for the dry years the situation aggravates the deficit in irrigation water. The way of preparation of the soil is manual. The rice farmers cultivate the land using the <balinculo> technique used to combat weeds and for conservation of water. The technique used is the transplanting. Rice is grown in nurseries and transplanted after 30 days in a final field. The varieties used are the following: Djulukeme (90 days), Banimalo (90 days and Djumorouda (60 days) according to the rice farmers </balinculo>).

This same bottom is used by women in activities of outstanding gardening during the dry season.

Manato Mansona and nearby villages have a significant number of livestock. By the data of the regional veterinary service, for all of the villages, the number of livestock is estimated at 2,000 head of cattle. But this village has only a diameter wells that dried up in February. In terms of village water, Manato is disadvantaged and the problem of access to drinking water is a daily challenge for residents. Of course, in this situation, the watering of livestock with proper water remains a dream.

The main constraints of the shallow are: the decline in the fertility of the soil, the strong presence of especially the Striga weed, the lack of inputs, post-harvest facilities and equipment and the lack of technical support.

The main problems diagnosed in this village/site are the following:

- ✓ Siding of the rice fields.
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season.
- ✓ Lack of knowledge of how to do the adoption of adaptation measures to address water deficit problems for crop irrigation.
- ✓ Lack of access to drinking water for the population and water for livestock watering.

5.2.3. Site of Galugada

The village of Galugada is located on the national road Bafatá-Cambadju (border Senegal) with easy access. It is large with a hundred houses and village water infrastructure. The population is 1000 people.

The mode of acquisition of land at Galugada and in the villages with which it shares the rice field is by inheritance and all the lands are owned by people. Each family estate is known by the villagers and each family manages his land to the needs of all members. The land is in no way to be rent, but it can be lent without interest. There is no land conflict at the site level.

The paddy field of Galugada is the continuity of Madina Sara, the total usable area is approximately 50 hectares and in topographic terms, it presents a configuration not homogeneous, broad, with accented cross slope, but a low longitudinal. At the village level, the site is supplied with freshwater by a small watershed, with a temporary stream during the months of August and September. Despite the no definition of river bed surface runoff and stormwater drainage happens momentarily, even after heavy rains. This situation worsens the deficit irrigation water and do not favors rice production.

The slopes are totally proven vegetation cover and rice field are subject to silting.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn ploughs. The technique used is sowing due to insufficient water. The varieties used are: Bandjulai, Banimalo, Santandjan, CEFA-PRETO, DEPA every 90 days, Djulkeme, Uancaran (90-120 days), Barrafita, Tabuia (60-90 days).

This same bottom is used by women in activities of outstanding gardening during the dry season.

The main constraints to production in the Valley are: the decline in the fertility of the soil, the strong presence of weeds from the family of grasses and some legumes, lack of agricultural inputs, post-harvest facilities and equipment and the lack of technical support.

Galugada and nearby villages have a significant number of livestock. By the data of the regional veterinary service, for all of the villages, the number of livestock is estimated at 2,000 head of cattle. The watering of herds is done by manual creation of water at an average depth of 15 meters. This is the major constraint for the development of farming in the village.

The main problems diagnosed in this village/site are the following:

Siding of the rice fields

Difficulties in retaining and managing floods to flood rice plots during the rainy season

Lack of knowledge of how to do for adoption of adaptation measures to address water deficit problems for crop irrigation

✓ **The main problems diagnosed in this village/site are the following**

5.2.4. **Sites de Sanecunda**

The village of Sanecunda is located near the Senegal border 6 km from Fajonquito and 9 km from the Bafatá-Cabadjú national road (Senegal border). It is connected to the Canhamina-Fajonquito trail by a narrow track, which is accessible the all year, but with very critical points during the rainy season and in poor condition. The village is small, a little isolated, with nearly five houses and a population of about 20 people without potable water for human consumption and for livestock which are many in the village. It has a traditional well dug by the villagers themselves that dried up during the dry season, forcing the displacement of breeders in search of long-distance water sources.

To some ten metres from the village there is a shallow where women practice rice cultivation. The mode of acquisition of the land here is also by inheritance. Each family estate is known by the villagers and each family manages his land the needs of all members. The Earth is in no way to rent, but she can be lent without interest. There is no land conflict at the level of the site.

The rice field has a usable area of approximately 30 hectares and in topographic terms, it presents a smooth, flat and comfortable configuration, which the average width does not exceed, 25 metres. It is long and serves several villages, such as Sanecunda, Maro Baque, Samatiana, Sintcha Framba, Brecolon, Sintcha Bacar and Sintcha Bala.

At the village level, the site is supplied with freshwater by a small watershed, with a temporary stream during the months of August and September. Despite the no definition of bed surface runoff and stormwater drainage happens momentarily, even after heavy rains. This situation worsens the deficit irrigation water and does not promote rice production.

The immediate slopes of the Valley are consisting of savannah grass (pasture area), so very susceptible to water erosion. This area contributes to the silting up of the rice fields.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn ploughs. The rice farmers cultivate the land using the <balinculo>, technique used to fight weeds and for conservation of water. The technique used is sowing to pane. The varieties used are: Banimalo, Auael, and Tabadjenque every 90 days. Baghaghar 90-120 days</balinculo>.

The main constraints of the production in this Valley are: the decline in the fertility of the soil, the strong presence of especially the Striga weed, the lack of inputs, post-harvest facilities and equipment and the lack of technical support.

The main problems diagnosed for the village-site are the following:

Siding of the rice fields

Difficulties in retaining and managing floods to flood rice plots during the rainy season

Lack of knowledge of how to do for the adoption of adaptation measures to address water deficit problems for crop irrigation

Lack of access to drinking water for the population and water for livestock watering.

5.2.5. Site of Cuncana

The village of Cuncana, initially, is not part of the villages selected in the working session with the Regional Directorate of Agriculture and Livestock. It is located between the village of Pacua and Ga-Mamaudu (capital city) of the administrative sector of Ganadu. The track which connects it to Ga-Mamudu crosses a shallow, whose width is estimated in 80 meters, flat and comfortable. This lowland is fed with fresh water by a small watershed, without a permanent stream or a defined minor bed. As we move downstream, the river becomes temporary during the month of August and September and the bed is defined.

The shallow upgrading rate is over 95%, but at the time of the mission the water stress of the plants in full bloom, threatening the productivity of the majority of the plots in the shallows, was noticeable at the lack of irrigation water. This valuation rate shows the willingness and commitment of women in food production to ensure food self-sufficiency for their families regardless of the condition.

The Cuncana lands are acquired by inheritance and all the land has an owner. Each family estate is known by the villagers and each family manages his land to the needs of all members. The land is in no way to rent, but it can be lent without interest. There is no land conflict at the level of the site.

The rice field of Cuncana has an exploitable area over 100 hectares and in topographic terms, it presents a uniform configuration, wide, with a weak transverse slope but a weak longitudinal one. Despite the low longitudinal slope runoff drainage occurs quickly, even after heavy rains. This situation worsens the deficit irrigation water and do not favors rice production.

The slopes are mostly covered by a layer of semi-dense forest but, the track that runs through the Valley is the main factor of silting up of the rice fields.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn ploughs. The technique used is sowing in part because of lack of water.

The main constraints to production in the Valley are: the decline in the fertility of the soil, the strong presence of weeds from the family of grasses and some legumes, lack of agricultural inputs, post-harvest facilities and equipment and the lack of technical support.

Cuncana and nearby villages have a significant number of livestock. By the data of the regional veterinary service, for all of the villages, the number of livestock is estimated at 2,000 head of cattle. The watering of herds is done by manual creation of water at an average depth of 15 meters. This is the major constraint for the development of farming in the village.

The main problems diagnosed for the village-site are the following:

Siding of the rice fields

Difficulties in retaining and managing floods to flood rice plots during the rainy season

Lack of knowledge of how to do for the adoption of adaptation measures to address water deficit problems for crop irrigation

- ✓ Absence of infrastructure for livestock watering.

5.2.6. Site of Pacua

The village is located a kilometer from Ga Mamudu, City capital of the administrative sector of Ganadu. On the way home, approximately 250 meters, the track which gives access to the village runs through a Valley, whose width reached 150 meters. This Valley is operated by the women of the village to the rice production. Beyond rice production, one of the activities of the Pacua is farming. The track remains accessible throughout the year, but she is in a bad state of conservation.

In terms of size Pacua is a big village with hundreds of houses. Pacua population totals about 1,500 people. At the level of this site, the farm land is acquired by inheritance and each family know the limits of his land and managing the needs of all members. In case of lack or abundance, it can be lent without interest. There is no land conflict at the site level. A part of the Valley is operated exclusively for grazing of herds.

The Pacua Valley has an estimated in 180 ha, potential area which approximately 80 hectares is cultivated for the production of rice and the rest is used for grazing. It can serve several villages in the Pacua round, such as Candafe, Sintcha husband, Sintcha Mamadu I, Sintcha Sulai and Sointchã Mamadu II. In topographical terms, it presents a smooth, flat and with a variable width configuration. The Valley is well supplied with fresh water by a watershed and has a temporary minor bed that dries immediately after the rainy season. The cross slope of the plain to the bottom of the Valley is accentuated, while the longitudinal is low.

The watershed is partially deforested for the practice of agriculture of plateau and this is compounded by intense pastoral activity in the area.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn ploughs. The technique used is sowing a pane and one used for cultivating the land is called "Balinculo", a technique to fight weeds and water conservation. A portion of the crop is kept for the seed. The varieties used are: Guireghade, Djundiguide, Banimalo, Barafita, Lancaran, Maliulem, Comoco and Tchamuel - 90 days; CEFA COIO (white rice) E CEFA PRETO (black rice) - 60 days.

Pacua and nearby villages have a significant number of livestock. By the data of the regional veterinary service, for all of the villages, the number of livestock is estimated at 2,000 head of cattle. This livestock is watered by the manual creation of the water at a depth of more than 10 meters.

The rice production and farming in the area are: the presence of weeds of grass family and some legumes, the decline in the fertility of the soil, the lack of materials and agricultural inputs, lack of equipment Post-harvest and manual flocking and lack of support and technical support.

The main problems diagnosed for the village-site of the area are the following:

- ✓ The slopes, practically without vegetation cover
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season
- ✓ Lack of knowledge of how to do for the adoption of adaptation measures to address water deficit problems for crop irrigation
- ✓ Lack of water supply infrastructure for livestock

5.2.7. Site of Cantacunda

The village of Cantacunda is located 19 km from Gã-Mamudu (the capital city) of the Ganadu sector. It is connected to Gã-mamudu by a very degraded track with impassable sections during the rainy season. Fortunately, it has an alternative track used while the main track remains impractical. The village is large in size, with more than 50 houses and a population of about 1200 people.

Less than 200 meters from the village there is a shallow where women practice rice cultivation. The mode of acquisition of the land here is also by inheritance. Each family estate is known by the villagers and each family manages his land to the needs of all members. The land is a not for rental, but it can be loaned without interest. There is no land conflict at the site level. The village of Cantacunda share the same shallow with Sintcha Bobo, Sare WINS, Madina, Samba Sintcha, Sintcha Folonco and Sintcha Hoio.

The rice field has a usable area of more than 150 hectares and in topographic terms it has a homogeneous configuration, flat and well seated, which the average width exceeds not 250 meters. It is long and serves several villages, such as mentioned above.

At the village level, the site is supplied with fresh water by a watershed, with a Court of temporary water during the successive rains. Despite the no definition of bed surface runoff and stormwater drainage happens fast enough, even after heavy rains. According to the population encountered, the blade of water level can reach 15 cm, but after a few days this blade is completely drained. This situation worsens the deficit irrigation water and does not promote rice production.

The immediate slopes of the Valley are consisting of savannah grass (pasture area), so very susceptible to water erosion. This area contributes to the silting up of the rice fields.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn ploughs. The rice farmers cultivate the land using the technique "balinculo" used to fight weeds and for conservation of water. The technique used is sowed. The varieties used are: Guireghare, Banimalo, Sambaroconco, DEPA - 90 days; Hotchocoro, Sare Amadi, Sambanconco, Wancaran-120 days; Marlon, Mulai-60 days.

Cantacunda and nearby villages have a significant number of livestock. By the data of the regional veterinary service, for all of the villages, the number of livestock is estimated at 2,000 head of cattle. The watering of herds is done by manually digging water from a single drilling equipped with a manual pump and / or moving long distances to supply livestock with water.

The main constraints of rice and livestock production are: the decline in the fertility of the soil, the strong presence of weeds especially Striga, lack of equipment and inputs of post-harvest equipment, manual of herds watering and/or transhumance and the lack of support and technical guidance.

The main problems diagnosed in the village-site are the following:

- ✓ Siding of the rice fields
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season.
- ✓ Absence of knowledge of how to do the adoption of adaptation measures to tackle problems of water deficit for crop irrigation
- ✓ Absence of adequate infrastructure for livestock watering.

5.2.8. Site of Suna Nhamabé

The village of Sunna Nhamabé is located 3 km from Fajonquito and 6 km from the national Bafatá-Cabadjú (border Senegal) It is connected to Fajonquito by a narrow track and can be driven all year round. The village is medium-sized, with dozens of houses and a population of about 200 people.

Less than 500 meters from the village there is a shallow where women practice rice cultivation. The mode of acquisition of the land here is also by inheritance. Each family estate is known by the villagers and each family manages his land at the needs of all members. The land is not to be rent, but it can be loaned without interest. There is no land conflict at

the site level. The village shares the same shallow with Sintchu, Sintcha Tenquenam, Sare Hamadi, Djarto, Mansidi, Sare dough and Sare Canta.

The rice field has a usable area of more than 150 hectares and in topographic terms, it presents a homogeneous, flat and well-seated configuration, the average width not exceeding 250 metres. It is long and serves several villages, such as mentioned above.

At the village level, the site is supplied with fresh water by a watershed, with a temporary stream during successive rainy. Despite the non definition of bed surface runoff and stormwater drainage happens fast enough, even after heavy rains. According to the population encountered, the blade of water level can reach 15 cm, but in two days this blade is completely drained. This situation worsens the deficit irrigation water and does not promote rice production.

The immediate slopes of the Valley are consisting of savannah grass (pasture area), so very susceptible to water erosion. This area contributes to the silting up of the rice fields.

The preparation of the soil is made manually by the majority of women. Some of them are supported by their husbands by plowing with animal-drawn ploughs. The rice farmers cultivate the land using the <balinculo> technique used to fight weeds and for conservation of water. The varieties used are: Guireghare, DEPA Contuboel, Cinco Male, Mulai Dimba Modadjo - 60 days. Banimalo-90 days</balinculo>.

