



**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  
1818 H Street NW  
MSN P4-400  
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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 km<sup>2</sup> 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).

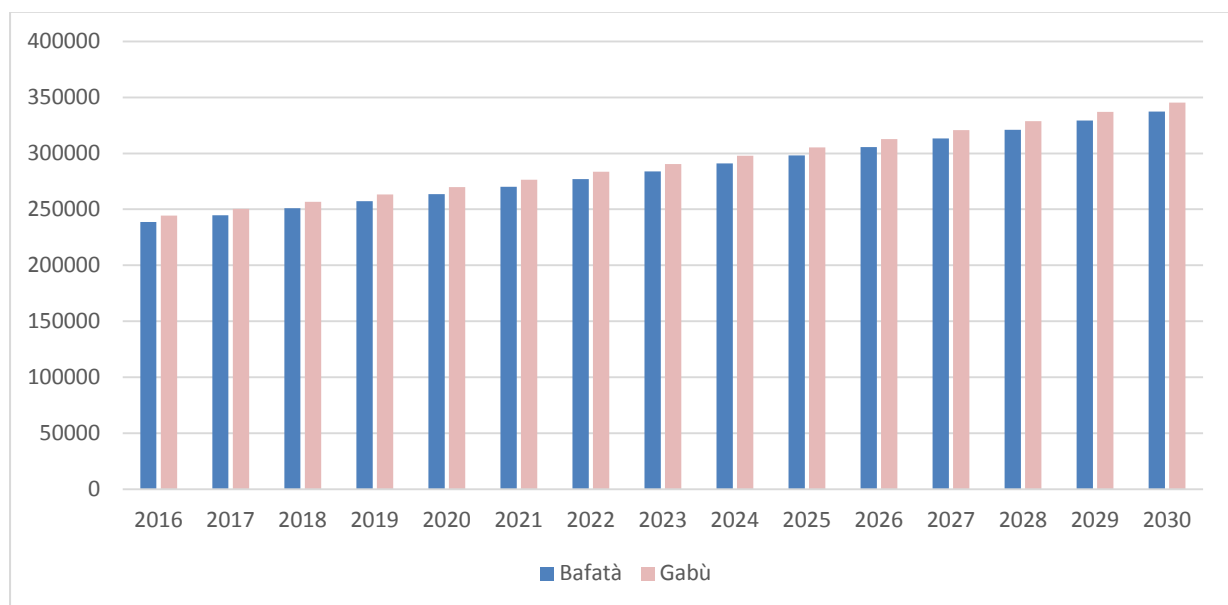
Figure 1: Administrative map of Guinea-Bissau Source: Wikipedia.



## SOCIO-ECONOMIC CONTEXT

Guinea-Bissau have a population estimated to 1.73 million with a density of 47.8 habitants per km<sup>2</sup>. 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%<sup>1</sup>. 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 km<sup>2</sup>, or 42% of Guinea-Bissau. Gabú with an area of 9,150 km<sup>2</sup> 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

<sup>1</sup> 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%<sup>2</sup>. 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%)<sup>3</sup>. 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 needs<sup>4</sup>. 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

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<sup>2</sup> BECEAO, Report on the situation of poverty in UEMOA countries, 2012

<sup>3</sup> BECEAO, Report on the situation of poverty in UEMOA countries, 2012

<sup>4</sup> 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

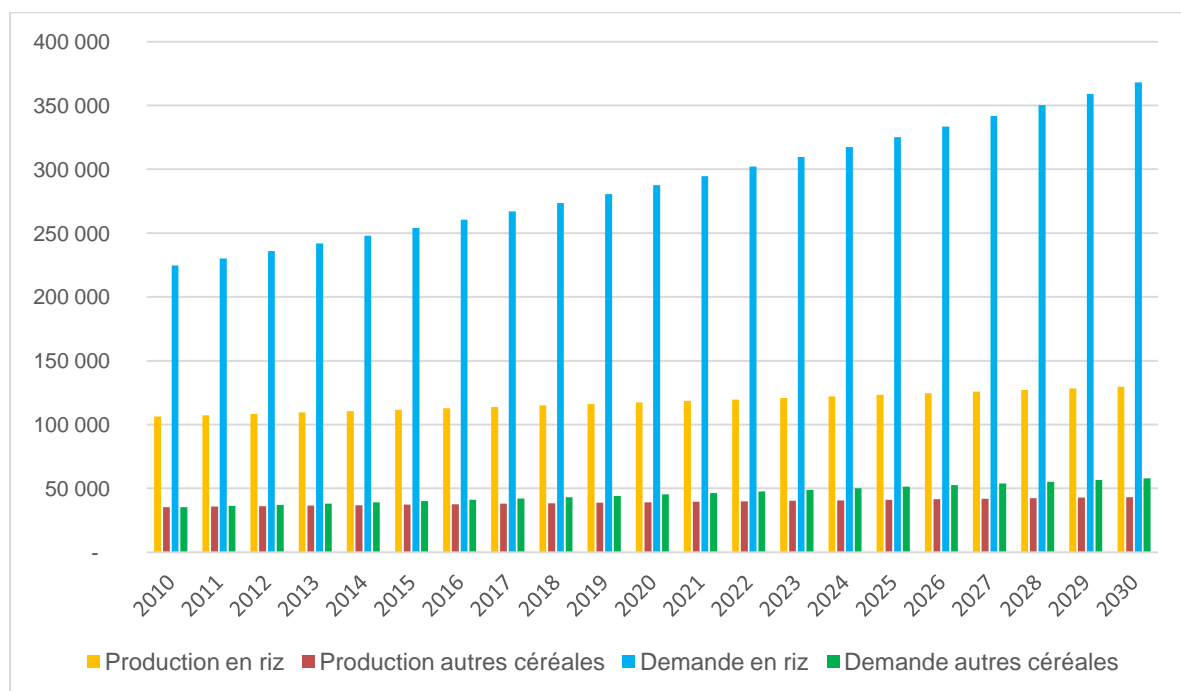
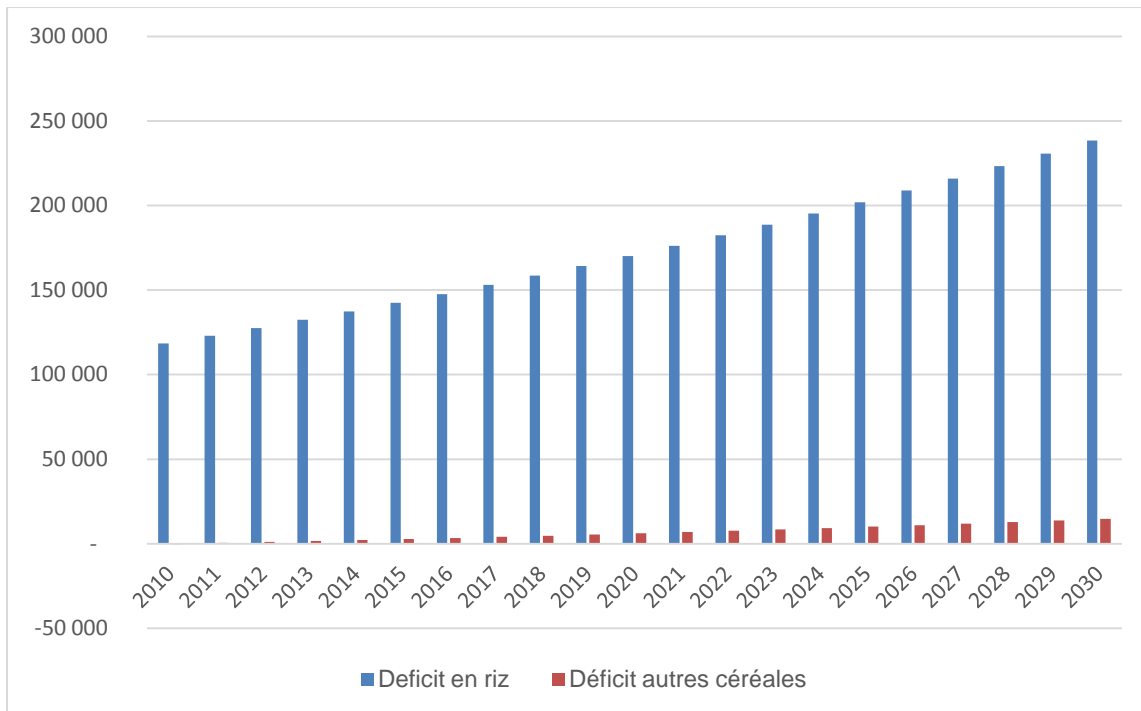


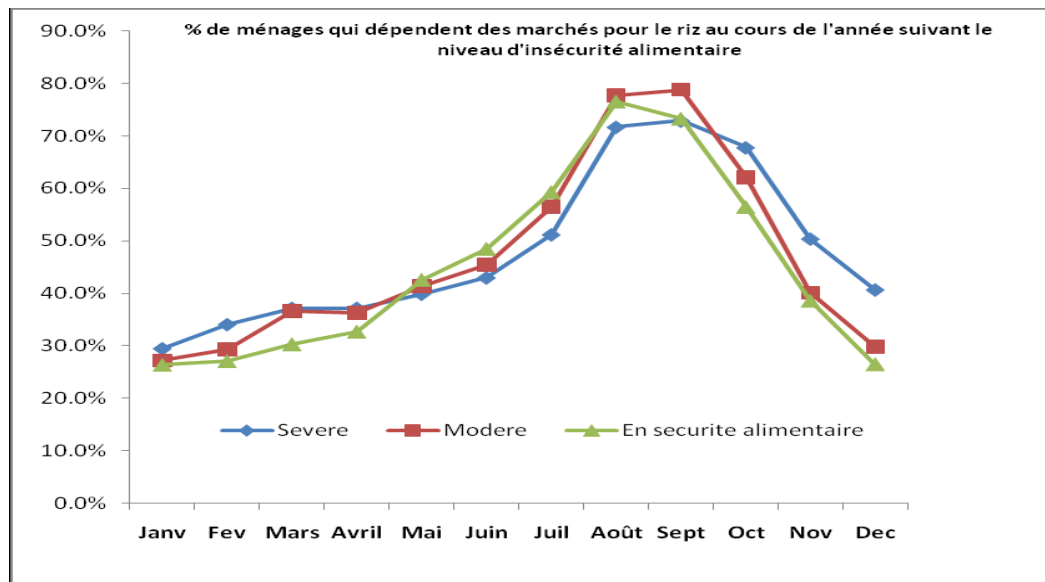
Figure 3: Evolution of production and demand for rice and other cereals in Guinea Bissau

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

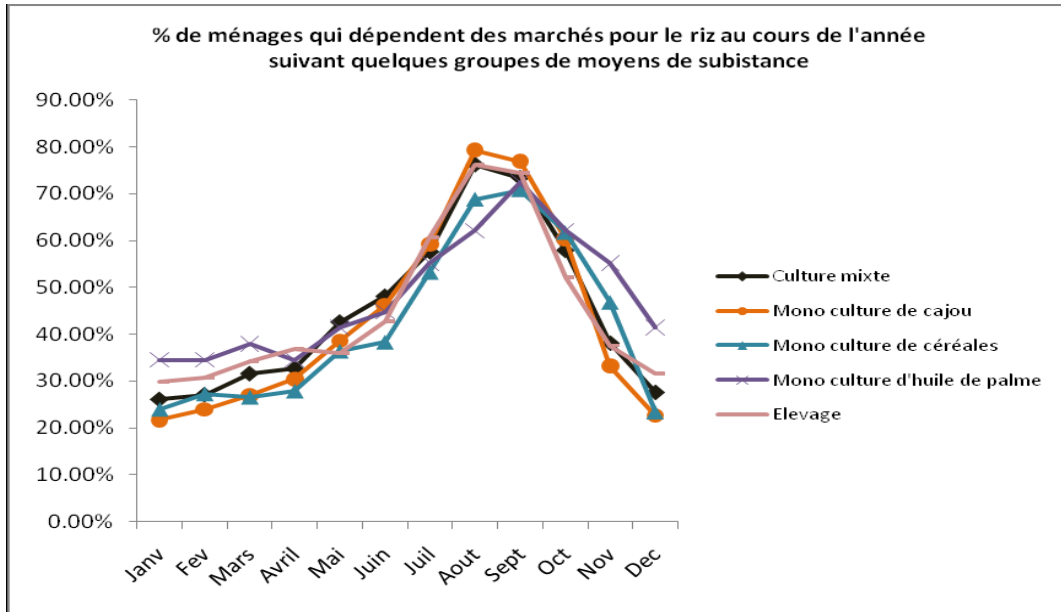
These recurring deficits makes the population highly dependent on market during the lean season from May to October (figure 5) before the new harvest from October to January. About 76% of the households depend on markets for access to rice during the peak of the lean season (August) against 40% in November, 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

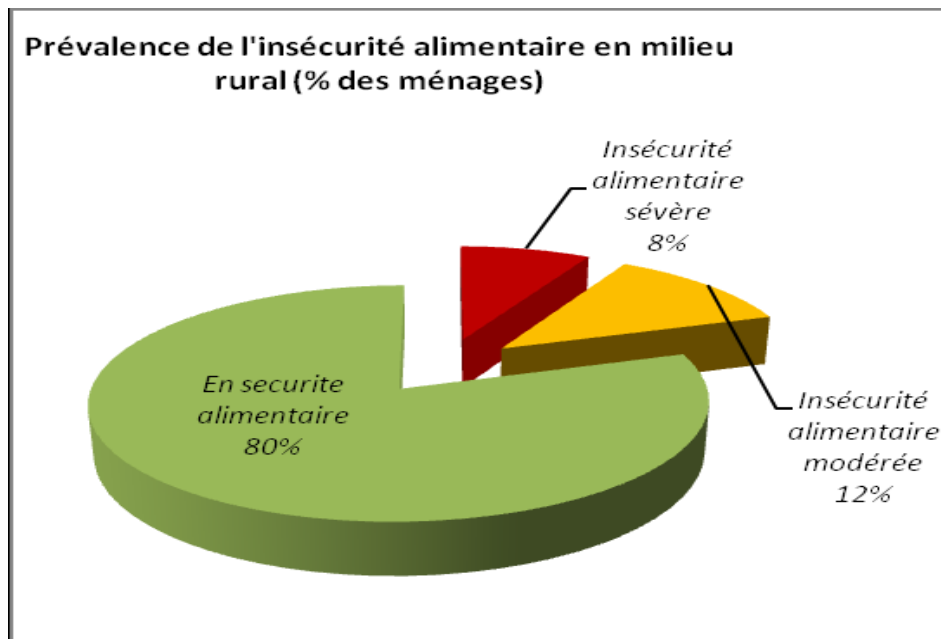
**Source:** Results of the survey on food security and vulnerability of rural households. The Republic of Guinea Bissau, March 2011.