Suna Nhamabé and neighboring villages have a large number of livestock. According to data from the regional veterinary service, for all the villages, the number of livestock is estimated at 2000 head of cattle. The watering of the herds is done by manual water extraction from a single drill equipped with a manual pump.

The main constraints of rice and livestock production are: the decline in the fertility of the soil, the strong presence of especially the Striga weed, the lack of inputs, equipment post-harvest, manual watering of herds and equipment and the lack of support and technical guidance.

The main problems diagnosed for the village / sites are as follows:

- ✓ Siding of the rice fields.
- ✓ Difficulties in retaining and managing floods to flood rice plots during the rainy season.
- ✓ Absence of knowledge of how to do the adoption of adaptation measures to deal with problems of water deficit for crop irrigation.
- ✓ Lack of adequate infrastructure for livestock watering.

VI. SYNTHESIS OF SITES DIAGNOSIS

The following table presents a summary of the identified sites.

Sites (sector)	geographical coordinates			Areas potential	Beneficiary villages	Type of intervention	Observation	cultivated rice varieties	Cycle days
	Village	Rice field	basin						
Gabú region									
Bucure Boboti (pitch)	N 12° 20 ' 30 " " W 13 ° 43' 30, 8"	N 12° 20 ' 09,5 " " W 13 ° 42' 58"	N 12° 20 ' 30 " " W 13 ° 43' 30, 8"	100 ha	Sintcha Dara Sintcha Dadi Sintcha Borros Bucure e Boboti Bucure Dulo	Development of a rice perimeter and a hilly basin for livestock		Ann Mussé Hu Landjare Mama samba Djulukeme Mandem Fiji-Fiji	90 90 90 90 150 150 150
Copiro (pitch)	N 12° 20 ' 33.7 " " W 13 ° 54' 42"			60 ha	Copiro Sambael Sintcha Sintcha Mole Sintcha Malam Binam Madina Copiro Rauna Canhamando E Hafia Pitch Fulbe		The rice field site is not visited by the mission because, according to the beneficiaries encountered, water for rice production is not a major problem, but the stream that feeds the cattle dries up at the end of the rainy season.	Cundara Associação Banimalo OIO Fiki-Fiki	90 90 90 90 120
Sago/Fulamori (pitch)	N 12° 18 ' 33.8 " " W 13 ° 55' 59, 7"	nought		80 ha	Sago Rauna Benfica Paiana Canhamando Bentem Misside	Development of several access ramps to the left bank of the Corubal River in the vicinity of Fulamori	An access ramp to the ferry for the crossing of the river is also used for access to water livestock in the area		
Soncocunda (Pirada)	N 12° 37 ' 57.4 " " W 14 ° 10' 59, 5"	N 12° 37 ' 10.7 " " W 14 ° 11' 18, 1"		150 ha	Soncocunda Samanco Sissaucunda Golere Sissaucunda Aliu Sintcha Alaube	Development of a rice perimeter and if the topographic condition is favorable development of a hillside basin	The site relief is very flat and the mission could not identify the appropriate site for the construction of a trough	Herbel Mussé Hu Adulai Nhada Fulantcho	60 90 120 120? 120?
Sissaucunda (Pirada)	N 12° 38 ' 17.5 " " W 14 ° 12' 30, 6"	nought	N 12° 37 ' 27.7 " " W 14 ° 13' 08, 1"	65 ha	Sissaucunda Sissaucunda Aliu Samanco Nhapo	Development of a hilly basin for livestock	The site has benefited from a mini dam built by OMVG, but its lake dried up in February	Herbel Mussé Hu Adulai Nhada Fulantcho	60 90 120 120? 120
Durbali	N 12° 32 ' 26.4 "	N 12° 20 ' 30 "	N 12° 32 ' 20.6 "	60 ha	Durbali	Development of a		Cural	90

Sites (sector)	geographical coordinates			Areas potential	Beneficiary villages	Type of intervention	Observation	cultivated rice varieties	Cycle days
	Village	Rice field	basin						
(Pirada)	" " W 14 ° 12' 06, 1"	" " W 13 ° 43' 30, 8"	" " W 14 ° 11' 48, 1"		Madina Bocar Lumbutugo	rice perimeter		Sori Lumbato Bissau Rasta	120 120 120
Sambataco (Pirada)	N 12° 28 ' 22.3 " " W 14 ° 10' 34, 1"	N 12° 28 ' 22.3 " " W 14 ° 10' 34, 1"		50 ha	Sambataco Sintcha Zoe Sintcha Farim Sintcha Farina Sintcha Sori Bela Sintcha Mampurou/Sacuampurom	Development of a rice perimeter and a hilly basin for livestock			
Cumpaghor (Gabú)	N 12° 19 ' 04,5 " " W 14 ° 10' 59, 9"	N 12° 10 ' 30.3 " " W 14 ° 11' 19, 8"	nought	100 ha	Cumpaghor Sintchan Aladje Sintchan Luntam Sintchan Bricama Amedalae Canhanque Cumba Djiba	Development of a rice perimeter		Sahel 94 NERICA L 19 Sahel 317 Banimalo DEPA	90 115 115 90 90
Bada (Gabú)	N 12° 18 ' 37.1 " " W 14 ° 11' 19, 6"	N 12° 18 ' 37.1 " " W 14 ° 11' 19, 6"	nought	150 ha	Bada Djibata Sancalancunda Lenquerim Mamadu Embalo Barrios of Gabu <ul style="list-style-type: none"> • Coida Sinho • NEMA I • Leibalda • Doubalda 	Development of a rice perimeter		Sahel 94 NERICA L 19 Sahel 317 Banimalo DEPA	90 115 115 90 90
Colicunda (Sonaco)	N 12° 23 ' 29.4 " " W 14 ° 21' 18, 2"	N 12° 23 ' 49.6 " " W 14 ° 21' 02, 2"	nought	70 ha	Colicunda Velingara Iero Maro Némataba Sintcha Bacar	Development of a rice perimeter		Bissau Missira Herbel Rasta	120 90 60 115
Bafatá region									

Sites (sector)	geographical coordinates			Areas potential	Beneficiary villages	Type of intervention	Observation	cultivated rice varieties	Cycle days
	Village	Rice field	basin						
Madina Sara (contuboel)	N 12° 26 ' 14.3 " " W 14 ° 36' 42, 2"		nought	50 ha	Madina Sara Cansoma Sintcha Demba Django Sintcha Bricama Fanca Sintcha Demba and Sintcha Mamadu	Development of a rice perimeter	The village has a drilling equipped with solar electric pump, a high reservoir, a fountain and two concrete drinking troughs	Dlulukeme Banimalo Demeremedjel Marosirem	90? 90 90 120
Manatu (Contuboel)	N 12° 28 ' 02,1 " " W 14 ° 34' 51, 2"	N 12° 28 ' 41.9 " " W 14 ° 34' 01, 3"	N 12° 20 ' 30 " " W 13 ° 43' 30, 8"	120 ha	Diving II Samba Djiba Djabel Cuncussira Sintcha Mama Fataco fula Sintcha Blale Dabel SARE Sintcha Ture Braima Solo Fataco Fula	Development of a rice perimeter and construction of a drilling equipped with a manual pump and a concrete drinking trough	The village is very deficit in water. Visited bottom is flat and intended exclusively for rice production and does not offer conditions for the construction of a pool for the watering of livestock.	Dlulukeme Banimalo Djunoudda	90 90 60
Galugada (Contuboel)	N 12° 28 ' 09.4 " " W 14 ° 37' 25, 5"			50 ha	Galugada SARE Djeno Talto Cambadju and Djida Sintcha	Development of a rice perimeter and space for the watering of the cattle	The village has a drilling equipped with solar electric pump, a high reservoir, several hydrants, but without drinking trough	Banimalo Bandjulai Quarenta dia Djulukeme Wancaran Barrafita Santandim Tabuia Cefa preto DEPA	90 90 40 115 115 60 90 75 90 90
Sanecunda (contuboel)	N 12° 33 ' 54.2 " " W 14 ° 47' 21, 7"	N 12° 33 ' 57.3 " " W 14 ° 43' 30, 8"	nought	60 ha	Sanecunda Maro Baque Samatiana Sintcha Framba Sintcha Bacar Sintcha Bala Brecolon	Development of a rice perimeter and the construction of a drilling equipped with a manual pump and a concrete drinking trough	The village is very deficit in water. Visited bottom is flat and intended exclusively for rice production and does not offer conditions for the construction of a pool for the watering of livestock.	Banimalo Tabadjenque Auael Baghaghar	90 90 90 115
Suna	N 12° 27 ' 42.6	N 12° 27 ' 23.4	nought	75 ha	Suna Nhamabe	Development of a rice	The number of livestock	Banimalo	

Sites (sector)	geographical coordinates			Areas potential	Beneficiary villages	Type of intervention	Observation	cultivated rice varieties	Cycle days
	Village	Rice field	basin						
Nhamabe (Contuboel)	" " W 14 ° 45' 43, 5"	" " W 14 ° 46' 59, 3"			Sintchu Sintcha Tenquenam SARE Hamadi Djarto Mansidi SARE dough SARE Canta	area and if the topographic condition is favorable development of a hilly basin	is very important in the area and the water deficit is getting worse each year	Guireghare DEPA Cinco Male Mulai Dimba Modadjo	90 60 60 60 60 60
Cuncana (Ganadu)		N 12° 21 ' 11.4 " " W 14 ° 43' 33"	nought	50 ha	Fodé Sana Sintcha Malam Bairro Samba	Development of a rice perimeter		Banimalo Barrafita Lancaran Maliulem Comoco	90 90 90 90 90
Pacua (Ganadu)	N 12° 24 ' 17.5 " " W 14 ° 42' 29, 4"	N 12° 24 ' 07 " " " W 14 ° 42' 44, 3"	N 12° 23 ' 43.5 " " W 14 ° 42' 15, 5"	80 ha	Candafe Sintcha husband Sintcha Mamadu Sulai Sintcha Sintcha Mamadu 2°	Development of a rice perimeter and a hilly basin for livestock		Banimalo Barrafita Lancaran Maliulem Comoco	90 90 90 90 90
Cantacunda (Ganadu)	N 12° 25 ' 23.6 " " W 14 ° 48' 13, 2"	N 12° 25 ' 48.4 " " W 14 ° 47' 44, 4"	N 12° 25 ' 39.6 " " W 14 ° 48' 46, 7"	150 ha	Cantacunda Sintcha Bobo SARE WINS Madina Sintcha Samba Sintcha Folonco Sintcha Hoio	Development of a rice perimeter and a hilly basin for livestock		Banimalo Otchocoro Uancaran Guireghari Sambaroconco DEPA SAHEL	90 120 120 90 90 90

Annex 5: Procedures to resolve a grievance in the framework of the project

Procedures to resolve a grievance

This manual defines the policy and guidelines at the company level on grievance. These guidelines include the following:

- **Filing of Application:** The affected party shall file an application with one resident missions or headquarters of BOAD for receipt of complaints. Upon receipt, the complaints will be transferred to the appropriate Organizational Unit at the Bank's headquarters.
- **Registration and acknowledgment of receipt of the request:** Within five working days of receipt of the request, the resident mission or relevant headquarters service logs the request and sends an acknowledgment to the applicant and a copy to the project sponsor and the Bank's headquarters.
- **Consideration of the admissibility of the application:** Within twenty working days of registration of the application, the Organizational Unit in charge of policy and grievance procedure at the headquarters of the Bank will inform the applicant and the public if the application meets the eligibility criteria.
- **Assessment of the feasibility of resolving the dispute:** Within twenty-five working days of the determination of the admissibility of the request, the Organizational Unit shall transmit to the applicant, the resident mission and other relevant stakeholders an assessment of the feasibility of grievance resolution activities. The evaluation will also include recommended actions, if any, that BOAD will be willing to undertake or facilitate to encourage the resolution of the dispute considered, or it will conclude on the inutility of the resolution of the dispute and will close the case. This assessment will also determine whether the applicant first must submit a request to one of the grievance process established by the project proponent or the government of the resident mission.
- **Obtaining consent for the resolution of the dispute:** Any dispute resolution efforts based on the consent of key stakeholders, including eg applicants, affected communities, the promoters of the project, the Government of the resident mission and / or the headquarters of the Bank. A dispute resolution process cannot move forward without the voluntary consent of the main parties.
- **Dispute resolution process:** Assuming that major stakeholders have agreed on a course of action to try to resolve their dispute or remedy the concerns of applicants, the grievance process will implement the agreed course of action. Some flexibility will be necessary as the appropriate approach will necessarily be adapted to the individual application and consent. In the absence of consent, the possibilities of dialogue and consultation will necessarily be reduced. If the consultation process works all parties can continue the process until an agreement is reached.
- **Obtaining or not an agreement:** Once complete the dispute resolution process, organizational unit responsible for compliance and regulation to the Bank will submit its report, including the settlement agreement (if applicable) and any recommendations for further action by BOAD to the President of the Institution and to all stakeholders.
- **Stopping the consultation process:** All parties to the consultation may at any time terminate the dispute resolution process if they are not in agreement with the adopted course of action. In certain circumstances, the consultation process will end with no resolution. In such circumstances, a detailed report will be submitted to the President of BOAD, summarizing the application, the measures taken to try to resolve the issues raised by the application, and recommendations for further action by BOAD, if applicable. This final report will also be forwarded to the Head of the resident Mission of BOAD concerned and the applicant, the project sponsor, the government of the country of the resident mission and the public. If for any reason the indicated timetable cannot be respected in a particular case, the applicant and the public will be informed of the delay, the reasons thereof and the new schedule. The person responsible for the grievance mechanism is the head of the Division of Compliance and Regulatory.