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.

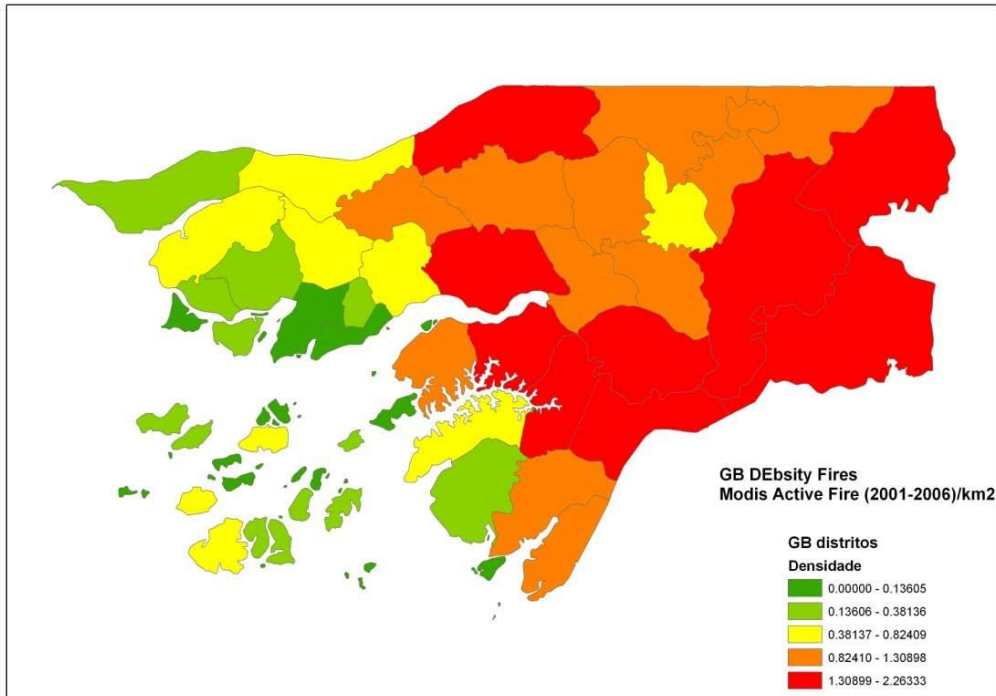
Table 3: Types of soil, surface and % of occupancy (adapted).

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 km<sup>2</sup> 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 km<sup>2</sup> 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

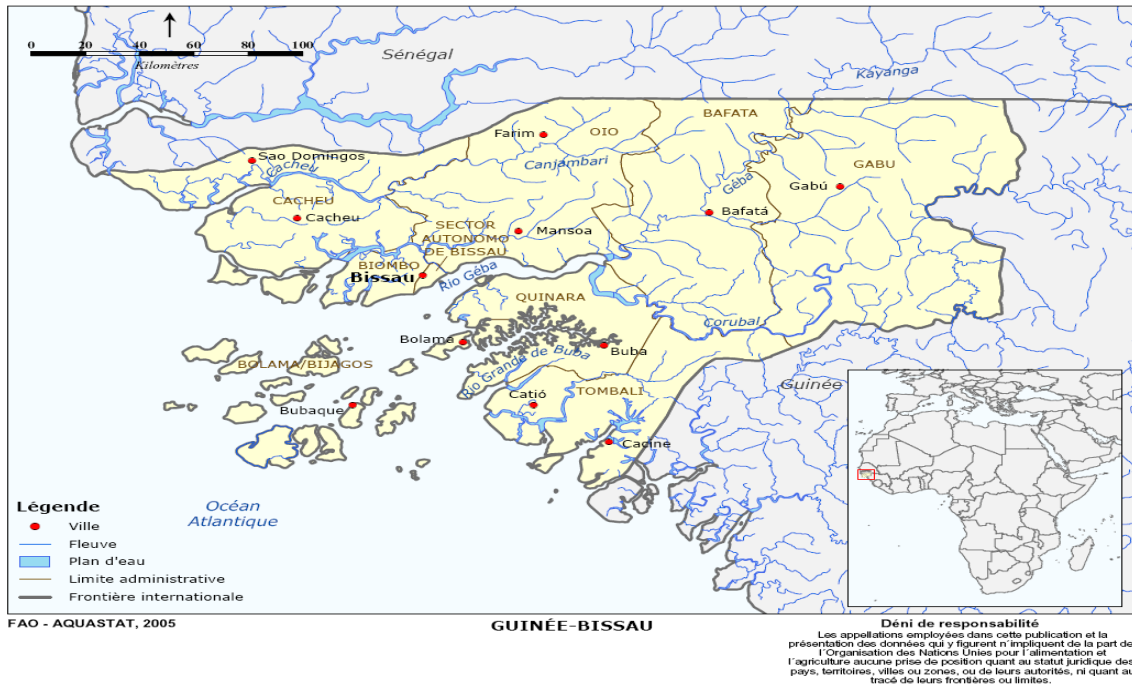
Source : Global Lead, Sites works

## 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 m<sup>3</sup>, 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 m<sup>3</sup>/s in May (before rainy season) and 1,120 m<sup>3</sup>/s in September (end of rainy season). A second exception is the considerably smaller Geba river (annual water volume of 0.8bn m<sup>3</sup>) 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 km<sup>2</sup> 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.

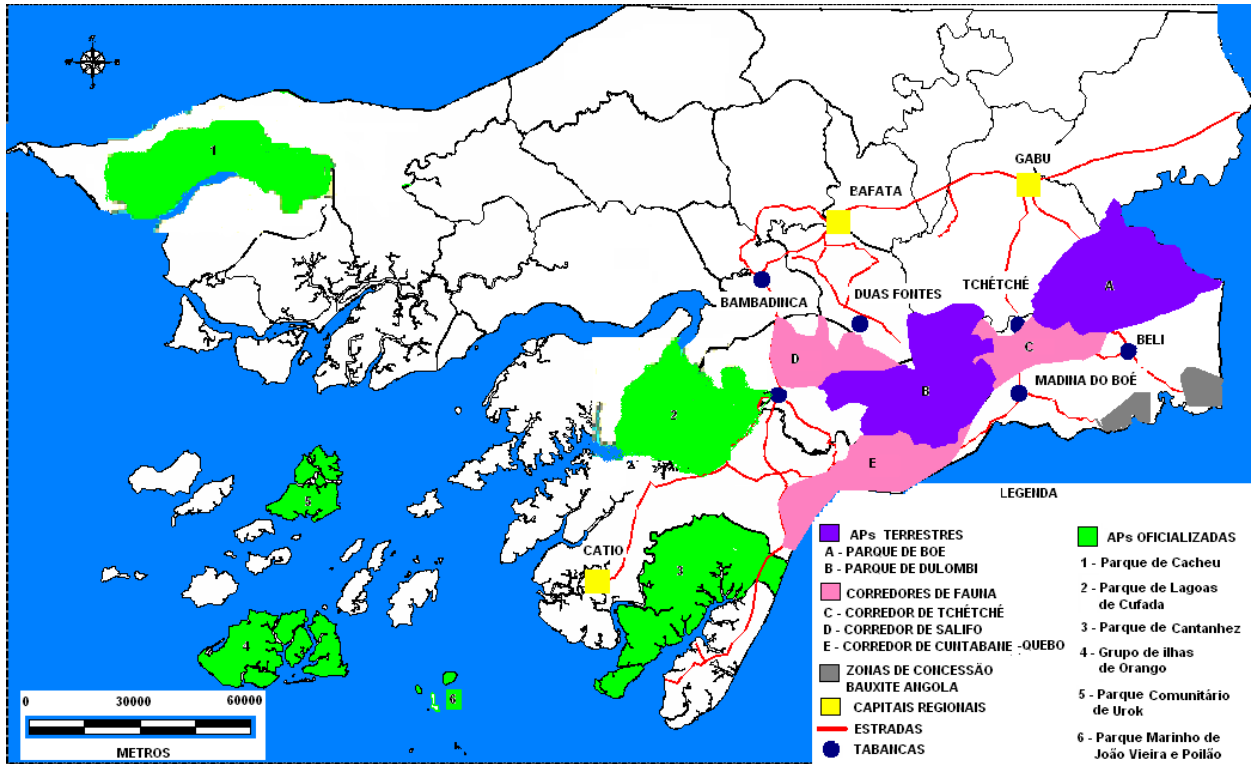


Figure 18: System of Protected Areas in Guinea Bissau

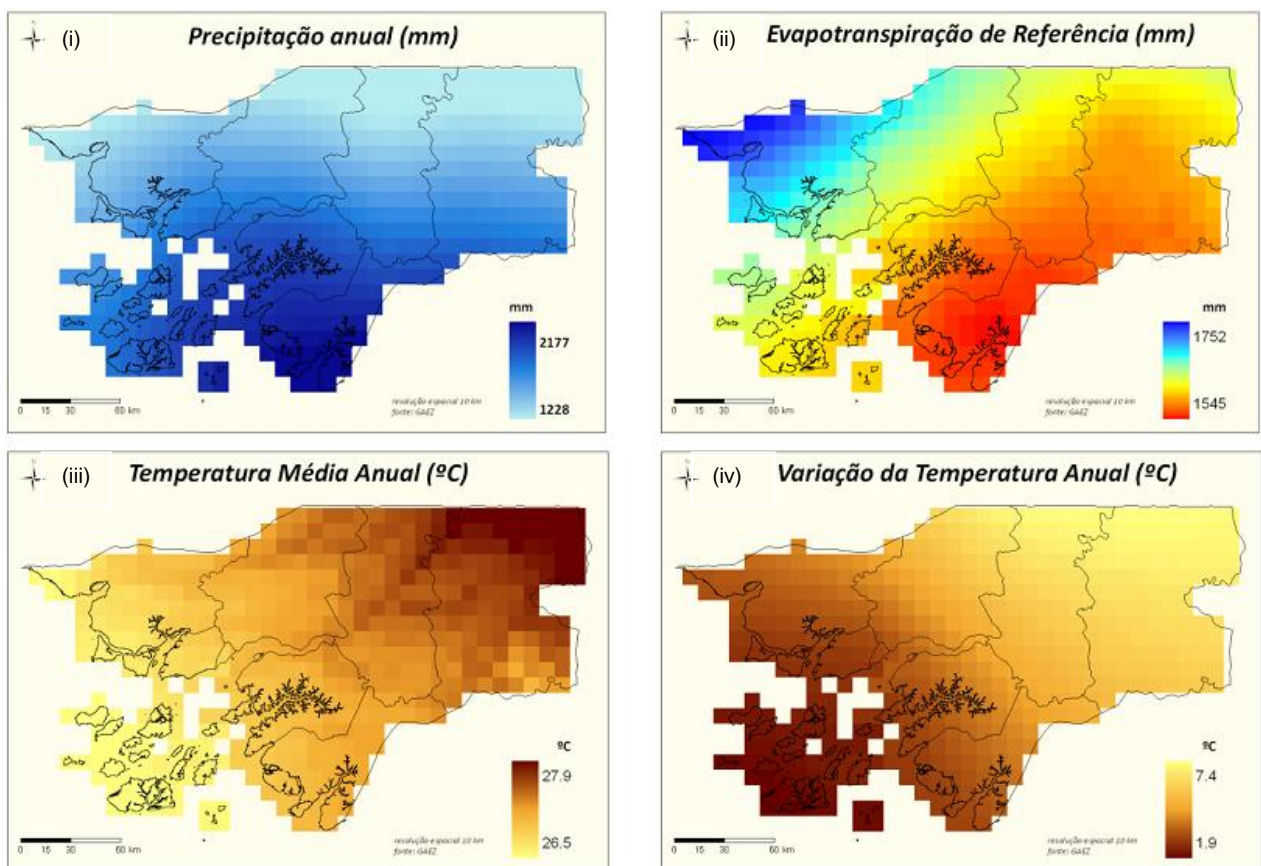
Source: UNDP Project Document 3650 Support for the consolidation of a PA system in Guinea Bissau's Forest Belt