**Annex 6:
List of public consultation during PCN
preparation**

Tabancai Copa Monjui
 Lista de presença

15/11/15



- 1- Sene Embalo'
- 2- Mussa' Balde'
- 3- Braima Embalo
- 4- Gaba Balde
- 5- Demba Balde
- 6- Melai Embalo
- 7- Djan Sise
- 8- Sida Balde
- 9- Amadei woi so
- 10- Braima so
- 11- Usunmane Balde
- 12- Bubacoz so
- 13- Usunmane so
- 14- Salze so
- 15- Tehane so
- 16- Unade so
- 17- Nando Balde
- 18- Saida Balde
- 19- Isaka Balde
- 20- Salie Embalo
- 21- Hasane
- 22- Usunmane so

Jomy ara

4
7

- DRPCAAATC

22-Tabu Embalo Copa Pangui
24-Matima Embalo 2
25-Mamadjan Camara
26-Tabu Balde
27-Mumine So
28-Maxiana Candé
29-Tabu Hae
30-Cumba Hae
31-faromara Balde

15/7/15 Tabanca Fasse (1)
Lista de presença - Homens

1. Sene Embaló
2. Garcia p. Embaló
3. SECO BALDE
4. Amadú Tidjane Sall
IBNO Dembo
AMadú Tidjane Baldé
BACIR Baldé
AMadú guissé

Lista de presença Camadjana

nº	Nome	Tabanca/sector	Contacto
71	Isnaba Na Batales'	Priette	536 01 70
	Dunhe' Bandjai	CamadJaba	544 06 13
	Djaba Ngofue	CamadJaba	543 29 43
	Fenda cantore	CamadJaba	5542755
	Adama embalo	CamadJaba	543-1854
	Amado Anore'	CamadJaba	543-2969
	Tomboim Camara	CamadJaba	16939966
	Atali Borsodjai	CamadJaba	5511439
	ARTAM BANDJAI	CamadJaba	5770613
	TUNCAM Comara	CamadJaba	6789864
	Amadou Toké	CamadJaba	5632977
	Bolcar Comara	CamadJaba	5492842
	Coel Bolde		586079D
	BAGIRO Comara		586-49-50
	Selo Samba	CamadJaba	5702005
	Adama Embalo	CamadJaba	6640953
	Lony out	PRRORATE	

Lista de presença 16/4/15

- Administração do Setor de Pitche
- 1 - Louy Ant Σ - 5307577
 - 2 - Isnady Na Batches'
 - 3 - Garcia Pacar Embaló'
 - 4 - Mapu Mexi' 6632306 / 5360994
 - 5 - Taia Cassamá 6954061 / 5114978
 - 6 - @Nunor Injeri 5804391 / 6605183. Σ

Lista de presença 16/7/15

Benfica

N/O	Nome	Tabanca	Contacto
01	Isndso Na Batela	Pitche	5360170
2	Mamadou Zeré Baldé	BENFICA	613 2247
3	Samba djaô	BENFICA	927 6931
	Umaro Baldé	BENFICA	925-29-38
	Alfa Baldé	BENFICA	6115082
	fode Judjai	BENFICA	- - - -
	Usumane Baldé	BENFICA	5555779
	BOBOBALDE		503 5385
	Lummp Jq		530777
	Garcia facan Embalo		5367317
	QWamr Srijai		5804391

Seelfo Mandinga 15/7/15
Lista presunç

Mulheres

- 1- Gene Fimbalo'
- 2 - Saleimane Balde'
- 3 - Bubi Fati'
- 4 - Mamadu Fati'
- 5 - Fodi Cassama'
- 6 - Takam Fati'
- 7 - Almamo Fati'
- 8 - Sadyo Quebe'
- 9 - Suntucom Fati'
- 10 - Sees Fati'
- 11 - Nembali Fati'
- 12 - Fodi Jabo
- 13 - Queba' Fati'
- 14 - Mamadu Sila'
- 15 - Caba Sila'
- 16 - Madindim Fati'
- 17 - Marati'
- 18 - Queba Sila'
- 19 - Senfo Fati'
- 20 - Lodi Quebe'
- 21 - Binta Fati'
- 22 - Sati' Sisse'
- 23 - Caramo Fati'
- 24 - Nano Fati'
- 25 - Demba Fati'
- 26 - Marabo Sisse'
- 27 - Sadyo Fati'
- 28 - Jusso Cassama'
- 29 - Djara' Quebe'
- 30 - Fenda' Fati'
- 31 - Ude' Fati I
- 32 - Djara' Sisse'
- 33 - Djara' Cassama'
- 34 - Satam Fati'
- 35 - Bolom Indjai'
- 36 - Ude' Fati II
- 37 - Mandim Fati'
- 38 - Mayandim Quebe'
- 39 - Yariama Quebe'
- 40 - Assi Cassama'

Associação Tessito - Sonaco 15/7/2018

Lista de presença

- 1- Queenbr Injeri ~~5329694~~
- 2- Sene Embalo ~~5329694~~
- 3- Amadi Embalo ~~5410894~~
- 4- Djalam Fati 6448214
- 5- Ramato Djalo 6924015
- 6- Sene Tombon ture
- 7- Cadi Camara
- 8- Ude Ture
- 9- Tidandim ture
- 10- Ami Mane
- 11- Mandjilam Fati
- 12- Djaka ture
- 13- fatumata Sidiibe
- 14- Suncak Sisse
- 15- Mane zanhã
- 16- Nuno Blai
- 17- N'Djabi Cassama
- 18- Aua Ducure
- 19- N'GONH N'DAMI
- 20- Sene Embalo
- 21- Sandem Fati

Annex 7: List of public consultation during potential sites identification

Região Bafofa
 Tabanca Suma

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
-11-	-11-	Sona Balde	Agricultora		
-11-	-11-	Fatumata Balde	-11-		
-11-	-11-	Seba Balde	-11-		
-11-	-11-	Umo Baude	-11-		
-11-	-11-	Djenabo Embalo	-11-		
-11-	-11-	Boni Baude	-11-		
-11-	-11-	Bire Djan	-11-		
-11-	-11-	Cumba Seide	-11-		
-11-	-11-	Mariato Balde	-11-		
-11-	-11-	BASS Baude	-11-		
-11-	-11-	Sona Balde	-11-		
-11-	-11-	Ramiro Balde	-11-		
-11-	-11-	Cumba Djan.	-11-		
-11-	-11-	Seento Baude	-11-		
-11-	-11-	Shanha Balde	-11-		
-11-	-11-	Badi Balde	-11-		
-11-		Ture Balde	-11-		
-11-		Jurandi Balde	-11-		
-11-		Musca r Sane	-11-		
-11-		Yobel Seide	-11-		

Data _____/_____/2016

REGAÇÃO

Lista de pessoas encontradas durante as missões de terreno

Sector	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
Pirada	Somocundo	Alfa Balde	chefe tabanca	96605241	ALFA
-	-	Aua Balde	Agricultura		
-	-	Ana Balde	-	966026016	
-	-	Mariana Embalo	-		
-	-	Fanta Balde	-		
-	-	Inaba Balde	-	966080799	
-	-	Faleniata Embalo	-	966148153	
-	-	Mariung Gano	-		
-	-	Issa Embalo	-		
-	-	Tadfaue Balde	-		
-	-	Hornadu Balde	Agricultor		
-	-	Sadjo Embalo	-	966087523	Mikhomajh
-	-	F	-	8866636	
-	-	Fero Embalo	-		
-	-	Cumbael Dju	Agricultora		
-	Sessacem	Sori Embalo	Chefe tabanca	6378195	
-	da Alin	Dilde Kebe	Agricultor		Dilde
-	-	Cadpat Balde	Agricultora		
-	-	Alfa Embalo	-	966378195	ALFA
-	-	Bubacar Balde	Alfame	96650265	
-	Durbali	Bubacal Dju	Chefe de tabanca	966084458	
-	-	Prama Sori Balde	Agricultor	966311980	
-	-	Tuncam Djal	-	966385393	
-	-	Mama Sali Gano	-	966099426	5914211 GC
-	-	Madiu Dju	-	966016304	
-	-	Salimkh Djal	Agricultora	966134072	115110000
-	-	Ocha Candé	-		
-	-	Aisato Djal	-		
-	-	Aua Dju	-	969208343	AVADJU
-	-	Gemba Embalo	-	966480538	
-	-	Amado Djal	-		
-	-	Tenem Gano	-	966128763	
-	-	Alfene Candé	Agricultor	966104006	
-	-	Edo Balde	Agricultora	955841079	

Data 04/11/2016

REGIÃO DE BAFATA

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
BAFATA	BAFATA	Muelana ITA	S. permissão	955379402	
-11-	-11-	Mussa Tali	S. executivo	955841493	
Ganado	Cemana	Sambao Candé	Chefe tabanca		
-11-	-11-	Amado Balde	Agricultor	966433866	
-11-	-11-	Abdelai Candé	-11-	-11-	ALIAI
-11-	-11-	Sana Balde	-11-	-11-	A
-11-	-11-	Tero Candé	-11-	-11-	
-11-	Pacua	Secoba Cassama	Chefe tabanca	966387738	
-11-	-11-	Oocari Dairama	Agricultor		
-11-	-11-	Amado Balde	Professor	966381776	Amado Balde
-11-	-11-	Secoba Cassama	criador gado		Op. Lil. Balde
-11-	-11-	Abdu Adem	Agricultor		ABU du
-11-	-11-	Saleto Dabo	-11-		
-11-	-11-	Djilku Camara	Agricultora		
-11-	-11-	Abdu Cassama	criador gado		
-11-	-11-	Sen. Dabo	Agricultor		
-11-		Praina Cassama	-11-		
-11-		Praina Tambado	criador gado		
-11-		Malam Parua			
-11-	St. Boko	Bunta Djau	Agricultora		
-11-	-11-	Uma Bonde	-11-		
-11-	-11-	Anjaro Gamana	-11-		
-11-	-11-	Fatimata Balde	-11-		
-11-	-11-	Anjaro Balde	-11-		
-11-	-11-	Djenato Balde	-11-		

Data 06 / 11 / 2016

REGIÃO BAFATA

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
GAMACI	Canta-	Famoro Djolo	chefe tabanca		
-II-	cunda	Iero Balde			<i>Iero Balde</i>
-II-	-II-	Amado Dj			
-II-	-II-	Braima Amado	Agricultor		
-II-	-II-	Salefo Camara	-II-		
-II-	-II-	Amado Balde	Professor	966311903	<i>Amado Balde</i>
-II-	-II-	Djeco Saule	Agricultora		
-II-	-II-	Aissate Djassi	-II-		
-II-	-II-	Messabi Camara	-II-		
-II-	-II-	Citavo Candé	Agricultor		
-II-	-II-	Tcherno Candé	Agricultor	966500764	<i>Tcherno Candé</i>
	-II-	Fatimata Camara	Agricultora		
	-II-	Akanata Balde	-II-		
	-II-	Cadjata Candé	-II-		
	-II-	Mahmuna Balde	-II-		
	-II-	Tenem Candé	-II-	966002574	<i>Tenem Candé</i>
	-II-	Mila Balde	-II-		
	-II-	Godjo Djou	-II-		
	-II-	Aissate Saide	-II-		
	-II-	Tchadia Djou	-II-		
	-II-	Ussai Balde	-II-		
	-II-	Moude Balde	-II-		
	-II-	Mahmou Danfa	-II-		
	-II-	Gele Djassi	-II-		
	-II-	Senecab Djou	-II-		
	-II-	Abi Candé	-II-		
	-II-	Mina Joubalo	-II-		
	-II-	Dado Balde	-II-		

Data 07/11/2016

Doro

REGIÃO DE BAFATA

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
Contu	GALI-	Sidi Danso	Chefe tabanca		
boel	GADA	Dyadji Danso	Agricultor		
-II-	-II-	Ngobi Sanka			
-II-	-II-	Bacar Danso		966788716	Bucon
-II-	-II-	Banna Dabo	Agricultora		
-II-	-II-	Nhina Casana	-II-		
-II-	-II-	Malam Dabo	Agricultor		
-II-	-II-	Malam Dabo	-II-	966933262	
-II-	-II-	Bacar Danso	-II-	966564962	
-II-	-II-	Djassodanso	-II-	-	
-II-	-II-	Malam Danso	-II-	-	
-II-	-II-	Badji Conte	Agricultora	966472275	Koili/Konte
-II-	-II-	Saejo-fati	-II-		
-II-	-II-	Gabi Mama	-II-		
-II-	-II-	Djara Danso	-II-		
-II-	-II-	Genia Danso	-II-		
-II-	-II-	Cambo Danso	-II-		
-II-	-II-	Uguar Danso	Agricultor	966540124	gusjãe
-II-	-II-	Issa Dabo	-II-		
-II-	-II-	Mamudo Danso	-II-	966334398	ISSA
-II-	SANE-	Mamudo Nhamado	Chefe tabanca	969280880	Mamudo
-II-	CUNDA	Mamudo Nhamado	Agricultor		Nhamado
-II-	-II-	Vma Djamanca	Agricultora		
-II-	-II-	Maritima Seide	-II-		
-II-	-II-	Badjati Babil.	-II-	966840039	
-II-	-II-	Aleli Nhamado	Acy. Chefe tabanca	966317952	
-II-	-II-	Iaia Nhamado	Agricultor	966433646	IAIA
-II-	-II-	Hamadei Nhamado	-II-	969099290	

Data 05 / 11 / 2016

REGA GABU

Lista de pessoas encontradas durante as missões de terreno

Sector	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
Pirada	Somocundo	Alfa Balde	chefe tabanca	966805241	ALFA
	-	Aula Balde	Agricultura		
	-	Ana Balde	-	966026016	
	-	Mariana Embalo	-		
	-	Fanta Balde	-		
	-	Fraba Balde	-	966080799	
	-	Fatunata Embalo	-	966148153	
	-	Mariana Gano	-		
	-	Issa Embalo	-		
	-	Idfane Balde	-		
	-	Komadu Balde	Agricultor		
	-	Sadjo Embalo	-	966087523	Mkhomph
	-	F		8866636	
	-	Iero Embalo	-		
-	-	Cunbael Gau	Agricultor		
-	Sessacum	Sori Embalo	Chefe tabanca	6378195	
	da Ahiu	Dulde Kebe	Agricultor		Dawbe
-	-	Cadpa Balde	Agricultora		
-	-	Alfa Embalo	-	966378195	ALFA
-	-	Bubacar Balde	Alfame	966650265	
-	Durbali	Bubacar Gau	Chefe de tabanca	966084458	
-	-	Drama Sori Balde	Agricultor	966311980	
-	-	Tuncam Dfalo	-	966385413	
-	-	Mama Sali Gano	-	966099486	5914211 GC
-	-	Nadiu Gau	-	966016384	
-	-	Salimki Dfalo	Agricultora	966134072	11511000
-	-	Ocha Candé	-		
-	-	Asato Dfalo	-		
-	-	Aua Dfalo	-	969208343	AVADJO
-	-	Gemba Embalo	-	966980538	
-	-	Amado Dfalo	-		
-	-	Tenem Gano	-	966128763	
-	-	Alcane Candé	Agricultor	966140406	
-	-	Edo Balde	Agricultora	955841079	

Data 04/11/2016

REGIÃO DE BAFATA

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
BAFATA	BAFATA	Médiana ITA	S. permissão	955379402	
-II-	-II-	Mussa Tali	S. executivo	955841493	
Ganado	Cuenana	Samburo Cande	Chefe tabanca		
-II-	-II-	Amado Balde	Agricultor	966433866	
-II-	-II-	Abdulai Cande	-II-	-II-	ALIAI
-II-	-II-	Sana Balde	-II-	-II-	A
-II-	-II-	Tero Cande	-II-	-II-	
-II-	Pacua	Secoba Cassama	Chefe tabanca	966387738	
-II-	-II-	Oecari Dairama	Agricultor		
-II-	-II-	Amado Balde	Professor	966381776	Amado Balde
-II-	-II-	Secoba Cassama	criador gado		Secoba Cassama
-II-	-II-	Abdu Aldom	Agricultor		ABU du
-II-	-II-	Salep Dabo	-II-		
-II-	-II-	Djillem Camara	Agricultora		
-II-	-II-	Abdu Cassama	criador gado		
-II-	-II-	Senl. Dabo	Agricultor		
-II-		Branna Cassama	-II-		
-II-		Branna Tambado	criador de gado		
-II-		Malaw Narua			
-II-	St. Boto	Bunta Djau	Agricultora		
-II-	-II-	Iema Bende	-II-		
-II-	-II-	Ansaro Gamanta	-II-		
-II-	-II-	Fatimata Balde	-II-		
-II-	-II-	Ansaw Balde	-II-		
-II-	-II-	Djenabo Balde	-II-		

Data 06 / 11 / 2016

REGIÃO BAFATA

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
GAVANCI	Banta-	Famoro Djolo	chefe tabanca		
-II-	cunda	Jero Balde			Jero Balde
-II-	-II-	Amado Dj			
-II-	-II-	Braima Amado	Agricultor		
-II-	-II-	Salfo Camara	-II-		
-II-	-II-	Amado Balde	Professor	966311923	Amado Balde
-II-	-II-	Djeco Sane	Agricultora		
-II-	-II-	Aissate Djassi	-II-		
-II-	-II-	Messob Camara	-II-		
-II-	-II-	Citavo Candé	Agricultor		
-II-	-II-	Tcherno Candé	Agricultor	966560780	Tcherno Candé
	-II-	Fatimata Candé	Agricultora		
	-II-	Akanata Balde	-II-		
	-II-	Badjata Candé	-II-		
	-II-	Maimuna Balde	-II-		
	-II-	Yenem Candé	-II-	966002594	
	-II-	Mela Balde	-II-		Mela
	-II-	Godjo Djau	-II-		
	-II-	Aissate Seim	-II-		
	-II-	Tchadjo Djau	-II-		
	-II-	Ussai Balde	-II-		
	-II-	Moude Balde	-II-		
	-II-	Nhalim Danfa	-II-		
	-II-	Geledi Djassi	-II-		
	-II-	Jeneajo Djau	-II-		
	-II-	Abi Candé	-II-		
	-II-	Mina Jombalo	-II-		
	-II-	Dado Balde	-II-		

Data 07/11/2016

Dorso

REGIÃO DE BAFATA

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
Contu	GALLI-	Sidi Danso	Chefe Tabanca		
boel	GADA	Syadani Danso	Agricultor		
-II-	-II-	Ngei Sanka			
-II-	-II-	Bacar Danso		966783716	BACAR
-II-	-II-	Bama Dabo	Agricultora		
-II-	-II-	Nhina Casani	-II-		
-II-	-II-	Malani Dabo	Agricultor		
-II-	-II-	Malani Dabo	-II-	966933262	
-II-	-II-	Bacar Danso	-II-	9668164962	
-II-	-II-	Masso Danso	-II-	-	
-II-	-II-	Malani Danso	-II-	-	
-II-	-II-	Badji Conte	Agricultora	966472275	Kouli Conte
-II-	-II-	Saepo-fati	-II-		
-II-	-II-	Gani Mama	-II-		
-II-	-II-	Dana Danso	-II-		
-II-	-II-	Geuta Danso	-II-		
-II-	-II-	Emba Danso	-II-		
-II-	-II-	Ngura Danso	Agricultor	966540117	ginsjoe
-II-	-II-	Issa Dabo	-II-		
-II-	-II-	Mamudo Danso	-II-	966334398	ISSA
-II-	SANE-	Mamudo Nhamado	Chefe Tabanca	969280880	Mamudo Nhamado
-II-	CUNDA	Mamudo Nhamado	Agricultor		
-II-	-II-	Vina Damane	Agricultora		
-II-	-II-	Mariama Seide	-II-		
-II-	-II-	Badjatu Seide	-II-	966840039	
-II-	-II-	Aleli Nhamado	Adj. Chefe Tabanca	966317752	
-II-	-II-	Iaia Nhamado	Agricultor	966453666	IAIA
-II-	-II-	Hamade Nhamado	-II-	969099290	

Data 05/11/2016

Região Baía

Lista de pessoas encontradas durante as missões de terreno

Setor	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
Centrobol	Madina Sava	Aladje B. Meta Balde	chefe de tabanca		Aladje B. Meta
	-II-	Amado Balde	Agricultor	966295368	Muhamad B.
	-II-	Aladje Amado Balde	-II-	966153800	-II-
	-II-	Djenabo Caude	Agricultora	966618678	Djenabo Caude
	-II-	Essai Enebalé	-II-		Essai Enebalé
	-II-	Alcencine Balde	Agricultor	966074430	Alcencine Balde
	-II-	Djenabo Balde	Agricultora	966819371	Djenabo Balde
	-II-	Safiatou Djau	-II-	966462995	Safiatou Djau
	-II-	Djama Djamanca	-II-		Djama Djamanca
	-II-	Bale Djamanca	-II-	969252918	Bale Djamanca
	-II-	Jayato Caude	-II-		Jayato Caude
	-II-	Marrama Balde	-II-	969086253	Marrama Balde
	-II-	Umaro Djamanca	Agricultor	966554531	Umaro Djamanca
	-II-	Jara Balde	-II-	969225516	Jara Balde
	-II-	Jouma Seide	-II-	966666070	Jouma Seide
	Mayato	Saco Balde	Adj. chefe tabanca	969108871	Saco Balde
	-II-	Adel Balde	Agricultor		Adel Balde
	-II-	Adel Balde	-II-	966526573	Adel Balde
	-II-	Mareama Balde	Agricultora	966311977	Mareama Balde
	-II-	Adama Balde	-II-		Adama Balde
	-II-	Beri Balde	-II-		Beri Balde
	-II-	Aladje Balde	Agricultor	96127395	Aladje Balde
	-II-	Icherio Umaro Balde	-II-		Icherio Umaro Balde
	-II-	Maunde Balde	Agricultora		Maunde Balde
	-II-	Amado Balde	chefe tabanca		Amado Balde

Data 05/11/2016

Annex 8: List of public consultation during lessons learned study

Annex 8.1: Public consultation at village level during the lessons learned study

Names & Pseudonyms	Function	Arrangement	Contact	Signature	Sex
1- Serofo Noto Balde'	penitente	Alk waldi	966539265	Pio Baccan Balde'	F
2- Fatici Oalo'	musico	"	-	Pio Baccan B.	F
3- Oalo's Panctum	"	"	-	Pio Baccan B.	F
4- Banta Oalo'	"	"	-	Pio Baccan B.	F
Caerigato Balde'	"	"	-	Pio Baccan B.	F
Aminets Oalo'	"	"	966740153	Pio Baccan B.	F
Aruel's Oalo'	"	"	969273442	Pio Baccan B.	F
Buwal's Oalo'	"	"	966338853	Pio Baccan B.	F
Serif Oalo'	"	"	-	Pio Baccan B.	F
Nadi Carner'	"	Alk fati	-	Pio Baccan B.	F
Araus Oalo'	"	Alk waldi	966640542	Pio Baccan B.	F
Nissina Balde'	"	"	-	Pio Baccan B.	F
Umo Balde'	"	"	-	Pio Baccan B.	F
Ule' Balde'	"	"	-	Pio Baccan B.	F
Nemegale Balde'	"	"	-	Pio Baccan B.	F
Aminets Oalo'	"	"	-	Pio Baccan B.	F
Mari' Bari' II	"	"	-	Pio Baccan B.	F
Mari' Bari' I	"	"	-	Pio Baccan B.	F
Oari' Oalo' Carner'	"	"	966595128	Pio Baccan B.	F
Muallu Oalo'	"	"	966026278	Pio Baccan B.	F

(1)

Localité Copa MangueListe de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
01	Adama Cande'	Agricultora	-	f	não sabe
02	Quemba Ajalo'	Agricultora	955913669	F	não sabe
03	Sumãe Balde'	Agricultora	955599112	f	SUMA BI
04	Sadjó Kebe'	Agricultora	966211131	f	não sabe
05	Bintã Balde'	Agricultora	-	f	Bual
06	Uri Buara'	Agricultora	966139049	f	URI
07	Mumine So'	Agricultora	955913583	f	não sabe
08	Jenabo So'	Agricultora	969285832	f	não sabe
09	Tenem So'	Agricultora	955913617	f	não sabe
10	Jenabo Jau'	Agricultora	9	f	Jenab
11	Jabuel So'	Agricultora	-	f	não sabe
12	Faru Cande'	Agricultora	955913456	f	não sabe
13	Mariama Embalo'	Agricultora	955998430	F	não sabe
14	Lamarana Balde'	Agricultora	955913459	f	Lomobu
15	Aminara Embalo'	Agricultora	955913402	f	não sabe
16	Farumara Djamanca	Agricultora	966562580	f	não sabe
17	Dedja Balde'	Agricultora	-	f	não sabe
18	Jabo Embalo'	Agricultora	955913478	f	
19	Pamadjam Camara	Agricultora	-	f	não sabe
20	Aua So'	Agricultora	9	F	não sabe
21	Fatumata Balde'	Agricultora	966382748	f	não sabe
22	Bintã Embalo'	Agricultora	-	F	não sabe
23	Buia Embalo'	Agricultora	-	f	não sabe
24	Sadjó Balde'	Agricultora	955183997	f	não sabe
25	Aua Cande'	Agricultora	966868320	f	não sabe

Localité Copa Mangue ; Selem Au Pirata

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
26	Yemine Djai	Agricultora	99234662	F	Yemine
27	Maria So'	Agricultora	966104118	F	MARIA SO'
28	Adama Djai	Agricultora	955913607	f	não sabe
29	Aua Balde'	Agricultora	966354843	f	não sabe
30	Cumbia Djai	Agricultora	969692801	f	não sabe
31	Cadidjaro Balde'	Agricultora	969150461	f	Cadidjaro Fotuber
32	Fareumara Balde'	Agricultora	-	f	não sabe
33	Bambi Balde'	Agricultora	969287408	f	não sabe
34	Ansa Djai'	Agricultora	-	f	não sabe
35	Issuf Djai	Agricultor	969288630	M	Issuf
36	Taia Embalo'	Agricultor	955260905	M	TAIA EMBALO'
37	Adulci Balde'	Alfabetizados	966898726	M	Adulci Balde'
38	Aliu Balde'	Agricultor	966944702	M	ALIU Balde'
39	Fanta Nhabali	Agricultora	-	F	não sabe
40	Serifo So'	Agricultora	955913363	f	não sabe
41	Aminato Balde'	Agricultora	-	f	não sabe
42	Sadjo So'	Agricultora	-	f	não sabe
43	Nhima Kebe'	Agricultora	-	f	não sabe
44	Safau Balde'	Agricultora	-	f	não sabe
45	Ansara Gagigo'	Agricultora	-	f	não sabe
46	Tulci So'	Agricultora	966377723	f	não sabe
47	Banna Jamba	Agricultora	-	f	não sabe
48	Hotcha So'	Agricultora	-	f	não sabe
49	Loba Kebe'	Agricultora	-	f	não sabe
50	Djenalo So'	Agricultor	955913348	f	não sabe

Localité Copa Mangue Seclen de Pirada

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
51	Farumara So'	Agricultors	-	F	nao sabe
52	Djenalo Djalo'	Agricultors	-	f	nao sabe
53	Idjato Balde'	Agricultors	-	f	nao sabe
54	Taudo Gendo So'	Agricultors	966659295	F	nao sabe
55	Salimato Djalo'	Agricultors	-	F	nao sabe
56	Aua Kebe'	Agricultors	-	F	nao sabe
57	Ansara So'	Agricultors	-	F	nao sabe
58	Nhima Balde'	Agricultors	955446506	F	nao sabe
59	Djari Balde'	Agricultors	-	F	nao sabe
60	Binta So'	Agricultors	966372943	f	nao sabe
61	Tenem So'	Agricultors	9	F	nao sabe
62	Boi Bani	Agricultors	-	f	nao sabe
63	Mariama Balde'	Agricultors	955898867	F	nao sabe
64	Aminara Balde'	Agricultors	-	F	nao sabe
65	Djarai Djalo'	Agricultors	-	F	nao sabe
66	Binta Sawane'	Agricultors	-	f	nao sabe
67	Ansara Kebe'	Agricultors	-	F	nao sabe
68	Mariato Kebe'	Agricultors	-	F	nao sabe
69	Cumba Gagigo'	Agricultors	966139015	f	nao sabe
70	Mariama So'	Agricultors	-	f	nao sabe
71	Bubacar So'	Agricultor	966392578	M	nao sabe
72	Yama Salie So'	Agricultor	966787337	M	Yama Salie
73	Mussa Balde'	Chefe de Tabanca	955913326	M	nao sabe
74	Braima Kumbalo'	Agricultor	955331189	M	Braima
75	Yama Samba Kebe'	Agricultor/artesao	966536363	M	Mama Samba
76	Braima So'	Agricultor	966275368	M	nao sabe
77	Cumba So'	Agricultor	966230829	M	nao sabe
78	Uri Quebe'	Agricultor	966912183	M	nao sabe
79	Haunde Kebe'	Agricultor	-	M	nao sabe
80	ASSI So'	Agricultor	966414971	F	nao sabe

**Annex 8.2: List of the meeting with technical services
involves in the LDCF project in Gabù**

Reunion avec les services techniques et ONG à Gabon

Noms et Prénoms	Titre	Contact	Signature
1- Mamadi Bo Djoko	Gouverneur/Gabon	966611576	
2- Mangla Nantchia	Expert en Agriculture	966685376	
3- Mama du Ali ^{CP} Diallo	Protec Civil	95533210	
4- Isneba Na Batches	Animatrice	955360170	
5- Laurindo Lessona	Dir. Sec. Exec. FRAC	955139575	
6- Lassana Jam	Director	955707456	
7- Garcia Jacar	Embalo' EXPERT EN ADAPTATION	955367317	
8- Bernardino dos Santos	G.D.V.R. - Centre de qualification et valorisation des ressources.	966603319	
9- Nicolas de Filk	dep. Reg' d'élecage	955450654	
10- Saïco Umarao Embalo	Plateforme de ONG	95520-67-86	
11- Mário Cante Bilton Noghado	PR agricole	96613337/955417246	
12- Satene Sila' Sane	Delegado Reg. f.f/Gabon	966864957/5864957	