## 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.

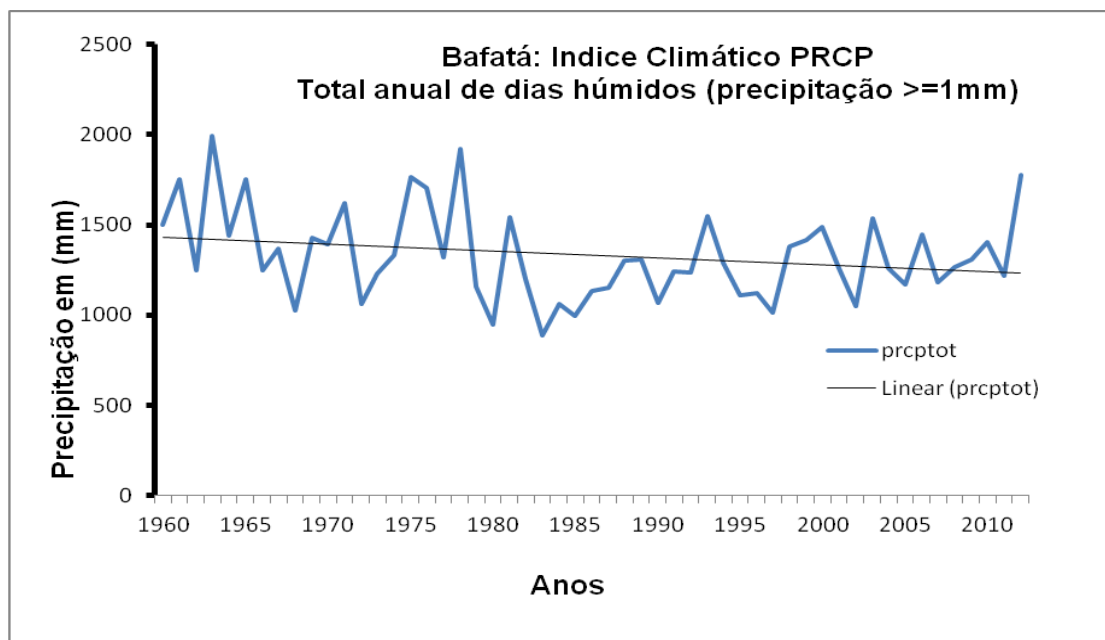


Figure 20: Total humid days per year (precipitation  $\leq 1$  mm), 1960-2010  
 Source: INM-GB (2014)

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  $\geq 1$  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 CO<sub>2</sub> fertilization effect may not contribute to higher food security as many West African staple crops (corn, millet, sorghum, with the exception of rice) are C<sub>4</sub> crops which are less sensitive to higher CO<sub>2</sub> 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 country<sup>5</sup>. 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)<sup>6</sup> 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 Fig 6a high emissions scenario and 6b low emissions scenario). All models predict year

<sup>5</sup> These models are ECHAM4, HADCM3, NCAR\_PCM, CGCM2, GFDL-R30

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

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)<sup>7</sup>.

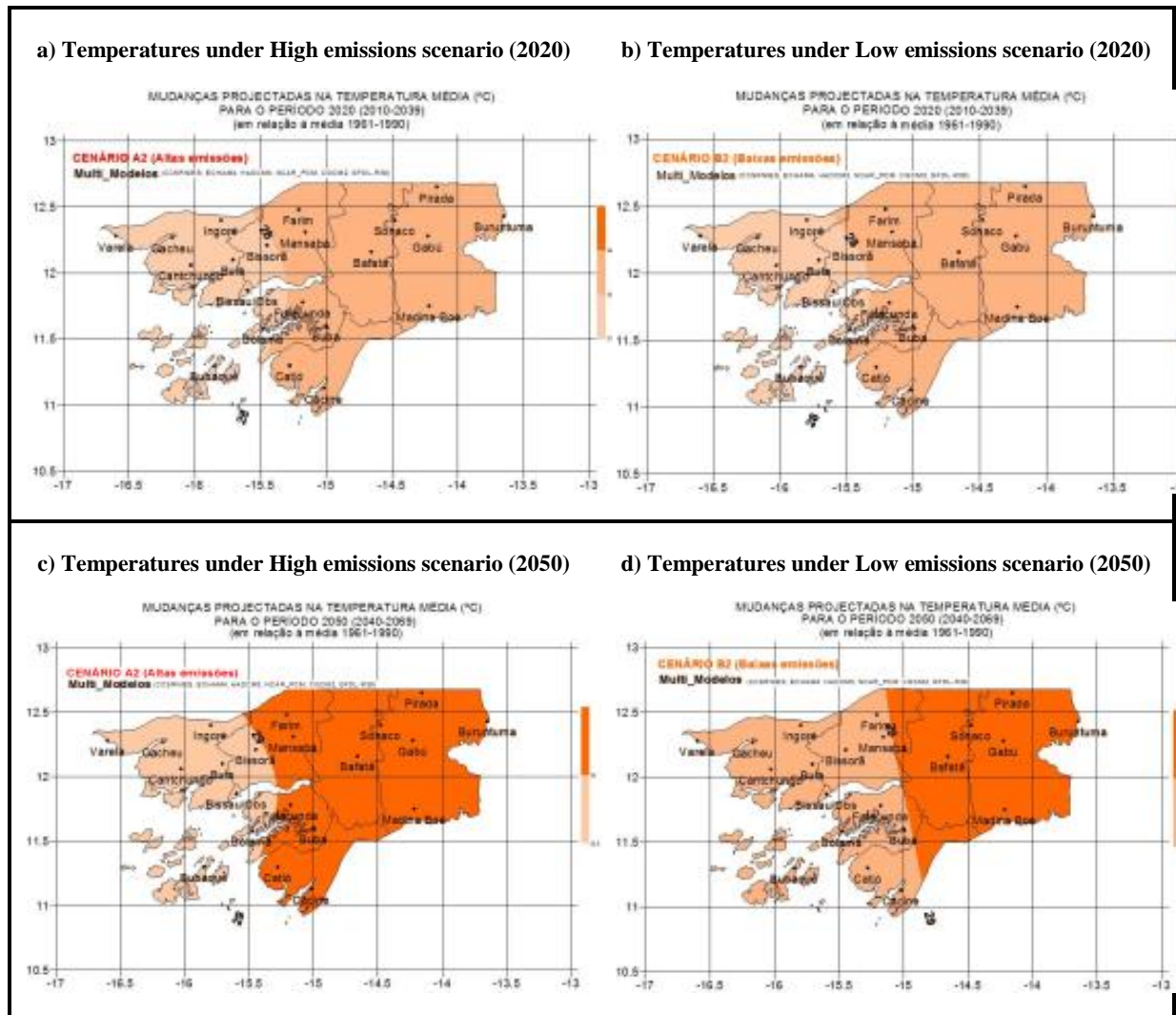


Figure 21: Projected Average Annual Temperatures (°C) to 2020 and 2050, downscaled from multimodels

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.

<sup>7</sup> 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.

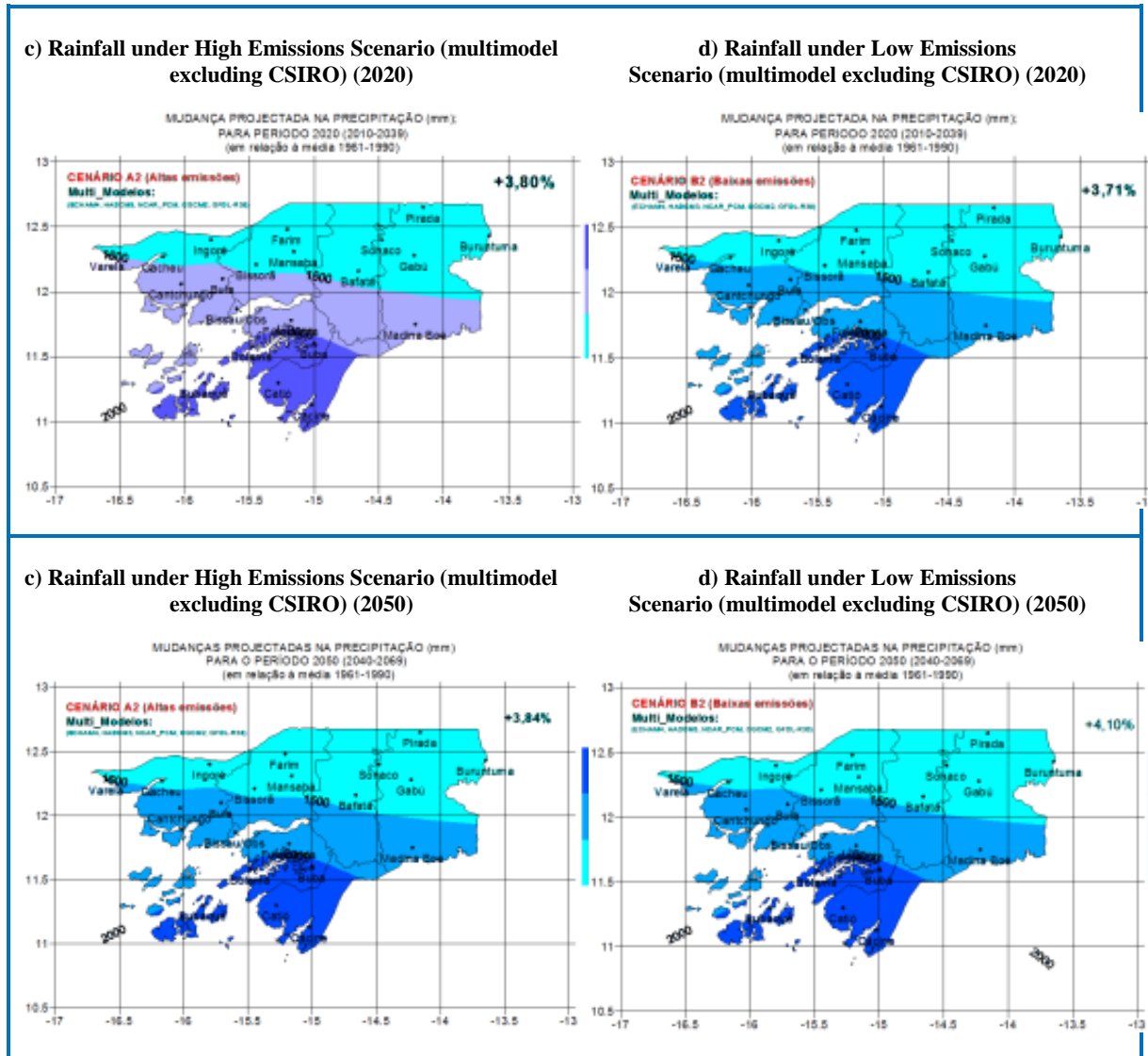


Figure 22: Projected Average Annual Precipitation to 2020 and 2050 downscaled from multimodels

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
<b>Streams and station</b>	<b>sensitivity 1,5°C</b>				
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
<b>Streams and station</b>	<b>sensitivity 2,5°C</b>				
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
<b>Streams and station</b>	<b>sensitivity 4,5°C</b>				
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 people<sup>8</sup> in East Guinea-Bissau.

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<sup>8</sup> The project will develop 1100 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.

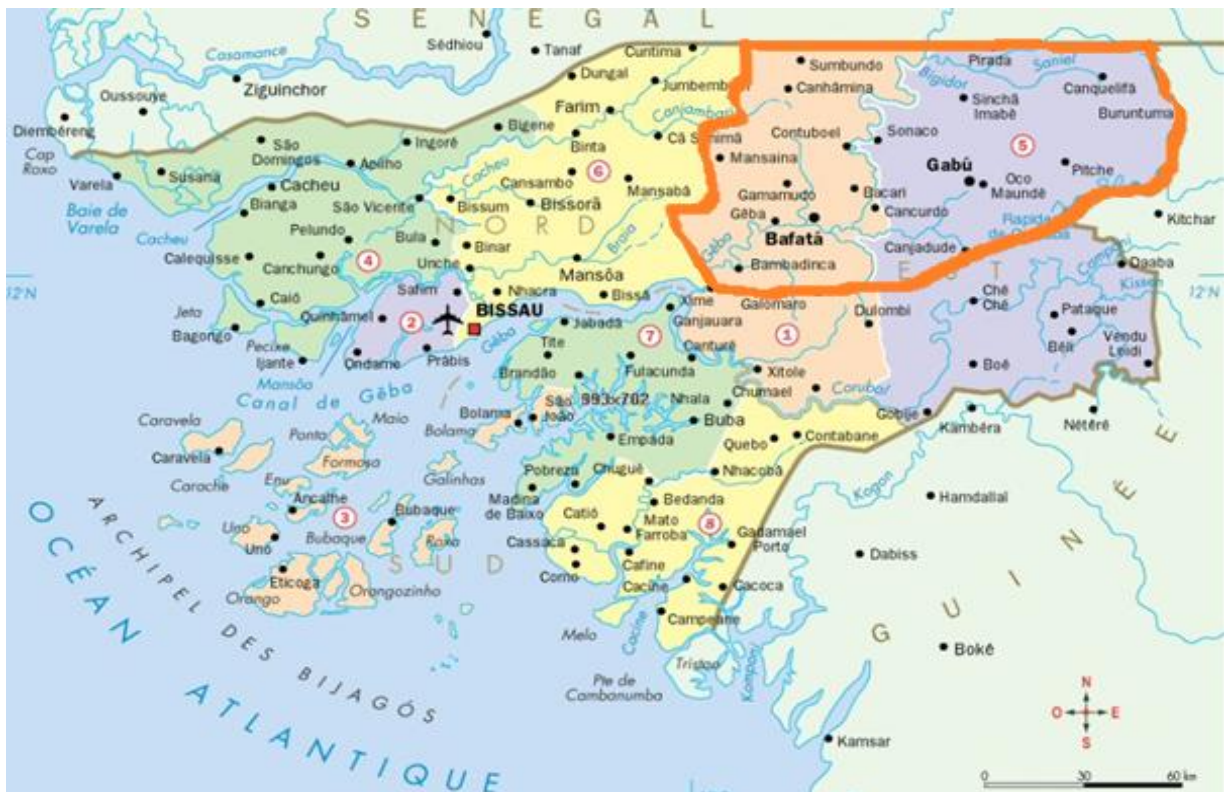


Figure 23: Demarcation of the area of the project

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
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
<b>Total</b>	<b>2</b>	<b>12</b>	<b>62</b>	<b>661,761</b>

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.