Annex 8.3: List of the meeting with UNDP in Bissau

Réunion avec le PNUD à Bissau

<u>Noms & Prénoms</u>	<u>Poste / spécialité</u>	<u>Institution</u>	<u>Adresse</u>	<u>Signature</u>
1. Viriato Correia	Dir. Inf. C / Proj. Cond.	SEA	Cassamauluse Gmail	
2. André Saer	ANSP UNDP	UNDP	 claudia.sauer@undp.org	
3. DJABARE Kamma	Spécialiste Développement Durable	Global Lead	benjoni@gmail.com	
4. MARTIN OBER MAER	INTERNATIONAL CONSULTANT	UNDP	MARTIN@PE.UFRJ.BR	

Annex 9 : List of public consultation during Full project preparation

**Annex 9.1. : List of public consultation
with Gabù and Bafatà
populations during Full project
preparation**

Localité Madina Djalo Cunda - Gabon

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
01	Cumba Camara	Lavrador	966314625	F	
02	Aine Seide	Lavrador		F	
03	Maimuna Djab	Lavrador		F	
04	Lamarana Danso	Lavrador	966101722	F	Lamarana
05	Issumane Djalo	Criador/comercia	966217575	M	
06	Iaia Djalo	Lavrador	966225826	M	Iaia
07	Mamadjam Soué	Comerciante	966154806	M	Mamadjam Soué
08	Amadu Djalde Djalo	Lavrador		M	
09	Mufaro Danso	Mecanico	966797181	M	
10	Mamadou Adji Djalo	Lavrador	966841386	M	Mamadou Adji
11	Babagalle Djalo	Lavrador	6799408	M	Babagalle
12	Fula Djalo	Lavrador	-	M	
13	Mamadou Ili Djalo	Lavrador	966309867	M	M. Ili
14	Bubacar Djalo	Lavrador	966490215	M	
15	Tcherno Djalo	Lavrador	966428871	M	
16	Bubacar Djalo	Criador/agricultor	6795496	M	
17	Amadou Djalo	Lavrador	966326199	M	
18	Iaia Djalo	Lavrador	966327967	M	
19	Ibrahima Djalo	Lavrador	6656468	M	
20	Adoufai Djalo	Lavrador	6641142	M	
21	Braima Djalo	Lavrador	6368625	M	
22	Djenaba Djab	Lavrador		F	
23	Assanto Djalo	Lavrador		F	
24	Isnba Na Botche	Animador	455360170	M	Isnba Na Botche
25	Bubacar Embalo	Conduitor	6854521	M	

Localité xime sector de Bambadinca

(1)

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
1	Canhe Centé	chefe di tabanca		MAS	N Sabe
2	Safiato Corobum	Agricultora	966393197	femi.	Safiato <i>Go Ms</i>
3	Sirfm Nanque	Agricultora	—	femi.	N Sabe
4	Ibraima Centé	Agricultor	—	MAS.	N Sabe
5	Tombom Cassama	Agricultora	966826707	femin	N Sabe
6	Modje Biai	— " —	—	femi.	N Sabe
7	Satam Seide	— " —	—	femi.	* Satam Sidi
8	Djium Sanha	— " —	—	femi.	* Djium Sanha
9	Djenabi Mané	— " —	—	femi.	* Djenabi MANE
10	Djuci Danfa	— " —	—	femi.	* Djuci Danfa
11	Sali Biai	— " —	—	femi	N Sabe
12	Aramata Biai	— " —	966869890	femi.	* Aramata Biai
13	Mariama Sonco	— " —	—	femi.	N Sabe
14	Mariama Nanque	— " —	—	femi	N Sabe
15	Djilam Fati	— " —	—	femi.	N Sabe
16	Safiato Dabo	— " —	—	femi	N Sabe
17	Salimato Balde	— " —	—	femi	N Sabe
18	Djenabo Biai	— " —	—	femi.	N Sabe
19	Neni Dabo	— " —	—	femi	N Sabe
20	Sadjo Biai	— " —	—	femi	N Sabe
21	Carfala Sanha	— " —	—	femi	N Sabe
22	Bailo Seide	— " —	—	femi	N Sabe
23	Lassana Conte	Agricultor	966298928	MAS.	* Lassana conte
24	Bacar Bieci	— " —	—	MAS.	* Bacar Bieci
25	Madi Biai	— " —	—	MAS	* Madi Bieci

Localité Sintcham Môle sector de Xitole

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
1	Mama Samba Bari	Chefe de Tabanca	955487847	MAS.	MAMA
2	Bakar Seide	Agricultor	—	MAS.	Bakar Seide
3	Nhalim Balde'	Agricultora	955488624	Femi	N Sabe
4	Mariama Balde'	— " —	955987446	Femi	Mariama
5	Iebe So'	— " —	—	Femi	N Sabe
6	Mariama Queita	— " —	955860664	Femi	N Sabe
7	Sadio Embaló	— " —	—	Femi	N Sabe
8	Ejué Balde'	— " —	—	Femi	N Sabe
9	Jenabó Balde'	— " —	—	Femi	N Sabe
10	Fandi Ganó	— " —	—	Femi	N Sabe
11	Umo Bari	— " —	966784603	Femi	N Sabe
12	Cadidjato Culubali	— " —	—	Femi	N Sabe
13	Cadidjato Balde'	— " —	—	Femi	N Sabe
14	Mariama Embaló	— " —	—	Femi	N Sabe
15	Cadidjato Balde'	— " —	—	Femi	N Sabe
16	Haulato Balde'	— " —	—	Femi	N Sabe
17	Zania Gomes	— " —	—	Feminx	Zania Gomes
18	Samba Sera'	Carpinteiro	955766165	MAS.	Samba Sera'
19	Aruna Bari	Agricultor	—	MAS.	ARUNA Bari
20	Iabo Candé'	Affaiate	966715587	MASC.	Iabo Candé'
21	Jenabó Sera	Agricultora	—	Femi	N Sabe
22	Cerca Bari	Agricultor	969228476	MASC.	CERCA BARI
23	Mariama Balde'	Agricultora	—	Feminx	Mariama
24	Umo Culubali	Agricultora	—	Feminx	umo Culubali
25	Lallana Mame'	Técnico de Estatística	955589333	MASC.	Lallana Mame'
26	Mangla Nantehia	Parito Project	955209928	M	Mangla Nantehia
27	DSABARE Komna	Global Lead	92289145578	M	DSABARE Komna

village NAMPURO

3

Groupementde

Liste complète des membres du groupement

N°	NOM ET PRENOMS	POSTE	CONTACT	SEXE	SIGNATURE
51	Aua Camara	Domestica	-	F	não sabe
52	Maimuna Cande'	Domestica	-	F	não sabe
53	Satam Lane	Domestica	-	F	não sabe
54	Radidjaro Djai'	Domestica	-	F	não sabe
55	Sumae Djai'	Domestica	-	F	não sabe
56	Ali Djamanca	Domestica	955287945	F	não sabe
57	Djenaba Djalo'	Domestica	-	F	não sabe
58	Mansata Dabo	Domestica	-	F	não sabe
59	Cadjaro Djamanca	Domestica	955508239	F	não sabe
60	Aminara Balde'	Domestica	-	F	não sabe
61	Ansaro Balde'	Domestica	955129301	F	não sabe
62	Fuminato Djalo'	Domestica	-	F	não sabe
63	Nhana Cande'	Domestica	-	F	não sabe
64	Djenabo Seidi	Domestica	-	F	não sabe
65	Ansaro Balde'	Domestica	955277397	F	não sabe
66	Cadi Balde'	Domestica	955328074	F	não sabe
67	Seco Djai'	Domestica	955767051	M	Seco Dja'
68	Umaro Djai'	agricultor	955930360	M	Umaro
69	Adulai Djai'	agricultor	955293950	M	Aduloi
70	Braima Jau	agricultor	-	M	Braima
71	Sene Embalo'	Animador	966626052 955329694	M	Sene
72	Mangla Nantchia	Resito Projek	966685376 955209928	M	Nantchia
73	Mariama Djamanca	Agricultora	5182564	F	não sabe
74	DJABARE Kemma	Global Lead	422891438978	M	Djabare
75	Tcheruo Djalo	Agricultor	955335607	M	Tcheruo

**Annex 9.2: List of the meeting with technical services
involves in project in Gabù**

Reunion avec les services techniques et ONG à Gabon

- | Noms et Prénoms | Titre | Contact | Signature |
|-------------------------------------|---|--------------------|-----------|
| 1- Mamadi Bo Djalo | Gouverneur Kabon | 966661576 | |
| 2- Mangla Nantchia | Expert en Agriculture | 966685376 | |
| 3- Mama du Ali ^{CD} Ghalo' | Protec Civil | 95533210 | |
| 4- Isneba Na Batches' | Animator | 955360170 | |
| 5- Saouirido Lassana Dohome | sec. Exec. FRAC | 955139575 | |
| 6- Lassana Jam | Director | 955707456 | |
| 7- Garcia Jacar | Embaló EXPERT EN ADAPTATION | 955367317 | |
| 8- Bernardino dos Santos | G.D.V.R. -
Certification de qualité et
valorisation des ressources. | 966603319 | |
| 9- Nicolas de Filk | dep. Reg' d'énergie | 955450654 | |
| 10- Saïco Umarsou Embaló | Plateforme de ONG | 95520-67-86 | |
| 11- Maria Cante Oslen Nagnado | PR aquaculture | 96613337/955417246 | |
| 12- Satene Sila' Sane | Delegado Reg. f.f/Gabon | 966864957/5864957 | |

**Annex 9.3. List of the meeting with technical services
involves in project in Bafatà**

Reunion avec les autorités et services techniques

OS BAFATA

N°	NOM ET PRENOMS	FONCTION	CONTACT	E-MAIL	SIGNATURE
01	Aheli Soubri	Gouverneur de Bafata	966978095 955947635	ahelisoubri@gmail	Aheli
02	Berha Nambunde'	Direct. Reg. Ag. Bafata	966890425 955132313	-	B. Nambunde'
03	Midana Iota	S. pécuniaire	966647328	-	M. Iota
04	Manuel Moreno	Rec. Fiscal	966836878	-	M. Moreno
05	Bubacor Balor'	P. R. F. foma	966700428	-	B. Balor'
06	Bruna Seide Sa'	Facilitador de recursos	955488755	-	B. Seide Sa'
07	Alexandre A. Hango	Projeção Civil	955375319	-	A. Hango
08	Ladana Mani	Técnicos Estatísticos	955593333	-	L. Mani
09	Fede' Mamefi	Supervisão Resposta	955264392	-	F. Mamefi
10	Mangla Nantchia	Perito Projeto	955209928 966885376	nantchiamangla @yahoo.com.br	M. Nantchia
11	DJABARE' Komna	Global lead	+22891433970	benjiew@gmail.com	D. Komna
12	Suleimane Djassi	Secrétaire Adm. Instructivo do Sector	966639547 955115171	-	S. Djassi
13	Mania Ausenda	Banqueira	-	-	M. Ausenda

Administradora 955737241

Sector d'Instructivo

Administrador

Sector de Pirada

96 6554545

14 Abito Balde'

955
F. Balde'

Annex 9.4. Meeting with fire control comity of Mampuro

Comité de lutte contre les feux de savane
de NAMPURO

9

N°	NOM ET PRENOMS	FONCTION	CONTACT	E-MAIL	SIGNATURE
01	Sulimane Djau	Président de comité de Para-feux	956100578		não sabe
	Aminara Balde	Vice-Présidente	955739699		Hqminka
01	Mama Samba Seidi	Présidente GITT	-		não sabe
	Aminara Embalo	Vice-Présidente GITT	-		não sabe
	Djenabo Seidi	Coordenadora GITT	-		não sabe
	Maimuna Embalo	financeira GITT	-		não sabe
01	Braima Camara	Présidente GFC	955258008		B. Braima
02	Abi Djau	Vice-Présidente GFC	955848387		não sabe
03	Bubacar Djau	Coordenador GFC	955461227		não sabe

**Annex 9.5. Meeting with the comunautary forest control
comity of Madina Djalocunda**

Annex 10: List of participants of Environmental and Social Management Framework (ESMF) validation workshop



Project Scaling up climate change-smart agriculture in East Guinea Bissau

Lista de Presença

Data: 08/12/16		Local: Instalações da Empresa ENAFUR		
N.º	Nome Completo	Proveniência	Contacto	Assinatura
1.	Mário Juli Balde	Batata - Rep. de Govern.	966095282	
2.	José Teófilo Gomes	Emprego Secretaria de Ambiente	9661556455	
3.	José Teófilo Gomes	Pitche/Secret. Administrativa	95/5360594	
4.	Maria Salim Soares	Pirasa Gabinete de Organizaç.	96/6231300	
5.	Mamudo Embalo	Gabinete/Secretaria do organismo	966950094	
6.	Micelara Fato	S. Recursos Batata	955339802	
7.	Bebacaa Boioe	RBF/Batata	966700428	
8.	Paula de Aliofalo	Proteção Civil	955333210	

9.	Arydo Bardi	Zumbeira Bepfekt	966236248	966236248
10.	Abdulai Saiss	SPH	966631468	966631468
11.	Queten Santos	Amilvil Hador Bunkobok	968611362	968611362
12.	Marcel Cesario Fernandes	Delegado Paulo Batista	955310456	955310456
13.	Domingos S. Moreira Gomes	Administradora Soreco	966281603	966281603
14.	Mauro Moreno	Rec. Adm. Bepfekt	966836878	966836878
15.	JJF			-
16.	ALEA EMBALO	SISSAUCUNDA ARIU	966378995	
17.	Fogê Ahalo	Bukure Baboty	95-5929388	
18.	ALFA BATE	SOUCCUNDA	96-6505241	BILFF
19.	SUL EIRANE GATO	LUHPANFOR	969217983	Sulmirante
20.	Teodoro Santos	Comita Bumbala	966560784	Teodoro
21.	Saia Djobali	Coino Firda	-	-
22.	Bala Djobo	Sogoa Firda		-
23.	Breima Embeto	Samba Taca - pinolo	969237504	WILLIAM.

24.	Chau Mauud Balde'	IPA - Bafete	96 672 4754	
25.	Saiva Zald.	Regate	94-5-220926	
26.	Pemetelaei Balde'	gawede - Ceuena	-	
27.	Veru Canale'	ganade Ceuena		
28.	Cumba Jamana	Gabis	955806890	Cumba
29.	Maimuna Embalo'	Gambanaco	955563222	
30.	Cabi Balde	Madina - Sora Comiso		Cabi Balde
31.	Mu Bismelie Balde	Madina - Sora Comiso	96 6295968	40
32.	Bilbocae Jem	Durenbal'	6084456	
33.	Maisi Farte	DRH - Gasa	6733537	
34.	Nicolau D'Alp	RR Fovaris - Farte	957450554	
35.	AMADU Malae'	Manato		
36.	Dyadu Bange	calo Gada	966192764	
37.	Mar. adis thalo	Buene Babote		
38.	Seo ba. canona	Pa cura	955385750	

39.	Ōtametu Si	Coli-Cunda (Senoco)	955453792	
40.	Cach Incheer	Cojino - Fōtoha		
41.	Soma ŌŌou	Bofato		
42.	BANVA SANKA	Cun tubul		
43.	Hamera Balaki	Bafafā		
44.	Finiā Morua	Granada	96-9272737	
45.	Kametuhei Balaki	Cun tubul		
46.	Faci Balaki	Tinoda		
47.	Aminola Balaki	Cuntubul		
48.	Nhōra Balaki	Cunponghō - Gōbō		
49.	Tunba Balaki	Senoco-cunda - Tinoda		
50.	Manoma Balaki	Simou-cunda Nliu - Gōnch		.77A
51.	TEHŌMOMO Gomaki	C		
52.	BANHA EMBALCO	SANBA TACO	92 97804	
53.	BORI ARAU	SUKA	96 6955403	

54.	Jão Loua Tchedna'	INM - Bissau / President	955422007	Amma
55.	Jário Bieguef	AAAC - Bissau / D. Gornel	955935077	Amma
56.	Borgastino Fanta	GDUR - Goodwin	766603319	Amma
57.	Manslo Montelua	Engº Agronomo	955209928	Amma
58.	Amma Bissau Bissau	Sec. Ex. F. R. E. / Bissau	955739572	Amma
59.	Amorito Baldi	Coliganda	955852463	Amma
60.	Aliu Hamadjo	Agricultor	.	Amma
61.	Sarcis B. Embaló'	Expent Adm. (SEA)	955367319	Amma
62.	Domingos Baktitis	INM / Melhoria	955729972	Amma
63.	Eding E. Joma Ngali'	SEA - Bissau	955898888	Amma
64.	Apri Estreito Costa	Bissau (11)	955545888	Amma
65.	Seni Fimbaló'	Pinaga	955329694	Amma
66.	Melido Gomes Teixeira	Bissau / Amma	955185015	Amma
67.	Francisco Alimare Gavi'	APES / Gaby	86681-83.18	Amma
68.	Virick Capens'	Dea 11/11	966784046	Amma

69.	Tulio M. L. B. S. /	COMISSÃO	955595887	Loic B.
70.	José A. S. /	Exat na Defesa de RL-	955507577	
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Annex 11: List of participants of Full project validation workshop



ADAPTATION FUND



República da Guiné-Bissau
SECRETARIA DE ESTADO DO AMBIENTE
Direção Geral do Ambiente



Project Scaling up climate change-smart agriculture in East Guinea Bissau

Lista de Presença

Data: 9/12/15

Local: Instalações da Empresa ENAFUR

N.º	Nome Completo	Proveniência	Contacto	Assinatura
1.	Saramba Corde	Gambou (Bafata) - (M)		
2.	Brasão Emboldi (M)	Sombolaco - Pindola		
3.	Burbacon Jorri	Mansabal (M)	608 4456	Burbacon
4.	Maria Salim Balde	Sector de pirado (M)	6231300	
5.	Yorlam Yomi	Sector de Piche (M)	955560994	
6.	Apá Patrício da Costa	Bissau (M)	955545881	
7.	Renée Zesésio Fernandes	Bafata (M)	955310456	
8.	Guamba Damama	Gabou (F)	955806830	Guamba

9.	Olun Mwarojo (H)	Sawacunda. Gochi cumbubhiti			
10.	Francisco Mwaruwa Pané (H)	gobul AP & SS - (H)	68183-18	AP	
11.	Muhomade Balde (H)	Hadinga - Sawa (H)	66295968	AP	
12.	Cagi Balde (F)	Hadinga - Sawa (F)		Cagi Balde	
13.	Quena Balde (H)	em hulwani (H)	6611362	Quena	
14.	Momodu yodó (H)	Buculo Bokolo-Pitohi (H)			
15.	Fadi yodó (H)	Buculo Bokolo-Pitohi (H)			
16.	ALFA EMBALÓ (H)	SISSAUCUNWA ALIU	966378495		
17.	Djarielo Si Si (F)	edimunda - Sawa	955453792		
18.	Aminata Balde (F)	Sawa cumba - Fajonkilo			
19.	Fai Balde (F)	Duro. badi	969166705		
20.	Bori yau (H)	Sawa - Fajonkilo			
21.	Paranta Balde (F)	Sawa - Fajonkilo			
22.	plular Bôso Hissé (H)	Comite Est. Secu GABIS	955765353	434	
23.	Sawa yau (F)	Cumbacumba - Ga sawacunda			

24.	Caê Inyái (F)	Copivo - Pítchi		
25.	Hariona Badoi (F)	Cispa eunde Pisu		
26.	Harionna Badoi (F)	Sarama		
27.	Demings J. Hariona Comel (F)	GE. Somalo	966281603	Hariona
28.	Sulimane Garin	Cumpa Ghor	9692117983	
29.	Mamudo Embalo (M)	Bado	966950094	Hariona
30.	Forka Harona (F)	Gareda		
31.	Bora Samba (F)	Cumtubal		
32.	Tomon Garo (F)	Cumpogha		
33.	Berastodai Bodoi (F)	Cumpogha		
34.	Berastodai Badoi (F)	Harona		
35.	Julio M. L. Bó (M)	Bissau	955595887	Leia
36.	Harionnali Badoi (M)	Bafata	966095282	Harionna
37.	Harionnali Badoi (M)	Colindan	9558534	Badoi
38.	Harionnali Badoi (M)	Floreslô Gabu	955876391	Harionna

39.	Ediige Eke-Dime Jimo. SE	SEA - Birkou (F)	95-589.88-88	Joseph Di'
40.	Solun Nnabali (H)	Copino		
41.	Imoka BODDI (F)	Nsorge cumba - Pivoda		
42.	Olo Baldé (H)	Chopé Iboma - Sonco cumba		
43.	Ororo Yomude Baldé (H)	AKH - Bafeta	966774754/955053675	13-8
44.	Amada BODDI (H)	Nganaku		
45.	Cidi Doro (H)	Eganlucada		
46.	Sece Ba cossama (H)	PASSUÍ	955385758	SRB
47.	Márcio Fante (H)	Direcc. Regim. Agricul. Gabu	9661332532	Quilés
48.	Abidalo Jave (H)	D.R. Hidricos - Gabu	966631468	House
49.	Manuel Merend (H)	ARH - Bafeta -	966836878	SH
50.	Burbaean balai' (H)	R.R.F.F./Bafeta'	966700428	Burbaean
51.	Muidama IOTA (H)	S. Penurária Bafeta	955379402	copy
52.	Fenifa Baldé (H)	P.C Bombeiros Bafeta	96-623 62 48	of AR
53.	Baído Djaldá (H)	Sagaia - Petchi		

54.	Teodoro Romão (H)	Comité Emda	65 607 814	
55.	Aminda Bassa Demmel (H)	Mucila	95 513 9592	
56.	Mamadou Ali Diallo (H)	Comand. San - Robe. Quilã	9553332210	
57.	Desp. Adm. dos Santos	Coordenador S.A.V.R	955804430 966603319	
58.	Henrique Biague (H)	Bissau	955935078	
59.	Nicolau de Silva (H)	Dep. Represent. Reg. Bissau/Gal	95590654	
60.	Guilherme Escalante (H)	Alunos	955990260	
61.	João Louçã Tchadna (H)	Bissau - INN	955422007	
62.	Melinda C. Gomes Teixeira (H)	Secretaria PPR CASABITE	955485045	
63.	Eng.º. Amos Camama (H)	PR CASABITE / GB	955514640	
64.	Desp.º. Cust. (H)	"	955307572	
65.	BURBACABENAL (H)	"	955753E17	
66.	João Valente Pinho (H)	Bissau	966586458	
67.	Garcia Beira Eulalo	Ambiente / Bissau (M)		
68.	Faís Edmundo Gomes	LAB. NACIONAL (H)	955505062	

69.	Prof.ª Rosemaria (M)	Rafael Gabriel	6909-22/1553-2331	
70.	Alexandre Tomada Cardetti	Faelio 1 ^o 2000	966871635/9551217	Tomada
71.	Domingos Bulhões (M)	Neton Magin	95729972	
72.	Seve Finkels	Piracés	955329694	Finkels
73.	União Carreira	Carreira. Iny.	955589096	
74.	Mangla Munteluis	Projeto	955209928	Munteluis
75.				
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Annex 12: Law of Guinea Bissau on Land

Annex 12: Lei nº 5/98
de 23 de Abril

ARTIGO 2º
Da Propriedade da Terra

1. Na República da Guiné-Bissau a terra é propriedade do Estado e património comum de todo o povo.

2. A terra como suporte físico fundamental da comunidade é valor eminentemente nacional, qualquer que seja a forma da sua utilização e exploração.

3. Os direitos constituídos sobre a terra e sobre os recursos naturais importam em igual protecção quer resultem do costume, quer da lei.

4. As benfeitorias realizadas sobre a terra podem ser de propriedade pública ou privada.

Annex 13: Project operating account tables

Operating Account of 1 ha of Rice in Lowland areas (with project)

Item	Quantity	Unit	Cost per Unit	Values
I. Operating Income				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	4000	kg		
1.3 Harvest loss and decoupling loss (20%)	800	Kg		0
Total net product (Husked rice)	3200	Kg	350	1120000
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha		40000
Seed	125	kg	224	28000
Fertilizer				
• NPK	2	Bags de 50kg	16500	33000
• Urea				-
Pesticides	1	U	15000	15000
Workforce (90 HJ x 1500 FCFA / HJ i.e. 135 000 FCFA paid in husked rice - Contribution of beneficiaries for breeding, weeding, hoeing, Cortication, threshing, transport, etc.)	386	kg	350	135100
Small maintenance materials		FF		20000
Contribution to the maintenance of hydraulic appliances 5% net product (Husked rice)	160	kg	350	56000
Total Expenses				327100
Net result per hectare with the project	2265.43	Kg	350	792900
Result per hectare without the Adaptation Fund project				9750
Value added to the project through the application of adaptation measures				783150

Operating Account of 1 ha of Rice in Lowland areas (without project)

Item	Quantity	Unit	Cost per item	Values
I. Operating income				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	600	kg		
1.3 Harvest loss and decoupling loss (20%)	120	Kg		0
Total net product (Husked rice)	480	Kg	350	168000
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha		20000
Seed	75	kg	224	16800
Fertilizer				
• NPK	1	sacs de 50kg	16500	16500
• Urea				-
Pesticides	1	U	15000	15000
Workforce	257	kg	350	89950
Small maintenance materials		FF		0
Total Expenses				158250
Result per hectare without the project	27.86	Kg	350	9750

POTATO

Operating Account of 1 ha of Potato with project

Items	Quantity	Unit	Cost per Unit	Values
I. Operating Income				
1.1 Operating Acreage	1	ha		
1.2 Raw product	25,000	kg		
1.3 Harvest loss and decoupling loss (10%)	2500	Kg		
1.4. Self-Consumption (20%)	5000			
Total net marketable product	18,000	Kg	400	7200000
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha	50000	50000
Seed	1	lot	900000	900000
Fertilizer				
• NPK	2	sacs de 50kg	16500	33000
• Urea				-
Pesticides	1	U	15000	15000
Workforce	630	H-J	1500	945000
Small maintenance materials		FF		40000
Contribution to the maintenance of hydraulic appliances 10% net product	1800	kg	200	360000
Total Expenses				2343000
Net result per hectare with the project	12142.50	kg	400	4857000
Result per hectare without the Adaptation Fund project				2901700
Value added to project through application of adaptation measures				1955300

Operating Account of 1 ha of Potato without project

Items	Quantity	Unit	Cost per unit	Values
I. Operating Income				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	10000	kg		
1.3 Harvest loss and decoupling loss (10%)	1000	Kg		0
Total net marketable product	9000	Kg	400	3600000
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha		20000
Seed	75	kg	224	16800
Fertilizer				
• NPK	1	sacs de 50kg	16500	16500
• Urea				-
Pesticides	1	U	15000	15000
Workforce	630	H-J	1000	630000
Small maintenance materials		FF		0
Total Expenses				698300
Operating income per hectare without project	7254.25	Kg	400	2901700

TOMATO

Operating Account with project – Tomato (1 ha)

Items	Quantity	Unit	Cost per Unit	Values
I. Operating Income				
1.1 Operating Acreage	1	ha		
1.2 Raw product	24,000	kg		
1.3 Harvest loss and decoupling loss (10%)	2400	Kg		
1.4. Self-Consumption (5%)	1200			
Total net marketable product	20,520	Kg	300	6156000
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha	50000	50000
Seed	1	lot	900000	900000
Fertilizer				
• NPK	1	sacs de 50kg	16500	16500
• Urea	1	sacs de 50kg	16500	16500
Pesticides	1	U	15000	15000
Workforce	630	H-J	1500	945000
Small maintenance materials		FF		40000
Contribution to the maintenance of hydraulic appliances 10% net product	2052	kg	200	410400
Total Expenses				2393400
Net result per hectare with the project	12542.00	kg	300	3762600
Result per hectare without the Adaptation Fund project				1461700
Value added to project through application of adaptation measures				2300900

Operating Account without project – Tomato (1 ha)

Items	Quantity	Unit	Cost per Unit	Values
I. Operating Income				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	8000	kg		
1.3 Harvest loss and decoupling loss (10%)	800	Kg		0
Total net marketable product	7200	Kg	300	2160000
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha		20000
Seed	75	kg	224	16800
Fertilizer				
• NPK	1	sacs de 50kg	16500	16500
• Urea				-
Pesticides	1	U	15000	15000
Workforce	630	H-J	1000	630000
Small maintenance materials		FF		0
Total Expenses				698300
Operating income per hectare without project	4872.33	kg	300	1461700

Operating Account with project – Onion (1 ha)

Items	Quantity	Unit	Cost per Unit	Values
I. Operating Income				
1.1 Operating Acreage	1	ha		
1.2 Raw product	23,000	kg		
1.3 Harvest loss and decoupling loss (10%)	2300	Kg		
1.4. Self-Consumption (5%)	1150			
Total net marketable product	19,665	Kg	300	5899500
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha	50000	50000
Seed	1	lot	900000	900000
Fertilizer				
• 15-15	100	kg	400	40000
• Urea	50	kg	400	20000
Pesticides	1	U	15000	15000
Workforce	630	H-J	1500	945000
Small maintenance materials		FF		40000
Contribution to the maintenance of hydraulic appliances 10% net product	1966.5	kg	200	393300
Total Expenses				2403300
Net result per hectare with the project	11654.00	kg	300	3496200
Result per hectare without the Adaptation Fund project				1461700
Value added to the project through application of adaptation measures				2034500