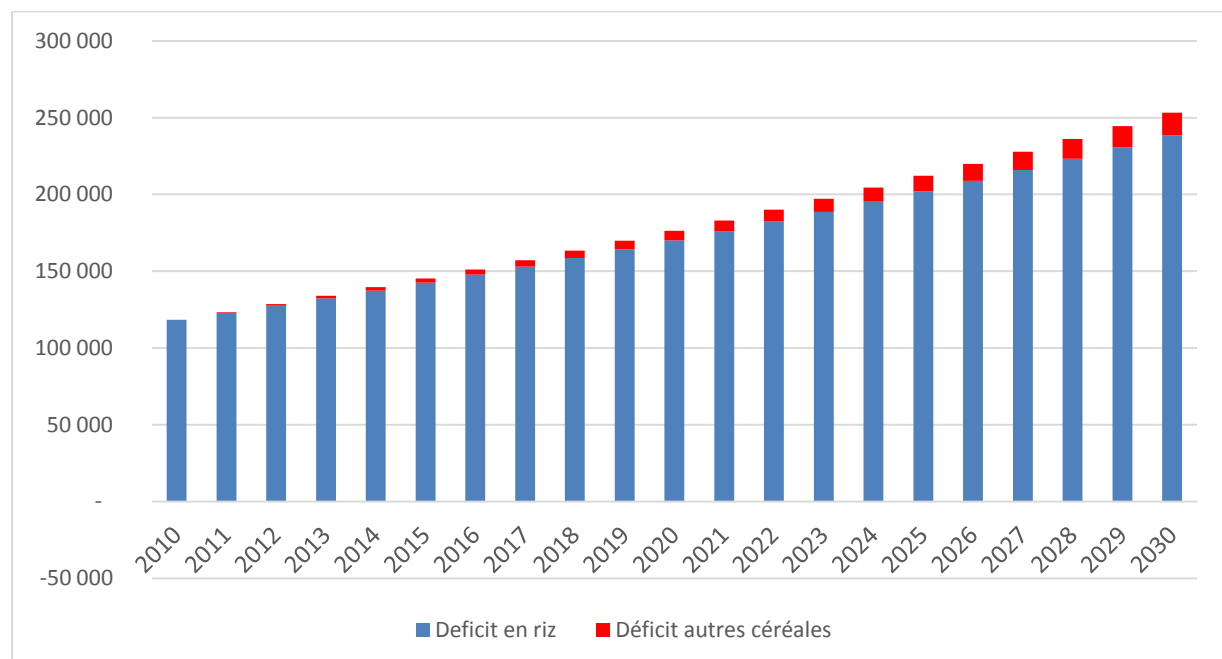


Figure 24: Share of rice in Guinea Bissau cereal deficit

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
<b>Total beneficiaries</b>	<b>54516</b>



## ■ 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.<sup>9</sup>

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
<b>Amount of Financing Requested</b>			<b>9.979 M</b>

### 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 adaptative actions on the sites and the reporting.

To allow the Project Management Unit to do a good project risk continuous monitoring and evaluation (political, strategical, 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 famers groups by the government technical experts for adaptation actions implementation; (v) capacity building to prevent forest fires.

***Output 1.2.1 Technical trainings on adaptative systems and organizational capacity building for ONGs 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 Gabù 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 concerned at least the following institutions and individuals: Regional Directorate for Plant Protection, National committee of pest and pesticide management (CNGP in French)<sup>10</sup>; 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

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<sup>10</sup> 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 farmers groups and the local administrative authorities.

### ***Output 1.2.4. Support for farmers 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. These 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 animators<sup>11</sup>. 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***

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<sup>11</sup> 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, Onio, 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 APD<sup>12</sup>, 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.

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<sup>12</sup> 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 250m<sup>2</sup>. 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 m<sup>2</sup>, 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 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.

- **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
<b>Rice (1362 ha)</b>	Yield (tonne / ha)	0.6	4	3.4
	Production of 1362 ha (tonne)	817.2	5448	4630.8
<b>Potato (200 ha)</b>	Yield (tonne / ha)	10	25	15
	Production of 200 ha (tonne)	2000	5000	3000
<b>Tomato (100 ha)</b>	Yield (tonne / ha)	8	23	15
	Production of 100 ha (tonne)	800	2300	1500
<b>Onion (100 ha)</b>	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"> <li>- Flooding of sites</li> <li>- Silting of erosion of upstream land.</li> <li>- Bush fires during the dry season</li> <li>- Land degradation</li> <li>- Reduction of agricultural productivity.</li> <li>- Destruction of soil quality</li> <li>- Increase vulnerability to the adverse effects of climate change</li> </ul>	<ul style="list-style-type: none"> <li>- Soil erosion</li> <li>- Flooding of crops during rainy season</li> <li>- -Silting up of the underworld due to sediment transport</li> <li>- Water deficits during the rainy and dry seasons</li> <li>- Drying of the gutter during the dry season</li> <li>- Degradation and destruction of soils</li> <li>- Low agricultural productivity</li> <li>- - Release of atmospheric co2 from bush fires</li> </ul>	<ul style="list-style-type: none"> <li>- Building resilience of people and livestock against the harmful effects of climate change</li> <li>- Protection of the underground flood, silting and drought</li> <li>- Sustainable use of the highlands</li> <li>- Improving and maintaining the quality of soils</li> <li>- Sustainable management of water resources</li> <li>- Sustainable management of forest resources</li> <li>- Protection of water resources and soils through improvement of the capacity of producers in the management of pesticides and chemical fertilizers</li> </ul>
At the economic level	<ul style="list-style-type: none"> <li>- Increase in expenses related to the acquisition of food</li> <li>- Diminishment of labor workforce</li> <li>- Pauperization of populations especially women and young people</li> <li>- Strong dependence on the external market for food</li> <li>- Unsteadiness of Trade Balance</li> </ul>	<ul style="list-style-type: none"> <li>- Low improvement in the incomes of farmers, including women and young people</li> <li>- Increase in expenses related to the acquisition of food</li> <li>- Diminishment of labor power</li> <li>- Pauperization of populations especially women and young people</li> <li>- Strong dependence on the external market for food</li> <li>- unsteadiness of Trade</li> </ul>	<ul style="list-style-type: none"> <li>- Improvement of women's incomes and their development</li> <li>- Improved income for producers</li> <li>- Development of the internal market in food</li> <li>- Support for the acquisition of improved seeds</li> <li>- Extension of adapted cropping techniques</li> </ul>

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

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)
<b>Operating results with Project (USD)</b>	2 159 860	1 942 800	752 520	699 240	5 554 420
<b>Operating results without the assistance of the Adaptation Funds (USD)</b>	26 754	1 160 680	292 340	292 340	1 772 114
<b>Gain from project with assistance of the Adaptation Fund (USD)</b>	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	<b>1 966 500</b>	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 CO<sub>2</sub>, (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 diversity 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"> <li>• Short-cycle seeds</li> <li>• Dissemination of varieties less demanding in water and resistant to prolonged drought periods</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural development for poverty reduction and increasing food security</li> </ul>
National	National Agriculture Investment Plan (NAIP)	<ul style="list-style-type: none"> <li>• Increase in hydraulic works, including construction of micro water retention and small dykes for water retention</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock development and increasing animal feed quality</li> </ul>
National	Letter of Agrarian Development (including Letter of Livestock Development, 2011)	<ul style="list-style-type: none"> <li>• Promotion of low-cost irrigation systems</li> <li>• Production diversification</li> <li>• Improvement of grazing fields through introduction of plants with high nutritional quality and greater production potential, especially leguminous species</li> <li>• Promotion and strengthening of production of short-cycle animals (goats and sheep)</li> </ul>	<ul style="list-style-type: none"> <li>• Water resources management</li> <li>• Lack of climate change adaptation integration</li> <li>• Setting up of an Early Warning System against climatic risks</li> </ul>
National	National Strategy for Protected Areas and	<ul style="list-style-type: none"> <li>• Protect biodiversity and</li> </ul>	<ul style="list-style-type: none"> <li>• Activities promote</li> </ul>



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"> <li>Control sustainable use of natural resources in protected areas (PA)</li> <li>Reduce slash-and-burn agriculture</li> <li>More generally: promote sustainable use of biodiversity in affected areas</li> </ul>	<ul style="list-style-type: none"> <li>Project pilots aim to avoid exceeding carrying capacities of local ecosystems through adoption of sustainable practices</li> <li>Reduce pressures for desertification and deforestation</li> </ul>
National	National Environmental Management Plan (PNGA)	<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>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</li> </ul>
Regional	Gabú and Bafatá Regional Development Plans	<ul style="list-style-type: none"> <li>Development of agricultural activities and livestock creation</li> </ul>	<ul style="list-style-type: none"> <li>Framework for implementing small-scale interventions on agricultural development, livestock and water resources management</li> <li>Highlights importance of climatic conditions for production</li> </ul>
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"> <li>Integration of climate change adaptation into development planning</li> <li>Small and medium scale climate change adaptation practices for water, agriculture and livestock management</li> <li>Capacity development on climate-resilient agriculture at local, regional and national scale</li> </ul>	<ul style="list-style-type: none"> <li>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</li> </ul>
National	Forest Master Plan and Forest Law	<ul style="list-style-type: none"> <li>Setting-up of conservation units, especially in fragile ecosystems</li> <li>Promotion of local conservation and development initiatives</li> <li>Reforestation using endemic species</li> </ul>	<ul style="list-style-type: none"> <li>Sets national framework for biodiversity conservation and sustainable use of natural resources</li> <li>Conservation agriculture and agroforestry</li> <li>Lack of climate change adaptation integration</li> </ul>
Regional	Support for the Consolidation of a Protected Area System in Guinea-	<ul style="list-style-type: none"> <li>Consolidation of protected areas (PAs) in the Forest Belt</li> <li>Initial assessment of climate</li> </ul>	<ul style="list-style-type: none"> <li>Identified key risks for agriculture and water resources in project region</li> </ul>

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"> <li>Highlights importance of reducing pressures from slash-and-burn agriculture</li> </ul>
National	National Water Code	<ul style="list-style-type: none"> <li>Rehabilitation, renewal and extension of water infrastructure</li> <li>Improving knowledge on water resources and sustainable use thereof (training)</li> <li>Integrated management of water resources (IWRM)</li> <li>Preparation of legislation on slash-and-burn agriculture</li> </ul>	<ul style="list-style-type: none"> <li>Sets framework for integrated approaches towards water resources management</li> <li>Puts slash-and-burn agriculture in the spotlight of policy discussions</li> </ul>
National	Water Master Scheme		
National	National Health Development Program II and other	<ul style="list-style-type: none"> <li>Reducing child mortality</li> <li>Research programs on climate and health</li> </ul>	<ul style="list-style-type: none"> <li>Importance of food security for health</li> <li>Improve understanding on climate-sensitive diseases</li> </ul>

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"> <li>- Output 1.1.1. Socio-climatic vulnerability assessment for East Guinea-Bissau</li> <li>- Output 1.1.2 Technical capacity needs assessment for ministry and field operatives</li> <li>- 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</li> <li>- Output 1.2.1 Technical trainings on adaptative systems and organizational capacity building for NGOs and identified target groups</li> <li>- Output 1.2.4 Support for famers groups by the government technical experts for adaptation actions implementation</li> <li>- Output 1.2.5 Capacity building to prevent forest fires</li> <li>- Output 3.1.3 Manual and other materials on best practices and measures for climate-smart agriculture are developed.</li> </ul> <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"> <li>- Output 2.1.3 Rehabilitation/improvement of soil and pasture productivity and small-scale investments into agriculture inputs, machinery and tools. This activity</li> </ul>

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 (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 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 Pitche, Pirada, Gabú, Sonaco, Contuboeil 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 Bafatà and the sector of Boé in the region of Gabù.