Operating Account without project – Onion (1 ha)

Items	Quantity	Unit	Cost per Unit	Values
I. Operating Income				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	8000	kg		
1.3 Harvest loss and decoupling loss (10%)	800	Kg		0
Total net marketable product	7200	Kg	300	2160000
II. Expenses				
2.1 Operating Expenses				
Ploughing and Other Soil Preparation	1	ha		20000
Seed	75	kg	224	16800
Fertilizer				
• NPK	1	sacs de 50kg	16500	16500
• Urea				-
Pesticides	1	U	15000	15000
Workforce	630	H-J	1000	630000
Small maintenance materials		FF		0
Total Expenses				698300
Operating income per hectare without project	4872.33	Kg	300	1461700

OPERATING INCOME OF THE PROJECT PER CROP

Operating Account -Rice		
	For 1 ha	For 1362 ha
Operating income with project	792,900	1,079,929,800
Operating income without the Adaptation Fund project	9,750	13,377,000
Value added to the project through application of adaptation measures	783,150	1,066,552,800

Operating Account - Potato		
	For 1 ha	For 200 ha
Operating income with project	4,857,000	971,400,000
Operating income without the Adaptation Fund project	2,901,700	580,340,000
Value added to the project through application of adaptation measures	1,955,300	391,060,000

Operating Account – Tomato		
	For 1ha	For 100 ha
Operating income with project	3,762,600	376,260,000
Operating income without the Adaptation Fund project	1,461,700	146,170,000
Value added to the project through application of adaptation measures	2,300,900	230,090,000

Operating Account - Onion		
	For 1ha	For 100 ha
Operating income with project	3,496,200	349,620,000
Operating income without the Adaptation Fund project	1,461,700	146,170,000
Value added to the project through application of adaptation measures	2,034,500	203,450,000

SUMMARY OF THE OPERATING INCOME OF THE PROJECT WITH THE 1 762 HA

	Rice	Potato	Tomato	Onion	Total
Operating income with project	1,079,929,800	971,400,000	376,260,000	349,620,000	2,777,209,800
Operating income without the Adaptation Fund project	13,377,000	580,340,000	146,170,000	146,170,000	886,057,000
Value added to the project through application of adaptation	1,066,552,800	391,060,000	230,090,000	203,450,000	1,891,152,800

ASSUMPTIONS

Basic data on crop yields per hectare

Speculation	Yield without project (kg/ha)	Yield with the Adaptation Fund project (kg/ha) *
Rice	600	4000
Potato	10000	25,000
Onion	8000	23,000
Tomato	8000	24,000

* Data retrieved from the Directorate-General for Agriculture of Guinea Bissau

Post-harvest loss

Speculation	Post-Harvest loss
Rice	20%
Potato	10%
Onion	10%
Tomato	10%

Producers Self-Consumption

Speculation	Quantities after post-harvest losses (kg)	Percentage self-consumed (%)
Rice	3,200	60,9%**
Potato	22,500	20%
Onion	20,700	5%
Tomato	21,600	5%

** It is expected that instead of selling rice product, the beneficiaries use their own production to ensure their food security in rice. 60.9% of the production are reserved for this purpose.

Market Selling prices for products in Guinea-Bissau (Basic scenario)

Speculations	Average Price*** (F CFA/Kg)
Rice****	350
Potato	1000
Onion	300
Tomato	500

*** Data retrieved from the technical services of the Directorate-General for Agriculture in the project's intervention regions

**** It is the price of the imported rice, if we consider that the beneficiaries would have paid the complementary rice during the drought season. The price of the local rice is between 400 and 500 FCFA.

Annex 14 : Terms of reference (competencies and composition) of the Regional planning office

TERMOS DE REFERÊNCIA PARA GABINETE REGIONAL DE PLANIFICAÇÃO

I – Introdução

A planificação Regional pode ser entendida como um processo de coordenação e orientação das decisões de afectação dos recursos disponíveis com vista a uma eficaz concretização dos objectivos estratégicos de carácter socio-económico da região, tendo como instrumento o plano do desenvolvimento regional, que serve como um documento orientador de políticas, como suporte da intervenção dos diferentes actores no vertente socio-económico da região. O instrumento de planificação a que se refere, coaduna com um conjunto das determinações dentro do sistema de planificação de uma região.

Este processo desencadeia-se com sucesso, se existir uma estrita interacção entre os componentes do gabinete designadamente (Ministérios técnicos, autoridades políticas, organizações de base, etc.), com preocupações a diferentes dimensões no quadro das estratégias do desenvolvimento estabelecido.

II- Medidas para Criação do Gabinete

Na altura do Partido único (PAIGC), criou-se conselhos regionais. Estes conselhos regionais tinham a competência para a elaboração de programas e da definição das acções prioritárias para o Desenvolvimento Regional e Local. Estes programas são enviados e apresentados ao Governo Central, o qual lhe cabe determinar a prioridade das prioridades no âmbito da definição das estratégias de desenvolvimento socio-económico do País. No entanto, foi uma forma de desconcentração do poder da decisão, apesar que o Governo Central continua a tomar decisões relacionadas com as questões regionais.

Nos meados do ano 1980/81 efectivamente houve uma tentativa com ajuda do Governo Holandês implementar medidas de desconcentração, com vista ao reforço das capacidades das iniciativas e das estruturas administrativas locais. E ainda com a colaboração da DU de Alemanha, criou-se Delegacias do plano á nível das regiões no quadro de implementação dos projectos integrados. No ano 81/82 foram criados GPR na sequência de elaboração e implementação do 1º Plano Quadrienal que são dirigidos pelos Governadores Regionais e Apoiados tecnicamente pelos Delegados Regionais do Plano.

Estes deveriam funcionar como espaço de concertação, coordenação, Identificação, aprovação, controle, seguimento e avaliação de forma crítica das acções do desenvolvimento das regiões.

III--Objectivos Gerais

Os objectivos fundamentais que visam a criação do Gabinete de Planificação Regional são:

- Assegurar uma boa localização dos projectos com intuito de atingir o desenvolvimento sustentável da região concernente;
- Definir quais os projectos a iniciar e onde localizá-los optimamente, tendo em conta os objectivos do desenvolvimento fixados pelo País;
- Seleccionar os projectos prioritários na medida do possível, tomando em consideração as estratégias da política do desenvolvimento da região;
- Harmonizar a localização dos projectos de Desenvolvimento em relação aos recursos físicos e a população da região;
- Apoiar as autoridades regionais administrativas na elaboração do seu próprio Plano do Desenvolvimento;
- Velar pela utilização coerente dos fundos destinados aos projectos, ONG's e Associações de Base;

- Considerar veementemente a repartição espacial do território, evitando dos eventuais agravamentos ou desequilíbrios;
- Dinamizar e reactivar os GPR;
- Inteirar da mobilização e utilização das receitas pública da região;
- Promover o reforço de capacidades dos quadros regionais;
- Harmonizar as políticas do desenvolvimento regional com base nos Planos nacionais, DENARP e OMD.

IV- Funções

As funções dos Gabinetes Regionais de Planificação em linhas gerais são seguintes:

1. Análise dos projectos contidos nos Planos Nacionais a partir do ponto de vista do desenvolvimento regional, que pela norma estabelecida, cada projecto de âmbito regional deve passar pelo Gabinete de Planificação Regional da Região concernente, antes de ser submetido para o PIP (Programa de Investimento Público) ou uma solicitação de financiamento;
2. Identificação e acompanhamento da execução dos projectos contidos no Plano Nacional a fim de apoiá-los e adequá-los de melhor forma possíveis as realidades locais;
3. Os GPR capacitar-se-ão para elaboração verdadeira e estratégica dos projectos do desenvolvimento, as quais deverão ser harmonizadas e adequadas aos Planos Nacionais e as Políticas Ministeriais de desenvolvimento para as regiões;
4. Assegurar os trabalhos da Coordenação, Seguimento e Avaliação das Acções Programadas numa perspectiva de coerência a nível das regiões;
5. Apoiar as autoridades regionais na elaboração dos Planos do Desenvolvimento das regiões inspiradas no DENARP e OMD e conforme as realidades específicas de cada região.

Gabinete Regional de Planificação (GRP) – É o órgão consultivo para intervenção de diferentes actores no processo de desenvolvimento das regiões.

V- Composição dos Gabinete Regional de Planificação (GRP)

Ele é composta por:

- Presidente (Governador Regional);
- Secretário Executivo (Diretor Regional do Plano e Estatística);
- Secretário do Gabinete Regional de Planificação (Secretário Administrativo Regional);
- Direcção Regional da Educação;
- Direcção Regional de Saúde;
- Direcção Regional de Agricultura;
- Delegacia Regional de Luta Contra a Pobreza;
- Delegacia Regional dos Recursos Naturais;
- Direcção Regional de Comércio;
- Delegacia Regional de Obras Publicas, Construção e Urbanismo;
- Delegacia Regional das Finanças;
- Delegacia Regional de Turismo e Artesanato;
- Delegacia Regional da Energia;
- Delegacia Regional das Pescas da zona Leste;
- Delegacia Regional da Justiça;

- Delegacia Regional de Registo Civil;
- Delegacia Regional da Juventude Cultura e Desporto;
- Delegacia Regional da Viação e Transporte;
- Delegacia Regional de Meteorologia;
- Delegacia Regional da Viação e Transporte;
- Delegacia Regional de Meteorologia;
- Guarda-fiscal Regional;
- Outros Ministérios técnicos sedeados na região;
- Representante das ONG's Nacionais e Estrangeiras;
- Representante de Instituto de Mulher e Crianças;
- Representante de Comunicação Social.

Para as reuniões alargadas do GPR, deve-se contar com as seguintes presenças:

- Sociedade Civil (representante);
- Representante de Entidades Religiosas;
- Representante de Anciões;
- Representante de Sociedade Tradicional.

VI- Funcionamento

O GRP funciona como a seguir se apresenta:

- O GRP é presidida pelo Governador da Região que é o Presidente da GRP, em caso da sua ausência, é assegurada pelo Secretário Executivo;
- As Delegacias, Direcções, Representações, Coordenações participam na reunião como membros do GRP e podem ser atribuídos qualquer tarefa;
- Nas reuniões de GRP, os membros efectivos podem ser acompanhados por seus adjuntos, quando for necessário
- A ausência de um membro efectivo numa reunião do GRP, pode delegar o seu adjunto o qual se considera como membro ao GRP, para a referida reunião;
- O GRP reúne-se ordinariamente de 2 em 2 meses e extraordinariamente sempre que necessário sob a convocatória do seu Presidente ou ainda por 2/3 dos seus membros efectivos;
- Uma reunião constituirá quórum quando a plenária é constituída por 2/3 dos seus membros em pleno gozo dos seus direitos;
- As decisões são tomadas pela maioria ou 2/3 dos seus membros em pleno gozo dos seus direitos;
- As resoluções finais de cada encontro do GRP devem ser lida e aprovada no final do encontro;
- As actas de cada encontro devem ser apresentados e submetidos para a aprovação no inicio de cada reunião;
- As despesas de funcionamento são asseguradas pelo Comité de Estado da Região;
- O Ministério da Administração Territorial deve responsabilizar-se com o fornecimento dos materiais didácticos contando com o apoio técnico da Secretaria de Estado do Plano e Integração Regional.

VII- Competências

Compete ao GRP:

- Convidar outras pessoas para assistir as suas reuniões sem serem membros em pleno gozo dos direitos;

- Estudar e dinamizar as orientações básicas sobre as estratégias do Desenvolvimento Regional;
- Acompanhar a execução do Plano Nacional na região, elaborando relatório sobre andamento das actividades;
- Receber relatório das actividades de todas instituições Governamentais e ONG's e Associações de Base para a sua análise pormenorizada;
- Identificar, Formular, implementar e supervisionar projectos de desenvolvimento na região, micro-projectos e/ou micro realizações e dar a assistência as tabancas mais carenciadas;
- Aprovar as actas e resoluções finais das reuniões realizadas;
- Solicitar qualquer organização Governamental, ONG's e Associações de Base para o esclarecimento de qualquer entrave;
- Assegurar a coordenação e harmonizar as actividades das diferentes instituições na região.

VIII- Competências do Presidente do GRP

a) Compete ao PGRP:

- Presidir as reuniões de GRP;
- Analisar e aconselhar sobre algo que possa favorecer o desenvolvimento harmonioso do GRP;
- Zelar no máximo para que haja um normal funcionamento do GRP e do cumprimento do regulamento interno;
- Comunicar o Secretário Executivo para convocação das reuniões de GRP sempre que for necessário.

b) Competências do Secretário Executivo:

Compete-lhe:

- Convocar as reuniões do GRP, com a comunicação prévia do Presidente; a convocação e presidência lhe compete em caso de ausência do Presidente;
- Apoiar o Presidente do GRP na orientação dos trabalhos de GRP;
- Manter contacto permanente com a Secretaria de Estado do Plano e Integração Regional a fim de lhe fazer inteirar dos trabalhos do GRP;
- Concertar sempre que necessário com o Presidente do GRP.

c) Competências do Secretário do GRP:

Compete-lhe:

- Preparar as propostas de ordem do dia para cada reunião do GRP em colaboração com o Secretário Executivo sob a orientação do Presidente;
- Elaborar e compilar as actas e proceder a sua distribuição atempada (15 dias) para os membros efectivos do GRP e outros individualidades assim que for necessário;
- Proceder a leitura da acta da reunião anterior no princípio de cada reunião;
- Proceder a leitura das resoluções finais no fim de cada reunião;
- Preparar e organizar os documentos que o GRP lhe designa.

Por: DDR

Annex 15: Action plan for integrated pests and pesticides management

Action Plan for implementation of Integrated Pests and Pesticides Management of the project

The action plan for implementation of Integrated Pests and Pesticides Management (PGIPP) of the project includes: (i) a integrated pest and pesticide management approach for the project; (ii) principles of intervention; (lii) strengthening the legislative framework for pesticide management; (iv) capacity building of actors through training (v) sensitization for the promotion of the use of alternatives control strategies; (vi) good practices to be adopted during the pesticide management cycle; (vii) measures to be taken in the event of poisoning; (viii) the monitoring-evaluation plan; and (ix) institutional arrangements for the follow-up of the PGIPP.

a) Approach to Pests and pesticides management in the implementation of the project

Integrated Pest Management (IPM) is concerned with a holistic approach towards pest control techniques, aiming to keep pesticide applications and other interventions within economically justified levels while minimizing any risks (real or potential) to human health or the environment. Natural pest control plays a significant role in IPM, and includes direct and indirect measures (see table below). The present project on Climate-smart agriculture aims to significantly reduce chemical pesticide application already indirectly, where many activities –use of crops adapted to local conditions, reliance on appropriate yield expectations, use of resistant varieties, optimal densification of cultivars, etc. – overlap with indirect plant protection³².

The option for the promotion of integrated pest and pesticide management in the framework of the project is made to avoid or considerably reduce the use of chemical pesticides. In case of parasite attack, the least hazardous methods will be preferred. Chemical pesticides will be used in extreme cases where less dangerous methods will prove ineffective. In this case, the choice of use of chemical pesticides will be made in accordance with the recommendations of the integrated pest and pesticide management plan. Given that Guinea Bissau does not have sustained experience in integrated pests and pesticides management, it is very important to take into account, the experiences and lessons learned of the FAO in the pests and pesticides integrated management in the Africa's subsaharian countries. It is why, the members of National committee of pest and pesticides management (CNGP), the DPV officers, the PMU, the NGO's representatives in charge of the supervision of beneficiaries on the perimeters will be trained on the integrated management of the pests and pesticides in the project area by an Expert very exprienced in the FAO integrated pest and pesticides management in the Africa's subsaharian countries (Please see item d) below). This expert will be recruited by the PMU under the supervision of the Implementing Entity.

At the end of the training sessions, a box of integrated pests and pesticides management tools will be made available to the beneficiaries, the DPV, the PMU, the CNGP and the Regional Directorate for Agriculture for appropriate integrated pests and pesticides management actions. These tools box prepared by the Expert with the FAO experiences in

³² See Climate-Smart Agriculture Sourcebook: FAO, 2013

the integrated pests and pesticides management, will indicate the appropriate actions to take on the various pests and pesticides. The tools box will also indicate the limited WHO class U and III pesticides that the beneficiaries can use if the agronomic, cultural, mechanical and biological methods prove to be ineffective in dealing with the problem.

The following approach will ensure coordinated and sustainable management of pests and pesticides in the project framework.

Step 1: Dissemination of pest management alternatives

The alternatives to pesticides as agronomic, cultural, mechanical and biological control will be disseminated for better use by the producers. The resistant seed will be promoted also. These actions will be integrated early in the sites or crop development to prevent the attack by pests. The box of integrated pests and pesticides management tools elaborated following the training by IPM Expert will be made available to the beneficiaries.

For the integrated pest and pesticides management and other sustainable activities in the project framework, the project will strongly collaborate with the regional offices (CILSS in Ouagadougou (Burkina Faso, AGRHYMET in Niamey (Niger), EMPRES-FAO (Prevention of major pests upsurges in West and Northwest Africa)) involved in sustainable agriculture development.

No specific pest forecast modeling, e.g. via economic injury level and action thresholds, epidemiology and forecast models, is foreseen for this project. If available this can be undertaken in collaboration with third-party projects identified by the Consultant recruited for capacity building on integrated pest and pesticides management.

Step 2 : When an attack of crops by pests is observed on a site, the beneficiaries will use, under the control of the site facilitator and the project regional coordinator, the appropriate alternatives retained in the IPM tools prepared with the support of the IPM Expert on which the beneficiaries, the facilitators and the project regional coordinators have already received training. These alternative measures will be applied in a spirit of environmental protection and human health. The project regional coordinator will inform the PMU on the adequate actions taken on the perimeter by the beneficiaries to end the attack of pests.

Step 3 : In extreme cases, where alternative actions will prove ineffective, the regional directorate of DPV, who have also received training from the IPM Expert, will advise the PMU on the need for limited class III or U pesticides purchases. The use of the WHO class III and U pesticides by the beneficiaries will be done with the support of PMU under the control of the DPV. The National Pesticide Management Committee³³ (CNGP) will be informed by the DPV and the PMU will inform the BOAD on the process.

The possible alternatives for chemical pest control which can be used in the framework of the project are presented in the table below :

33 To overcome the problems associated with the uncontrolled use of pesticides and to reduce the risks associated with the use of poor quality pesticides, a National Pesticide Management Committee (CNGP) is set up in Guinea Bissau, Article 11 of Legislative Decree No. 7/2000 of 24 August 2000. This committee is composed of members from such structures as the environment, health, agriculture, farmer organizations, customs. The CNGP ensures, inter alia: (i) the implementation and monitoring of compliance with pesticide quality control procedures and standards; (ii) post-registration control of pesticides; (iii) compliance monitoring of pesticides; Control of the distribution and use of pesticides; (iv) control of Maximum Residue Limits (MRLs) of imported products for local consumption; (v) control of professionals in the pesticide industry; (vi) Maintaining the register of operators in the sector; (vii) the maintenance and updating of registered pesticides; (viii) denunciation of unauthorized pesticides entering the country; (ix) monitoring of toxicovigilance; (x) monitoring of pre-extension trials; (ix) monitoring the implementation of international pesticide conventions.

Indirect plant protection	Monitoring and forecasting	Direct plant protection
<p>Optimal use of natural resources:</p> <ul style="list-style-type: none"> • Use crop adapted to local conditions • Rely on appropriate yield expectations • Use of resistant varieties • Weed management with adequate intensity of competition • Adequate mixtures of varieties and crops • Optimal timing of sowing period • Training on pest and appropriate pesticides, particularly biological options, and importance of ecological compensation areas <p>Use of farming practices without negative impact on the agro-ecosystems:</p> <ul style="list-style-type: none"> • No use of surplus input of nutrients (especially N); • Optimal density of crop and foliage to facilitate ventilation • Low intensity of tillage/cultivation and production methods protecting soil fertility • Weed management for erosion control • Biodiversity conservation and protection to enhance biodiversity, therefore reducing pest incidence • Where adequate protection and augmentation of beneficial biological antagonists. 	<ul style="list-style-type: none"> • Monitoring and forecasting of pest incidence will be done in accordance with the project's IPM plan. • No specific pest forecast modeling, e.g. via economic injury level and action thresholds, epidemiology and forecast models, is foreseen for this project. If available this can be undertaken in collaboration with third-party projects identified by the Consultant recruited for capacity building on integrated pest and pesticides management. 	<p>Use of selective pest control methods:</p> <ul style="list-style-type: none"> • Wherever and whenever adequate, reliance on biological control, biopesticides, etc. <p>Chemical pest control methods, only where other options are failing or will be very likely:</p> <ul style="list-style-type: none"> • Preference for the most specific and selective pesticides (class III and U of WHO) • Preference for least harmful and least toxic pesticides (class III and U of WHO)

b) Principles for intervention

The management of pests and pesticides in the project should address the following principles:

- Caution and attention;
- Strengthening the capacities of stakeholders on integrated pests and pesticides management;
- Traceability of the products used;
- Coordination and intersectoral cooperation;

- Information and management of data relating to the integrated management of pesticides;
- Rationalization and strengthening of supervisory structures and risk prevention;
- Monitoring and evaluation ;
- Monitoring of health and environmental impact;
- Effectiveness of the participation of all stakeholders;
- Promotion of integrated pest management in extension / producer information systems (for integrated pest management, the 16 internationally recognized core principles will be implemented, annex 3 of this document).

c) Strengthening the legislative framework for pesticide management

It consists to :

- Promote incentives measures to encourage the use of agronomic, cultural, mechanical and biological pest control methods to significantly reduce the use of chemical pesticides ;
- Vulgarize the integrated pest and pesticides management.

d) Strengthening technical capacities on integrated pest and pesticide management

The project will organize capacity-building sessions on integrated pest and pesticides management for actors involved in the project. The capacity building will be focused on alternatives to pesticides as agronomic, cultural, mechanical and biological control. These are the techniques or actions that are taken into account in crop development to prevent pest outbreaks and avoid or greatly reduce the use of chemical pesticides (alternatives of chemical pesticides use are presented in integrated pest management approach at the page 123 of this document). The capacities building on integrated pest and pesticides management will concerned at least the following institutions and individuals: Regional Directorate for Plant Protection, National committee of pest and pesticide management (CNGP in French)³⁴; Regional Directorate for Environment and Sustainable Development, Regional Directorate for Agriculture, Regional Directorate for agriculture water infrastructures management, representative of the Governorate of the Region, Competent Authority for Environmental Assessment (AAAC in French) , Regional Directorate for Public Health, National Laboratory for Agrarian Research (INPA in French), Members of Perimeters' Management Committee, NGO's representatives in charge of the supervision of the beneficiaries on sites, the PMU and the presidents and administrators of the perimeters will be trained on the integrated management of pests and pesticides-

This training will be conducted by an Expert very experienced in the FAO integrated pest and pesticides management in the Africa's subsaharian countries. This expert will be recruited by the PMU under the supervision of the Implementing Entity on the basis of a shortlist of Experts recommended by the FAO office based in Rome (Italy) and or in West Africa in Accra (Ghana).

At the end of the training sessions, the tools box of integrated pests and pesticides management will be made available to the beneficiaries, the DPV, the PMU, the CNGP and the Regional Directorate for Agriculture for appropriate integrated pests and pesticides management actions.

³⁴ The National pest and pesticide management committee (CNGP) is set up in Guinea Bissau by the Article 11 of Legislative Decree No. 7/2000 of 24 August 2000. This committee is composed of members from such structures as the environment, health, agriculture, farmer organizations and customs.

For the integrated pest and pesticides management and others sustainable activities in the project framework, the project will strongly collaborate with the regional offices (CILSS in Ouagadougou (Burkina Faso, AGRHYMET in Niamey (Niger), EMPRES-FAO (Prevention of major pests upsurges in West and Northwest Africa)) involved in sustainable agriculture development.

e) Sensitization for the promotion of the use of alternative control strategies

It consists to:

- Strengthen the exchange of information on the alternatives on pest management and their benefit for environment, health and crop production;
- Make known to producers and other stakeholders, through sensitization, risks and impacts related to use, storage, transport, distribution/ marketing, handling of chemical pesticide;
- Sensitize, educate and inform producer groups on the judicious use of pesticides (in cases where the use of pesticides is necessary. Class III and U pesticides being the only ones that can be used in the project);
- Sensitize producer groups on hazards and good hygiene practices in the use of pesticides;
- Raise public awareness of the protection of people vulnerable to pesticides;
- Actively involve civil society in information / education / communication on pesticide management.

Information and awareness-raising strategy for users and the general public

Awareness-raising should aim to popularize pests integrated management methods and even very effective traditional methods of fighting insect pests.

Indeed, information and awareness about environmental and health risks are very little advanced in the country. Long-term strategies and effective approaches are needed to inform and sensitize all stakeholders by focusing on the following areas of intervention:

- develop and disseminate tools box on the various risks in the use of pesticides and good practices of integrated pest and pesticides management as alternatives;
- sensitizing actors through radio and television debates for promoting integrated pest and pesticides management ;
- provide support to trade unions operating in the various sectors concerned to raise awareness among their members on the occupational risks associated with chemicals in their respective fields;
- support consumer associations in raising awareness among the general public;
- strengthen the training of rural supervisors and extend their activities through rural radio stations;
- set up a national commission and local standards committees in both agricultural and industrial production;
- get closer to the chemical safety committee on chemicals.

Information and awareness programs are essential to reduce the risk of pesticide disease and poisoning and ultimately lead to real change in behavior.

f) Good practices to be adopted during the pesticide management cycle in the extreme case of use of WHO class III and U pesticides

In the framework of the project, agronomic, cultural, mechanical and biological methods of integrated pest management will be used. If these measures prove ineffective in the face of the problem that persists, only WHO class III and U pesticides may be used. In this case,

some of the best practices to be applied in the cycle of use of these pesticides of class III and U include: (i) transport and handling; (ii) storage; (iii) maintenance of the equipment to be used; (iv) preparation of the pesticide slurry; (v) application of the pesticide slurry; (vi) bottom of vats or containers (or residue of slurry); (vii) management of packaging; (viii) termination of application.

g) Measures to be taken in cases of poisoning

In the project framework, agronomic, mechanical and biological methods are being promoted. When these measures are ineffective, the WHO Class III and U pesticides should be used. These Class III and U have little effect on human health in case of normal use. However, in case of poisoning appropriate care will be provided to the victims. If the situation is of concern, the victim will be evacuated to a health center in the area that has received training in pesticide poisoning management. A table showing some of the signs of intoxication and primary care to be provided before the evacuation of a victim, if necessary is prepared (refer to the PGIPP).

h) Monitoring and Evaluation

The monitoring plan is subordinate to the activities planned under the project. Monitoring is supported by the collection and analysis of data to verify whether the implementation of the activities is proceeding as planned and to make immediate adjustments if necessary. It is therefore a short-term evaluation activity to allow for real-time action. The frequency of monitoring will depend on the type of information required, however it will be continuous throughout the implementation of the project.

The overall monitoring will be ensured by the structures put in place for the implementation of the project. It will be organized through periodic field visits.

In order to do so, monitoring indicators have been established in relation to the above measures proposed in the implementation plan for the PGIPP.

In addition to the annual pest and pesticide management assessments that will allow continuous improvement of the implementation of the PGIPP, a mid-term evaluation will be conducted at the end of the second year of implementation and another at the end of the project.

i) Institutional arrangement for the PGIPP monitoring

In Guinea Bissau, three technical ministries are mainly concerned with the management of pests and pesticides:

- (i) the Ministry of Agriculture through the DPV, for pesticides used in agriculture;
- (ii) the Ministry of the Environment and Sustainable Development, which is responsible for all chemicals, including pesticides and the framing of measures of their impact on the environment; and
- (iii) the Ministry of Public Health, responsible for the treatment of cases of poisoning by pesticides including those used in public health).

In the framework of the present project, the monitoring of the integrated pest and pesticide management plan will be the responsibilities of the DPV and the AAAC. According to their attributions, the institutions below will support the DPV and AAAC:

- the Regional Directorates for Plant Protection;
- the National committee on pesticides management (CNGP);
- the Regional Directorates for Environment and Sustainable Development;

- the Regional Directorates of Agriculture;
- the Regional Directorates of Public Health;
- the representatives of the Governorate of the region
- the civil protection service;
- the National Laboratory for Agrarian Research (INPA);
- the representatives of NGOs.

The BOAD, the implementing entity will assess the implementation of the PGIPP measures through the periodic reports submitted by the PMU and its field verification missions. The Implementation Entity's annual report will include a section on the implementation of the PGIPP in the framework of the implementation of the Project Environmental and Social Management Plan. In addition to the annual pest and pesticide management assessments that will allow continuous improvement of the implementation of the PGIPP, a mid-term evaluation will be conducted at the end of the second year of implementation and another at the end of the project.

The different actions proposed in the integrated pest and pesticides management plan are integrated into the project components and their costs into the project budget.