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	Possible complementarities and synergies with the activities of similar projects and programs implemented in Guinea Bissau:					
	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
	<p>(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</p>					
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 m<sup>3</sup>/ha, and at 3.500-7.000 m<sup>3</sup>/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"> <li>a) Maintenance or activation of the biological process of self-regeneration;</li> <li>b) Commercialization of terrestrial fauna, aquatic area;</li> <li>c) Introduction of any species of animal sel-pod, terrestrial aquatic;</li> <li>d) Destruction of animals considered harmful by, without exception, by duly authorised methods and always under supervision of the competent authorities;</li> <li>e) Regulation and supervision of the importation of exotic species;</li> <li>f) The regulation of some species more endangered animal may be subject to special protection.</li> </ul>
	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"> <li>- 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;</li> <li>- 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;</li> <li>- 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;</li> <li>- the conditions of issue of the prior authorization referred to in paragraph 2.</li> </ul> <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 Contuboe 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"> <li>- support groups for the acquisition and the multiplication of quality seeds and construction of seed banks (2.1.3 .2)</li> <li>- Support for the purchase of fertilizers and pesticides of quality (2.1.3.3).</li> </ul> <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 famers 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

<b>Checklist of environmental and social principles</b>	<b>No further assessment required for compliance</b>	<b>Potential impacts and risks – further assessment and management required for compliance</b>
<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

	<p>Proposal an Environmental and Social Management Framework (ESMF) is prepared</p>	<p>each subproject on the basis of 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 requirements of each site.</p>
<i>Access and Equity</i>	<p>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.</p>	<p>Very weak. The project implementation will guarantee access and equity to sensitive groups (including gender, elderly).</p>
<i>Marginalized and Vulnerable Groups</i>	<p>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</p>	<p>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.</p>

	disposal; therefore the project activities can be carried out without problem in collaboration with each ethnicity. The 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	No expropriation, relocation of producers or disruption of the livelihood activities of

	populations (gives criterion of choice of sites)	the producers will be undertaken.
<i>Protection of Natural Habitats</i>	All project activities will be carried out 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.	Weak. The Environmental and social 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</i>	Water resources are currently exposed to various forms of pollution associated with the use of fertilizers and pesticides	Weak. The ESMF demonstrated that the risks and impacts that the pollution of water and soil can be avoided. An Pest

<p><i>Efficiency</i></p>	<p>and manure. The project will work to prevent these types of pollution. There may be further pollution linked to the construction of small water retention, including deterioration in water quality downstream, or detrimental effects through limiting access to water by downstream users.</p>	<p>and Pesticides management plan is prepared.</p> <p>The deterioration of water quality is most often 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.</p> <p>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</p>
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		<p>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 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 managers, local village authorities, the Rural Climate Change Forums (RCCF) and the Environment vigilance Committees, (ARC)<sup>13</sup> 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>	Disease-burden may be linked to	Weak. Mitigation actions are planned in

<sup>13</sup> 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 and the environment. These two committees are complementary actors and are made up of representatives of the local population, in particular vulnerable groups and representatives of the sectors of agriculture, water, environment and forestry.



	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.	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.
<i>Physical and Cultural Heritage</i>	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.	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 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															
	Income generating activity		x	x		x								x		
End of project	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.

#### - 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).

#### - 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.

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 sector<sup>14</sup> 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
- One responsible for the development of the pasture fields.

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<sup>14</sup> In Guinea Bissau, the regions are subdivided into several administrative sectors.

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 protection<sup>15</sup>.

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.

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<sup>15</sup> See Climate-Smart Agriculture Sourcebook: FAO, 2013

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 FAO 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 give the information to the site facilitator and the project regional coordinator. In the same time, the beneficiaries will report the problem to the Regional Directorate of the DPV. The officers of the Regional Directorate of the DPV, who have received training from the FAO Expert on integrated pests and pesticides management, will conduct a field mission within 24 hours. The officers of the DPV once on the site, and after analyzing the problem, propose adequate measures in a spirit of environmental protection and human health. Mechanical control measures and biopesticides will be proposed. When the treatment requires the use of pesticides, the DPV refer to the National Pesticide Management Committee<sup>16</sup> (CNGP) who can be proposed, after analysis, the use of pesticides of Class III and U of WHO. The PMU reports to the BOAD with the conclusions of the CNGP and DPV to obtain approval for the implementation of the measures. Based on the analyses report, the BOAD will decide timely on the no-objection for the PMU to buy the class III or U pesticides. The actions proposed by the CNGP and endorsed by the implementation entity will be immediately implemented by the beneficiaries with the support of the PMU. All the fastest means of communication will be used during the process in order to act effectively in the shortest time.

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

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<sup>16</sup> 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.

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

The monitoring of the implementation of the proposed measures will be carried out by BOAD as described in section III. D

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

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



## 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
<b>Component 1: Development of technical and institutional capacity to address the increase of climate risk with the adaptation practices and planning</b>				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) 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				
<b>Component 2: Enhance the resilience of existing agricultural productive systems, including water control</b>					
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	
<b>Component 3: Knowledge management of lessons learned on climate-smart agriculture and adaptation planning</b>				
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 <sup>17</sup> . Where transparency and accountability mechanisms are weak or lacking, public financial management and development outcomes suffer as a result <sup>18</sup> .
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 <sup>18</sup>	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.

<sup>17</sup> [www.tradingeconomics.com/guinea-bissau/corruption-rank](http://www.tradingeconomics.com/guinea-bissau/corruption-rank)

<sup>18</sup> 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 <sup>19</sup>	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.

<sup>19</sup> 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)
<b>Preparation phase</b>									
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 <sup>20</sup>	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

<sup>20</sup> 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
<b>Construction phase</b>									
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
<b>Operation phase</b>									
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 <sup>21</sup>	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 <sup>22</sup> 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 <sup>23</sup>	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

<sup>21</sup> Directorate of Public Health  
Child Protection Division

<sup>23</sup> 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 for 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 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)
			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 <sup>24</sup> 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				

<sup>24</sup> 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 <sup>25</sup>	5 000

<sup>25</sup> 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	
<b>End of project phase</b>									

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 monitori 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 <sup>26</sup>	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 Laboratory	See Pollution Prevention and Efficient Resource Management

**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).**

<sup>26</sup> General Directorate of Environment

## Grievance mechanism in the framework of the project

In the line of GEF grievance mechanism, BAOD has a policy and grievance procedures manual. This manual defines the complaint resolution mechanism in the implementation of any project financed 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. The objective of the grievance mechanism is to ensure a fair and effective operationalization process, available at the project, country or the client company. Affected communities and other stakeholders which will be affected by the project can submit complaints to the Bank by mail, email, fax or phone. The 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 groups targets (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 baseline<sup>27</sup>. 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 its 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.

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.

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<sup>27</sup> A baseline situation will be specified at project start for each intervention site

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**

Tthe 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 be will 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, 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 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;
- 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.

## 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, 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 <sup>28</sup>	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)

<sup>28</sup> General Directorate of Environment

Activity	Responsible Party	Timeframe / Frequency	Budgeted Costs (USD)	Budgetary Reference
Annual Management Reports	PMU	Annual	-	members)
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)
<b>Total</b>			<b>44 000</b>	

The Monitoring and evaluation functions of the implementing entity (BOAD) are defined in the table 18 at the page 117. 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
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
<b>TOTAL INDICATIVE COST</b>		<b>US\$105,000</b>	

### 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. 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 inclinding pest and pesticides 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
<b>General Objective:</b> <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: <ul style="list-style-type: none"> <li>- 24 516 persons (4000 agricultural groups or households) direct beneficiaries of 1362 hectares developed for rice production</li> <li>- 16800 persons (2800 agricultural groups or households) direct beneficiaries of market gardens production</li> <li>- 6000 persons (1000 breeders groups or household) direct beneficiaries of 1000 ha of pasture</li> <li>- 7200 persons (1200 households) direct beneficiaries of the water supply</li> </ul>	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
	installed to support the monitoring of the adaptation of agriculture to climatic disturbances  Number of mission of monitoring and analysis of water and soil quality	project area  Absence of water and soil quality analysis in the project area	support the monitoring of the adaptation of agriculture to climatic disturbances  Equipment of the of the soil and water quality analysis available  At least one mission for water and soil quality analysis is carried out per year	Quality of the soil and water analysis equipment  Analysis report of technical services	
Output 2.1.4. Construction of drills and ramps for improved livestock and domestic water supply and market gardens development	Number of drinking water points created to supply drinking water to the population  Number of hectare developed for market gardening and number of beneficiaries	Lack of drinking water points for home consumption  Lack of market gardening undertaken due to lack of water	30 wells of water and 5 ramps to access River Corubal to improve the supply of drinking water for the population and livestock  400 ha of new market gardens are developed  16 800 persons benefit from gardening activities	Monitoring report  Annual report  Evaluation report	Full participation and involvement of beneficiaries
<i>Componet3: Knowledge management of lessons learned on climate-smart agriculture and adaptation planning</i>	Strong knowledge management strategy is put in place and operational  Lessons learned are dissiminated in the all regions of the Country	Only two sectors of one region are benefited the dissemination of climate-smart agriculture practices	At least 4 regions of the country will benefit the dissemination of climate-smart agriculture practices	Document of strategy for dissemination of knowledge and lessons learned from the project  Report of lessons learned dissemination	Full involvement of the PMU and beneficiaries
Outcome 3.1 Sustainable climate-smart agriculture practices and management is disseminated in comparable	Lessons learned from the project are disseminated trough a knowledge management strategy, a	Absence of knowledge management strategy, a manual	knowledge management strategy, manual and other materials on best practices and measures for climate-	Report of lessons learned dissemination  Final report	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
<b>Project Outcome(s)</b>	<b>Project Outcome Indicator(s)</b>	<b>Fund Output</b>	<b>Fund Output Indicator</b>	<b>Grant amount (USD)</b>
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
<b>Total</b>				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”				
<b>Date of Report</b>				
<b>Project Title</b>	Scaling up climate-smart agriculture in East Guinea Bissau			
<b>Country</b>	Guinea Bissau			
<b>Implementing Agency</b>	WEST AFRICAN DEVELOPMENT BANK (BOAD)			
<b>Project Duration</b>	05 YEARS			
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion
AGRICULTURE AND LIVESTOCK				
<b>Targeted Asset Developed</b>  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 :  - 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)		
<b>Drinking water supply</b>  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”				
<b>Date of Report</b>				
<b>Project Title</b>	Scaling up climate-smart agriculture in East Guinea Bissau			
<b>Country</b>	Guinea Bissau			
<b>Implementing Agency</b>	WEST AFRICAN DEVELOPMENT BANK (BOAD)			
<b>Project Duration</b>	05 YEARS			
<b>AGRICULTURE AND LIVESTOCK</b>	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion <sup>29</sup>
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"> <li>- 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)</li> <li>- 16800 persons (2800 agricultural groups or households) direct beneficiaries of market gardens production</li> <li>- 6000 persons (1000 breeders groups or household) direct beneficiaries of 1000 ha of pasture</li> <li>- 7200 persons (1200 households) direct beneficiaries of the water supply</li> </ul>		
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.)		

<sup>29</sup> 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"> <li>- Provide information on substantive issues in adaptation associated with the purpose of the Adaptation Fund (AF).</li> <li>- Engage in upstream policy dialogue related to a potential application to the AF.</li> <li>- Verify soundness and potential eligibility of identified idea for AF.</li> </ul>	<b>US\$ 35,000</b>
Feasibility Assessment / Due Diligence Review	<ul style="list-style-type: none"> <li>- Provide up-front guidance on converting general idea into a feasible project;</li> <li>- Source technical expertise in line with the scope of the project;</li> <li>- Verify technical reports and project conceptualization;</li> <li>- Provide detailed screening against technical, financial social and risk criteria and provide statement of likely eligibility against AF requirements;</li> <li>- Determination of execution modality and local capacity assessment of the national executing entity;</li> <li>- Assist in identifying technical partners;</li> <li>- Validate partner technical abilities;</li> <li>- Obtain clearances from AF.</li> </ul>	<b>US\$ 90,000</b>
Development & Preparation of project	<ul style="list-style-type: none"> <li>- Provide technical support, backstopping and troubleshooting to convert the idea into a technically feasible and operationally viable project;</li> <li>- Source technical expertise in line with the scope of the Project needs;</li> <li>- Verify technical reports and project conceptualization;</li> <li>- Verify technical soundness, quality of preparation, and match with AF expectations;</li> <li>- Negotiate and obtain clearances by AF;</li> <li>- Respond to information requests, arrange revisions;</li> <li>- etc.</li> </ul>	<b>US\$ 108,000</b>
Selection of the sub-project	<ul style="list-style-type: none"> <li>- Conduct subprojects screening;</li> <li>- Control the preparation of the TOR of subprojects environmental and social impact assessments;</li> <li>- Deliver no-objection on the TOR;</li> <li>- Supervise the selection of consultants to prepare subproject ESIA;</li> <li>- Reviews the sub-projects ESIA reports and ensures that assessment have been completed in accordance with the</li> </ul>	<b>US\$ 40,000</b>

Step	Indicatives services	Indicative cost
	AF Policy; <ul style="list-style-type: none"> <li>- Oversee subprojects approval;</li> <li>- Disclose the subproject ESIA reports and give information to the people concerned and others stakeholders.</li> </ul>	
Implementation of the project	<ul style="list-style-type: none"> <li>- Technical support in preparing TORs and verifying expertise for technical positions;</li> <li>- Oversee the process of recruiting consultant (FAO experts) for the training on integrated pests and pesticides management ;</li> <li>- Oversee all training activities and the application of best practice measures in the field ;</li> <li>- Provide technical and operational guidance project teams;</li> <li>- Verification of technical validity / match with AF expectations of inception report;</li> <li>- Manage the grievance mechanism;</li> <li>- Provide technical information as needed to facilitate implementation of the project activities;</li> <li>- Provide advisory services as required;</li> <li>- Provide technical support, participation as necessary during project activities;</li> <li>- Provide troubleshooting support if needed;</li> <li>- Provide support and oversight missions as necessary;</li> <li>- Receipt, allocation and reporting to the AF of financial resources</li> <li>- Allocate and monitor Annual Spending Limits based on agreed work plans;</li> <li>- Oversight and monitoring of AF funds;</li> <li>- Return unspent funds to AF.</li> </ul>	<b>US\$ 285,000</b>
Project monitoring and reporting	<ul style="list-style-type: none"> <li>- Provide technical support in preparing TOR and verify expertise for technical positions involving in the monitoring and reporting;</li> <li>- Provide technical monitoring, progress monitoring, validation and quality assurance;</li> <li>- Receives and analyzes the monthly report from the PMU on the subproject ESIA implementation</li> <li>- 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&amp;S principles of the Adaptation Fund;</li> <li>- Verify the implementation of adaptation actions planned under the project;</li> <li>- Submit annually to the Adaptation Fund, the report on the status of implementation of subprojects ESMP.</li> </ul>	<b>US\$ 105,000</b>
Project evaluation and reporting	<ul style="list-style-type: none"> <li>- Provide technical support in preparing TOR and verify expertise for technical positions involving evaluation and reporting;</li> <li>- Conduct the evaluation field missions on the different aspects of the project namely: technical, environmental, social, pest and pesticides management, budget, etc. aspects;</li> <li>- Include in the midterm and final evaluation report of the</li> </ul>	<b>US\$ 118,000</b>

Step	Indicatives services	Indicative cost
	project, the status of implementation of the environmental and social management plans of the subprojects; <ul style="list-style-type: none"> <li>- Participate in briefing / debriefing;</li> <li>- Verify technical validity / match with AF expectations of all evaluation and other reports;</li> <li>- Undertake technical analysis, validate results, and compile lessons;</li> <li>- Disseminate technical findings.</li> </ul>	
<b>TOTAL</b>		<b>US\$ 781,000</b>

### 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)
<b>Component 1: Development of technical and institutional capacity to address increasing climatic risk in adaptation practices and planning</b>	<b>700</b>	<b>133</b>	<b>833</b>
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
<b>Component 2: Enhance the resilience of existing agricultural productive systems, including water control</b>	<b>7550</b>	<b>1434,5</b>	<b>8984,5</b>
2.1: Agricultural activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security	7550	1434,5	8984,5
<b>Component 3: Knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning</b>	<b>150</b>	<b>28,5</b>	<b>178,5</b>
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
<b>Component 4: Project execution cost</b>	<b>798</b>	<b>51</b>	<b>949</b>
4.1. Investisment	13	21	134
4.2 Recurent cost	723	18	741
4.3. Monitoring and Evaluation	62	12	74
<b>BASIC COST</b>	<b>9 198</b>	<b>1 647</b>	<b>10 945</b>
Project/Programme Cycle Management Fee charged by the Implementing Entity	781		781
<b>TOTAL PROJECT</b>	<b>9 979</b>	<b>1 647</b>	<b>11 726</b>

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
<b>1.1. Technical capacity of government and field workers to assess impacts, vulnerability and adaptation needs in extremely vulnerable regions enhanced</b>											
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
<b>Sub-Total 1.1.</b>				<b>80,00</b>	<b>85,00</b>	<b>18,75</b>	<b>18,75</b>	<b>0,00</b>	<b>202,50</b>	<b>38,48</b>	<b>240,98</b>
<b>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</b>											
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 famers groups for adaptation actions implementation and integrated pest and pesticides management, tools box design, dissemination and appropriate use											
Support for famers 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
<b>1.2.5. Capacity building to prevent forest fires</b>											
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
<b>Sub-Total 1.2.</b>				<b>150,38</b>	<b>106,18</b>	<b>106,18</b>	<b>73,18</b>	<b>61,60</b>	<b>497,50</b>	<b>94,53</b>	<b>592,03</b>
<b>TOTAL 1</b>				<b>230,38</b>	<b>191,18</b>	<b>124,93</b>	<b>91,93</b>	<b>61,60</b>	<b>700,00</b>	<b>133,00</b>	<b>833,00</b>



## 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	
<b>2.1: Agricultural activities are climate-smart and contribute to sustainable increases in productivity and enhance national food security</b>											
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
<b>TOTAL 2.</b>				<b>2317</b>	<b>4523</b>	<b>475</b>	<b>55,5</b>	<b>179,5</b>	<b>7550</b>	<b>1434,5</b>	<b>8984,5</b>

### 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
<b>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</b>											
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
<b>TOTAL 3</b>				<b>5</b>	<b>33,25</b>	<b>13,25</b>	<b>49,25</b>	<b>49,25</b>	<b>150</b>	<b>28,5</b>	<b>178,5</b>

## 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	
<b>4.1. Investments</b>											
<b>4.1.1. Development / rehabilitation of local</b>											
Rehabilitation of local (Bissau, Bafatà et Gabù)	FF	2,00	2,00					2,00		0,38	2,38
<b>4.1.2. Equipment and Logistics</b>											
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
<b>4.1.3. Financial management and auditing</b>											
Audit des comptes	FF	4,00	0,00					0,00		0,00	0,00
<b>Sub-total 4.1.</b>			<b>112,60</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>12,60</b>	<b>100,00</b>	<b>21,39</b>	<b>133,99</b>
<b>4.2. Recurring costs</b>											
<b>4.2.1. Salaries / Staff Allowance</b>											
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	Gouvernement 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
<b>4.2.2. Fees for Missions</b>											
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
<b>4.2.3. Maintenance and Operation</b>											
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
<b>Sub-total 4.2.</b>			<b>142,70</b>	<b>145,15</b>	<b>145,19</b>	<b>145,19</b>	<b>145,17</b>	<b>723,40</b>	<b>0,00</b>	<b>17,75</b>	<b>741,15</b>
<b>4.3. Project planning, monitoring and evaluation</b>											
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
<b>Sub-total 4.3.</b>			<b>15,40</b>	<b>5,40</b>	<b>17,40</b>	<b>5,40</b>	<b>18,40</b>	<b>62,00</b>	<b>0,00</b>	<b>11,78</b>	<b>73,78</b>
<b>Total</b>			<b>270,70</b>	<b>150,55</b>	<b>162,59</b>	<b>150,59</b>	<b>163,57</b>	<b>798,00</b>	<b>100,00</b>	<b>50,92</b>	<b>948,92</b>

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
<b>Total (X 1000 USD)</b>	<b>3034</b>	<b>4718</b>	<b>1040</b>	<b>574</b>	<b>613</b>	<b>9979</b>



Table 32: Schedule for implementation of the project

TOPICS	Years					
	1	2	3	4	5	6
<b>Component 1: Development of technical and institutional capacity to address increasing climatic risk in adaptation practices and planning</b>						
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						
<b>Component 2: Enhance the resilience of existing agricultural productive systems, including water control</b>						
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						
<b>Componet 3: Knowledge management of lessons learned on climate-smart agriculture and adaptation planning</b>						
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. Developement 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
<b>BASIC COST Adaptation Funds</b>	<b>9198</b>	<b>2723,075</b>	<b>4897,975</b>	<b>775,765</b>	<b>347,265</b>	<b>453,92</b>
Project/Programme Cycle Management Fee charged by the Implementing Entity	781					
<b>TOTAL Adaptation Funds</b>	<b>9979</b>	<b>2723,075</b>	<b>4897,975</b>	<b>775,765</b>	<b>347,265</b>	<b>453,92</b>

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 implementation 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

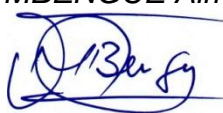
COMPONENT	TOTAL HT (1000 USD)	An 1	An 2	An 3	An 4	An 5
Component 4: Project execution cost						
Acquisition of vehicles	90	90				
Rehabilitation of the LDCF Project vehicles	10	10				
<b>Total BOAD</b>	<b>100</b>					

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

**A. Record of endorsement on behalf of the government<sup>30</sup>** *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: August, 5 <sup>th</sup> , 2017
---	--------------------------------------

**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, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> 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: August, 5 <sup>th</sup> , 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	

<sup>6</sup>. 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

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## Annex 1: Letter of endorsement





**Letter of Endorsement by Government  
Government of Guinea Bissau**

Bissau, 10<sup>th</sup> April, 2017

To : The Adaptation Fund Board  
C/o Adaptation Fund Board Secretariat  
Email: [Secretariat@Adatation-Fund.org](mailto:Secretariat@Adatation-Fund.org)  
Fax: 202 522 3240/5

N/Ref<sup>o</sup> 19 /DGA/2017

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.



Mr. Viriato Luis SOARES CASSAMA  
National Designated Authority (NDA)

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Bissau, Guinée Bissau

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## Annex 2: Certificate of Environmental Compliance

## **DECLARAÇÃO DE CONFORMIDADE AMBIENTAL**

**DCA Nº006/SEA/2016**

O Secretário de Estado do Ambiente enquanto Autoridade Ambiental Competente e no uso das suas competências atribuídas pela Lei nº 10/2007 de 24 de Setembro no seu artigo 45º alínea b, conjugado com o artigo 27º, número 2, concede a presente Declaração, que aprova a viabilidade 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 Bobo, Copiro e Sago/Fulamori), Sector de Pirada (Soncocumba, Sissaucumba, Durabali e Sambataco), Sector de Gado (Cumpaghor e Bada) e Sonaco (Colicunda) e Região de Bafatá, concretamente nos Sectores de Contuboel (Maduro, 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 32º da Lei supra citada, esta Declaração constitui a expressão formal de 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 e óleo em uso nesta Instituição.

Bissau, 12 de Dezembro de 2016

CELULA DE AVALIAÇÃO DE IMPACTE AMBIENTAL

  
Eng. Bernardo Brasima 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

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**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 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” (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 Gabù, 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
<b>3.1 Program design and formulation</b>		
<b>3.1.1 Quality and pertinence of the project process formulation</b>		
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"> <li>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.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>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).</li> <li>Several PRODOC project <i>objective level</i> and <i>outcome level</i> indicators were not considered SMART (specific,</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Project indicators for the Adaptation Fund project proposal need to be designed more carefully in order allow for consistent M&amp;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.</li> </ul>

	<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&amp;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"> <li>• 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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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.)</li> </ul>
<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"> <li>• 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.</li> </ul> <p><u>What could be improved:</u></p>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	
<b>3.1.2 Project relevance to the political context of Guinea-Bissau</b>		
<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"> <li>• 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.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• The identification of project initiatives outside government may have been insufficient, as this has been highlighted during the review process by the Adaptation Fund.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• The Intended Nationally Determined Contributions (INDC) may be taken into account the new project</li> </ul>
<b>3.1.3 Status of risks and assumptions formulated in the PRODOC</b>		
<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"> <li>• In general assumptions and risks identified in the PRODOC were relevant and clearly identified. Two identified risks ("bad financial management and</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• Identified risks and risk hypotheses were relevant and clearly identified. Therefore, the new Adaptation Fund project could rely on updated risk hypotheses based</li> </ul>



<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"> <li>• 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.</li> </ul>	<p>on LDCF project assumptions.</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
<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"> <li>• Risk validation was undertaken by the project team throughout the project.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
<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"> <li>• 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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• The project managed to maintain operations despite difficult political situations and other emerging risks. This indicates that political risks were sufficiently</li> </ul>

	<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"> <li>• 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).</li> <li>• 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&amp;E for field interventions (see question 1.1).</li> </ul>	<p>anticipated, and that risk management was appropriate under the circumstances.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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</li> </ul>
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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><b>3.1.4. Project management structures and contribution to effective and efficient project development</b></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"> <li>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.)</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul>
<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"> <li>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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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</li> </ul>

	<p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Financial resources for Bissau and field staff in Gabú were often insufficient to implement work activities given bureaucracy linked to procurement processes</li> </ul>	<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"> <li>• 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.</li> <li>• 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.</li> <li>• 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</li> </ul>
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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"> <li>• 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.</li> </ul>	<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"> <li>• 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.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
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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"> <li>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.</li> <li>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)).</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>Participating NGOs should provide work and financial plans, use bookkeeping and undergo monitoring and evaluation (M&amp;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</li> </ul>

	<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"> <li>• 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.</li> <li>• 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.</li> </ul>	<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"> <li>• 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.</li> </ul>
<p><b>3.2.2 Adequacy of monitoring and evaluation mechanisms</b></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"> <li>• 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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>

	<p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• No M&amp;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&amp;E indicators were not consistently SMART, and baselines were not established for any indicator (see 1.1.).</li> <li>• 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&amp;E activities and planning (2014, 2015 and 2016).</li> <li>• 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</li> </ul>	<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"> <li>• 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&amp;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.</li> </ul>
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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"> <li>No consolidated M&amp;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.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>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&amp;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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>A new project under the Adaptation Fund should invest strongly into a consolidated M&amp;E system for the project, in order to facilitate adaptive management. Strengthening capacities in this regard will likely have benefits for overall project coordination.</li> </ul>
3.2.2.3. Are stakeholders being consulted in the implementation?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>The level of involvement of different line ministries was judged positive, especially were MOUs were signed.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>Institutional communication and collaboration with institutional partners should be strengthened. This is with regards to Partnership Protocols and their implementation (see above).</li> </ul>

	<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"> <li>• 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.</li> </ul>	
<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"> <li>• 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.</li> <li>• 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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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&amp;E system.</li> <li>• Gender sensitivity of community forest protection should be studied more closely, given that male household members are largely responsible for slash-and-burn agriculture.</li> <li>• Initial vulnerability assessment is necessary in order to identify vulnerable community groups.</li> </ul>

	<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"> <li>• The documentation of the project impact on equity and gender issues is insufficient, which can be linked to lacking M&amp;E efforts and baselines in the project (see 1.1, 6.4.).</li> <li>• 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.</li> <li>• Not in all cases the most vulnerable populations were really addressed (some populations were not really the most vulnerable).</li> <li>• The current project team seems to have few female members, and no direct gender specialist.</li> </ul>	
<p><b>3.2.3 Effectiveness of project implementation</b></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"> <li>• 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&amp;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:</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>

	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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</li> </ul>	<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"> <li>• Water infrastructure needs to be better integrated into the subproject development at village level. This is discussed more below.</li> <li>• As noted above, it is unclear if subproject activities contribute to resilience building – given that no baseline has been established and no systematic M&amp;E undertaken, the contribution those activities have for family farmers cannot be clearly analyzed and affirmed.</li> <li>• 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.</li> </ul>	
<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"> <li>• 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.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Mechanisms should be sought to make other functional structures, in order that the Comité Inter-</li> </ul>

	<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"> <li>• Participation of project steering committee and other organs was insufficient (see above).</li> <li>• 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.</li> </ul>	<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"> <li>• 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.</li> </ul>
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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"> <li>• 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.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
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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"> <li>In general, the project is complementary to ongoing initiatives in the target region.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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.)</li> </ul>
<p><b>3.2.5 Project contribution to building of adaptive capacities of the beneficiaries</b></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"> <li>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.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>

	<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"> <li>• 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.</li> <li>• Food stocks and feed stocks were not directly requested by farmers but nevertheless seem to</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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 –</li> </ul>



	<p>support resilience building.</p> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>• 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"> <li>- 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;</li> <li>- 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;</li> <li>- 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;</li> <li>- 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'</li> </ul> </li> </ul>	<p>decentralized water access avoids these kind of problems).</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Activities to reduce slash-and-burn agriculture and</li> </ul>
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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"> <li>- 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;</li> <li>- Encourage communities to increase grain production and consequently crop diversification, and increase of area under cultivation.</li> <li>• 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.</li> <li>• 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,</li> </ul>	<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"> <li>• 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.</li> <li>• 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</li> </ul>
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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"> <li>• 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.</li> <li>• 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.</li> <li>• Lack of interest of some communities in technologies</li> </ul>	<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"> <li>• 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.</li> </ul>
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	<p>due to perceived lack of climatic risk (p. 13 Mangla).</p> <ul style="list-style-type: none"> <li>Limited reach of several community radios and constant technical problems, particularly during rainy season, affect the project's outreach strategy.</li> </ul>	
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"> <li>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&amp;E.</li> </ul> <p><u>What could be improved:</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul>
<b>3.2.6 Sustainability of activities and the impacts achieved by the project, and replication potential</b>		
3.2.6.1. What is the level of local ownership?	<p><u>What has worked:</u></p> <ul style="list-style-type: none"> <li>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</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>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</li> </ul>

	<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"> <li>• 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.</li> </ul>	<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"> <li>• 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.</li> </ul> <p><u>What can be improved:</u></p> <ul style="list-style-type: none"> <li>• Given the lack of continuous M&amp;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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• 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&amp;E will be an essential support to achieve this objective.</li> </ul>
<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"> <li>• Mid-term evaluation suggested to develop an accurate replication strategy (Recommendation #16).</li> <li>• The project had not developed a document on good practices and lessons learned from the LDCF project, in part undertaken in this report.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• New planned work packages taking into consideration the necessity of upscaling.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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,</li> </ul>
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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"> <li>• 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.</li> </ul>	<p><u>Lessons learned:</u></p> <ul style="list-style-type: none"> <li>• Due to the fragility of the State, continuity of activities after the project would rely largely on own interest by the famers and support from decentralized structures established by the LDCF project, which, however, may have limited resources to contribute to on-the-ground interventions.</li> <li>• 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.</li> </ul>

## ANNEX

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### **A. List of references consulted**

- Eakin, H., Lemos, M.C., Nelson, D. (2014). Differentiating capacities as a means to sustainable climate change adaptation. *Global Environmental Change* 27, pp. 1-8.
- Nantchia, M. (2016). Contribuição na Elaboração de documento de projeto Agricultura Inteligente face as Mudanças Climáticas. Report to Global Lead, Bissau.
- SEAT, BOAD (2016). Scaling up climate-smart agriculture in East Guinea Bissau. Project Concept Note to the Adaptation Fund, Bissau, Lomé.
- Porter, J.R., Xie, L., Challinor, A.J., et al. (Orgs.) (2014). *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel of Climate Change.* Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA
- Quesne, G., Jandi, Issa (2013). Evaluation mi-parcours “Renforcement de la Résilience et de la Capacité d’Adaptation des secteurs agricole et hydrique aux changements climatiques en Guinée-Bissau”. Final Report. Baastel, Brussels.

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 the 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

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## POTENTIAL SITES IDENTIFICATION REPORT

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July 2016



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## I. INTRODUCTION

Guinea-Bissau is located in West Africa, it is a small country of 36.125 km<sup>2</sup> 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. Baghagar 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						
<b>Gabú region</b>									
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 90 150 150 150
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"> <li>• Coida Sinho</li> <li>• NEMA I</li> <li>• Leibalda</li> <li>• Doubalda</li> </ul>	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
<b>Bafatá region</b>									

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- Gelo Balde
- 5- Senba Balde
- 6- Melai Embalo'
- 7- Djan Sise
- 8- Sida Balde
- 9- Amadei woi so
- 10- Braima so
- 11- Usurmane Balde
- 12- Bubacoz so
- 13- Usurmane so
- 14- Salgo so
- 15- Tehane so
- 16- Unade so
- 17- Nando Balde
- 18- Saida Balde
- 19- Isaka Balde
- 20- Salin Embalo'
- 21- Hasane
- 22- Usurmane so

Jony AN

6  
7

- DR. CARVALHO

22-Tabu Embalo Copa Pangui  
24-Marima Embalo 2  
25-Mamadjan Camara  
26-Tabu Balde  
27-Mumine So  
28-Mariana 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

n.º	Nome	Tabanca/sector	Contacto
71	Isnoba Na Batales'	Prictt	536 01 70
	Dunhe' Bandjai	CamadJaba	544 06 13
	Djaba Ngofue	CamadJaba	543 23 43
	Fenda cantore	CamadJaba	5542755
	Adama embalo	CamadJaba	543-18 54
	Amado Anore'	CamadJaba	543-29 69
	Tomboim Camara	CamadJaba	16939966
	Atali Borsodji	CamadJaba	5511439
	ARTAN BANDJAI	CamadJaba	5770613
	TUNCAN Camara	CamadJaba	6789864
	Amadou Toké	CamadJaba	5632977
	Bolcar Camara	CamadJaba	5492842
	Coel Bolde		586079D
	BAGIRO camara		586-49-50
	Selo Samba	CamadJaba	5702005
	Adama Embalo	CamadJaba	6640953
	Long out	PRRORATE	

Lista de presença 16/7/15

- Administração do Setor de Pitche
- 1 - Louy Ant  $\Sigma$  - 5307577
  - 2 - Isnady Na Batches
  - 3 - Garcia Pocar Embaló
  - 4 - Maku Moxi 6632306 / 5360994
  - 5 - Taia Cassamá 6954061 / 5114978
  - 6 - O Nuno Injevi 5804391 / 6605183.  $\checkmark$

Lista de presença 16/7/15

Benfica

N/O	Nome	Tabanca	Contacto
01	Isndso Na Batela	Pitche	5360170
2	Mamadou Zeré Balde	BENFICA	613 2247
3	Samba djaô	BENFICA	927 6931
	Umaro Baldé	BENFICA	925-29-38
	Alfa Balde	BENFICA	6115082
	fode Judjai	BENFICA	- - - -
	Usumane Balde	BENFICA	5555779
	BOBOBALDE		503 5385
	Lummp Jq		530777
	Garcia facan Embalo		5367317
	QWamr Srijai		5804391



Seelys Mandinga 15/7/15  
Lista presunç

Mulheres

- 1- Gene Fimbalo'
- 2 - Saleimane Balde'
- 3 - Buki Fati'
- 4 - Mamadu Fati'
- 5 - fodi Cassama'
- 6 - Talam 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 - Marate'
- 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 - Mariana Quebe'
- 40 - Assi Cassama'

Associação Tessito - Sonaco 17/7/2018

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 turé
- 7- Cadi Camara
- 8- Ude Turé
- 9- Tidandim turé
- 10- Ami Mane'
- 11- Mandjilam fati
- 12- Djaka' turé
- 13- fatumata Sidiibe'
- 14- Suucah Sisse
- 15- Mane' zanhā
- 16- Numo Blai
- 17- N'Djabi Cassama'
- 18- Aua Ducure'
- 19- N'GONH N'DAMI
- 20- Essis f. 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

Sector	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
-1-	-1-	Sona Balde	Agricultor		
-1-	-1-	Fatumata Balde	-1-		
-1-	-1-	Seba Balde	-1-		
-1-	-1-	Umo Buede	-1-		
-1-	-1-	Djenabo Embalo	-1-		
-1-	-1-	Bou Buede	-1-		
-1-	-1-	Bire Djan	-1-		
-1-	-1-	Cumba Seide	-1-		
-1-	-1-	Mariato Balde	-1-		
-1-	-1-	Bassi Buede	-1-		
-1-	-1-	Sona Balde	-1-		
-1-	-1-	Ramiro Balde	-1-		
-1-	-1-	Cumba Djan	-1-		
-1-	-1-	Seuto Buede	-1-		
-1-	-1-	Shanha Balde	-1-		
-1-	-1-	Badi Balde	-1-		
-1-		Ture Balde	-1-		
-1-		Jurandi Balde	-1-		
-1-		Musca e Sane	-1-		
-1-		Yobel Seide	-1-		

Data \_\_\_\_\_/\_\_\_\_\_/2016



# REGA GABU

Lista de pessoas encontradas durante as missões de terreno

Sector	Tabanca	Nome e Apelido	Função	Contacto	Assinatura
Pirada	Somocunda	Alfa Balde	Chefe Tabanca	966805241	ALFA
	-	Aua Balde	Agricultura		
	-II-	Aua Balde	-II-	966026016	
	-II-	Mariana Embalo	-II-		
	-II-	Fanta Balde	-II-		
	-II-	Inaba Balde	-II-	966080799	
	-II-	Faleniata Embalo	-II-	966148153	
	-II-	Mariung Gano	-II-		
	-II-	Issa Embalo	-II-		
	-II-	Tadfaue Balde	-II-		
	-II-	Hornadu Balde	Agricultor		
	-II-	Sadjo Embalo	-II-	966087523	Mikhomphu
	-II-	F		8866636	
	-II-	Fero Embalo	-II-		
-II-	-II-	Cumbael Gau	Agricultora		
-II-	Sessauceim da Alu	Sori Embalo	Chefe Tabanca	6378195	
	-II-	Enilde Kebe	Agricultor		Dauwe
-II-	-II-	Cadpato Balde	Agricultora		
-II-	II-	Alfa Embalo	-II-	966378195	ALFA
-II-	-II-	Bubacar Balde	Alfame	966650265	Bubacar
-II-	Durbali	Bubacal Gau	Chefe de Tabanca	966084458	Bubacal
-II-	-II-	Pranua Sori Balde	Agricultor	966311980	
-II-	-II-	Tuncam Gau	-II-	966385393	
-II-	-II-	Mama Saka Gano	-II-	966099486	5914211 GC
-II-	-II-	Madiu Gau	-II-	966016304	
-II-	-II-	Salimata Gau	Agricultora	966134072	115110000
-II-	-II-	Ocha Gande	-II-		
-II-	-II-	Aisato Gau	-II-		
-II-	-II-	Aua Gau	-II-	969208343	AUAGAU
-II-	-II-	Gumba Embalo	-II-	966980538	
-II-	-II-	Amado Gau	-II-		
-II-	-II-	Tenem Gano	-II-	966128763	
-II-	-II-	Alfene Gande	Agricultor	9661040406	
-II-	-II-	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 <del>ITA</del>	S. permissão	955379402	<i>[assinatura]</i>
-II-	-II-	Musad Tali	S. executivo	955841493	<i>[assinatura]</i>
Ganado	Cuemana	Sambao Candé	chef tabanca		
-II-	-II-	Amado Balde	Agricultor	966433866	<i>[assinatura]</i>
-II-	-II-	Abdelai Candé	-II-	-II-	ALIAI
-II-	-II-	Sana Balde	-II-	-II-	A
-II-	-II-	Tero Candé	-II-	-II-	
-II-	Pacua	Secoba Cassama	Chefe tabanca	966387738	
-II-	-II-	Oocari Dairama	Agricultor		<i>[assinatura]</i>
-II-	-II-	Amado Balde	Professor	966381776	<i>[assinatura]</i>
-II-	-II-	Secoba Cassama	criador gado		<i>[assinatura]</i>
-II-	-II-	Abdu Adom	Agricultor		<i>[assinatura]</i>
-II-	-II-	Salato Dabo	-II-		
-II-	-II-	Djilku Camara	Agricultora		
-II-	-II-	Abdi Cassama	criador gado		
-II-	-II-	Sen. Dabo	Agricultor		
-II-		Praina Cassama	-II-		
-II-		Praina Tambado	criador gado		
-II-		Malam Parua			
-II-	St. Boko	Bunta Djau	Agricultora		
-II-	-II-	Uma Bonde	-II-		
-II-	-II-	Anjaro Yamana	-II-		
-II-	-II-	Fatimata Balde	-II-		
-II-	-II-	Anjaro Balde	-II-		
-II-	-II-	Djenato 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
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 Saue	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-	Fatemata Camara	Agricultora		
	-II-	Akanata Balde	-II-		
	-II-	Cadjata Candé	-II-		
	-II-	Maimuna Balde	-II-		
	-II-	Tenem Candé	-II-	966002574	<i>Tenem Candé</i>
	-II-	Mila Balde	-II-		
	-II-	Godjo Djou	-II-		
	-II-	Aissate Saue	-II-		
	-II-	Tchadia Djou	-II-		
	-II-	Ussai Balde	-II-		
	-II-	Moude Balde	-II-		
	-II-	Nhalim Danfa	-II-		
	-II-	Gele Djassi	-II-		
	-II-	Keneba 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 boel	GALI- GADA	Sidi Danso	Chefe tabanca		
-II-	-II-	Dyadji Danso	Agricultor		
-II-	-II-	Ngobi Sanka			
-II-	-II-	Bacar Danso		966788716	Bucon
-II-	-II-	Banna Dabo	Agricultora		
-II-	-II-	Nhina Casama	-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	Kouli/Conte
-II-	-II-	Saejo-fati	-II-		
-II-	-II-	Cadi 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-	Mamedo Danso	-II-	966334398	ISSA
-II-	SANE-	Mamedo Nhamado	Chefe tabanca	969280880	Mamedo
-II-	CUNDA	Mamedo Nhamado	Agricultor		Nhamado
-II-	-II-	Vma Djamanca	Agricultora		
-II-	-II-	Maritima Seide	-II-		
-II-	-II-	Badjati Babli	-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	Sonocundo	Alfa Balde	chefe tabanca	966805241	ALFA
	-	Aula Balde	Agricultura		
	-	Ana Balde	-	966026016	
	-	Mariana Embalo	-		
	-	Fanta Balde	-		
	-	Maba Balde	-	966080799	
	-	Fatunata Embalo	-	966148153	
	-	Mariana Gano	-		
	-	Issa Embalo	-		
	-	Tadfaul 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	Agricultor		
-	-	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
-	-	Madiu Gau	-	966016384	
-	-	Salimki Dfalo	Agricultor	966134072	11511000
-	-	Ocha Candé	-		
-	-	Aisato Dfalo	-		
-	-	Aua Dfalo	-	969208343	AVADJO
-	-	Gemba Embalo	-	966980538	
-	-	Amado Dfalo	-		
-	-	Tenem Gano	-	966128763	
-	-	Alcane Candé	Agricultor	966140406	
-	-	Eodo Balde	Agricultor	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 <del>da</del>	S. permissão	955379402	
-II-	-II-	Museu Tali	S. excepção	955841493	
Ganado	Cuenana	Samburo Cande	Chefe Tabanca		
-II-	-II-	Amado Balde	Agricultor	966433866	
-II-	-II-	Abdelai Cande	-II-	-II-	ALAI
-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 Adem	Agricultor		Abdu Adem
-II-	-II-	Salep Dabo	-II-		
-II-	-II-	Djillem Camara	Agricultora		
-II-	-II-	Abdu Cassama	criador gado		
-II-	-II-	Sen. Dabo	Agricultor		
-II-		Prima Cassama	-II-		
-II-		Prima Tambado	criador gado		
-II-		Malam Narua			
-II-	St. Bobo	Bunta Djau	Agricultora		
-II-	-II-	Iema Balde	-II-		
-II-	-II-	Ansaro Gamanta	-II-		
-II-	-II-	Fatimata Balde	-II-		
-II-	-II-	Ansaro 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
GANADU	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-	Duco Saue	Agricultora		
-II-	-II-	Aissate Djassi	-II-		
-II-	-II-	Messobu Camara	-II-		
-II-	-II-	Citavo Candé	Agricultor		
-II-	-II-	Tcherno Candé	Agricultor	966560784	Tcherno Candé
	-II-	Fatimata Camara	Agricultora		
	-II-	Akanate Balde	-II-		
	-II-	Badjata Candé	-II-		
	-II-	Malmusa Balde	-II-		
	-II-	Yenem Candé	-II-	966002594	Yenem Candé
	-II-	Mela Balde	-II-		Mela Balde
	-II-	Godjo Djau	-II-		
	-II-	Aissate Seide	-II-		
	-II-	Tchadjo Djau	-II-		
	-II-	Ussai Balde	-II-		
	-II-	Moude Balde	-II-		
	-II-	Nhalim Danfa	-II-		
	-II-	Gele Djassi	-II-		
	-II-	Jeneau 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	Syadu Danso	Agricultor		
-II-	-II-	Ngei Sanka			
-II-	-II-	Bacar Danso		966783716	BACAR
-II-	-II-	Bama Dabo	Agricultora		
-II-	-II-	Nhina Casani	-II-		
-II-	-II-	Malam Dabo	Agricultor		
-II-	-II-	Malam Dabo	-II-	966933262	
-II-	-II-	Bacar Danso	-II-	9668164962	
-II-	-II-	Masso Danso	-II-	-	
-II-	-II-	Malam Danso	-II-	-	
-II-	-II-	Badji Conte	Agricultora	966472275	Kouli Conte
-II-	-II-	Safo-fati	-II-		
-II-	-II-	Gani Mama	-II-		
-II-	-II-	Dana Danso	-II-		
-II-	-II-	Geita 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-	Vna 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-	Djenabo Caude	Agricultora	966619678	Djenabo Caude
	-II-	Essai Enebalé	-II-		Essai Enebalé
	-II-	Alfene Balde	Agricultor	966074430	Alfene Balde
	-II-	Djenabo Balde	Agricultora	966819375	Djenabo Balde
	-II-	Safiato Djau	-II-	966462995	Safiato Djau
	-II-	Djama Djamanca	-II-		Djama Djamanca
	-II-	Bale Djamanca	-II-	969252918	Bale Djamanca
	-II-	Jayato Caude	-II-		Jayato Caude
	-II-	Marrama Balde	-II-	969096253	Marrama Balde
	-II-	Umaro Djamanca	Agricultor	966554531	Umaro Djamanca
	-II-	Jara Balde	-II-	969225516	Jara Balde
	-II-	Jama Seide	-II-	966666070	Jama Seide
	Mayato	Saco Balde	Adj. chefe tabanca	969108871	Saco Balde
	-II-	Adela Balde	Agricultor		Adela 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	966127395	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**



Name	Sex	Signature	Comments	Date	Other
Nhama Camara	F	Nhama Camara			
Wassane Balde	F	Bel			
Amats Als	F	96689311 - 26064			
Nhama Beene	F	Nhama			
Cotona Balde	F	Blues			
Alueto Opelo	F	Alueto			
Sakwito Silg	F	Sakwito			
Amats Balde	F	Amats			
Nhama Beene	F	Nhama			
Fetwats Balde	F	966932660 - Fetwats			
Fetwats Beene	F	966400431 - Fetwats			
Balder Ples	F	Alueto			
Nhama Beene	F	Alueto			
7 Balde	F	Alueto			
Femin Beene	F	Alueto			
189 Balde	F	966946930 - Inna Balde			
Alueto Silg	F	Alueto			
Amats Balde	F	966112598 - DERBAEL			
Sakwito Balde	F	Alueto			
Saco Balde	F	966322783 - Saco Balde			
Beene Amats Balde	F	96618500/955891889 - Beene Amats Balde			



(1)

Localité ..... Copa Mangue .....Liste 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 Jaci'	Agricultora	9	f	JENABO
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	LONDOU
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 Fotubez
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 EMBAL
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 ..... Seleur 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	<del>9</del>	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	Mouss 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	Haoude 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 Gabon**







# Reunion avec les services techniques et ONG à Gabon

Noms et Prénoms	Titre	Contact	Signature
1- Mamadi Bo Djoko	Gouverneur	966611576	
2- Mangla Nantchia	Expert en Agriculture	966683376	
3. Mama du Ali <sup>CP</sup> Diallo	Protec Civil	95533210	
4. Isneba Na Batches	Animator	955360170	
5. Laurindo Bossana	Dir. sec. Exec. FRAC	955939595	
6. Lassana Jam	Director	955707456	
7. Garcia Jacar	Embalo' EXPERT EN ADAPTATION	955367317	
8. Bernardine dos Santos	G.D.V.R. - Gestion de qualité 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 - Márcio Costa Brito Nogueira	PR aquaculture	96613339/955417246	
12 - Satene Silá 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 &amp; Prénoms</u>	<u>Poste / spécialité</u>	<u>Institution</u>	<u>Adresse</u>	<u>Signature</u>
1. Viriato Correia	Dir. Inf. G / Proj. coord.	SEA	Cassamauluse Gmail	
2. André Saer	ANPP UNDP	UNDP	 claudia.sauer@undp.org	
3. DJABARE Kamma	spécialiste Développement Durable	Global lead	benjoni@gmail.com	
4. MARTIN OBER MAER	INTERNATIONAL CONSULTANT	UFRJ	MARTIN@PPE.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 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	Amadu Djalo	Lavrador	966326199	M	
18	Iaia Djalo	Lavrador	966327967	M	
19	Ibrahima Djalo	Lavrador	6656468	M	
20	Adoufai Djalo	Lavrador	66411142	M	
21	Ibrahima 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	chef de tabanca		MAS	N Sabe
2	Safiato Corobum	Agricultora	966393197	femi.	Safiato Corobum
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.	x Satam Seide
8	Djium Sanha	— " —	—	femi.	x Djium Sanha
9	Djenabi Mané	— " —	—	femi.	x Djenabi MANE
10	Djuci Danfa	— " —	—	femi.	x Djuci Danfa
11	Sali Biai	— " —	—	femi	N Sabe
12	Aramata Biai	— " —	966869890	femi.	x 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.	x Lassana conte
24	Bacar Bieci	— " —	—	MAS.	x Bacar Bieci
25	Madi Biai	— " —	—	MAS	x Madi Biai







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	Iebe So'
6	Mariama Queita	— " —	955860664	Femi	Mariama
7	Sadio Embaló	— " —	—	Femi	Sadio Embaló
8	Ejué Balde'	— " —	—	Femi	Ejué Balde'
9	Jenabó Balde'	— " —	—	Femi	Jenabó Balde'
10	Fandi Ganó	— " —	—	Femi	Fandi Ganó
11	Umo Bari	— " —	966784603	Femi	Umo Bari
12	Cadidjato Culubali	— " —	—	Femi	Cadidjato Culubali
13	Cadidjato Balde'	— " —	—	Femi	Cadidjato Balde'
14	Mariama Embaló	— " —	—	Femi	Mariama Embaló
15	Cadidjato Balde'	— " —	—	Femi	Cadidjato Balde'
16	Haulato Balde'	— " —	—	Femi	Haulato Balde'
17	Zania Gomes	— " —	—	Femin	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	—	Femin	Jenabó Sera
22	Cerca Bari	Agricultor	969228476	MASC	CERCA BARI
23	Mariama Balde'	Agricultora	—	Femin	Mariama
24	Umo Culubali	Agricultora	—	Femin	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

Groupement .....de .....

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 Sane	Domestica	-	F	não sabe
54	Cadidjaro 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'	<del>Domestica</del>	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	Mangla
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 <sup>CD</sup> Ngalo	Protec Civil	95533210	
4- Isneba Na Batcha	Animator	955360170	
5- Saouirido Lassana	Dir. 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'élecage	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 Bafata	966978095 955947635	ahelisoubri@gmail	Aheli
02	Berha Nambunde'	Direct. Reg. Ag. Bafata	966890425 955132313	-	B. Nambunde'
03	Midana Iota	S. pcuraria	966647328	-	M. Iota
04	Manuel Mares	Rec. Hichien	966836878	-	M. Mares
05	Bubacor Balor'	P. R. F. foma	966700428	-	B. Balor'
06	Brunna Seide Sa'	Facilitator de servico	955438755	-	B. Seide Sa'
07	Alexandre A. Hango	proiecao civil	955375319	-	A. Hango
08	Ladana Mani	Tecnicos Estatisticos	955593333	-	L. Mani
09	Fode' Mamefi	Supervizor Responsavel	955264392	-	F. Mamefi
10	Mangla Nantchia	Perito Projeto	955209928 966685376	nantchiamangla @yahoo.com.br	M. Nantchia
11	DJABARE' Komna	Global lead	+22891433970	benjiew@gmail.com	D. Komna
12	Suleimane Djassi	Secre. Car. Adm. Instructivo do Sector	966639547 955115171	-	S. Djassi
13	Mania Ausenda	Bambadineca	-	-	M. Ausenda

Administradora  
Sector d'Centuracao  
Administrador  
Sector de Pirada

96 6554545

96 6554545

14 Abito Balde'



## **Annex 9.4. Meeting with fire control comity of Mampuro**

Comité de lutte contre les feux de savane  
de NAMPULO

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	955139699		Hqminka
01	Mama Samba Seidi	Présidente GIIT	-		não sabe
	Aminara Embalo	Vice-Présidente GIIT	-		não sabe
	Djenabo Seidi	Coordenadora GIIT	-		não sabe
	Maimuna Embalo	financeira GIIT	-		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**





ADAPTATION FUND



República da Guiné-Bissau  
SECRETARIA DE ESTADO DO AMBIENTE  
Direção Geral do Ambiente



BOAD  
NATIONAL CLIMATE AGENCY  
OF GUINEA-BISSAU

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 Balé	Batata - Rep. de Govern.	966095282	
2.	Fontemba Jomor	Estado - Serviço Administrativo	966556455	
3.	Yolom Yone	Pitche/Secret. Administrativa	95/5360594	
4.	Maria Salu Bales	Pirada Gabinete de Organizaç.	96/6231300	
5.	Mamudo Embaló	Gabin/Secretaria do organismo	966950094	
6.	Milagres FTS	S. Recursos Bafata	955339802	
7.	Bebacar Boio	BBF/Bafata	966700428	
8.	Dama Di Aliofalo	Proteção Civil	955333210	



9.	Arius Bardi	Zumbira Bepfak	966236248	<del>966236248</del>
10.	Abdulai Saiss	SRH	966631468	<del>966631468</del>
11.	Queta Santos	Amilinda Ador Bunkobok	968611362	<del>968611362</del>
12.	Marcel Cesario Fernandes	Delegado Paulo Batista	955310456	<del>955310456</del>
13.	Domingos S. Moreira Gomes	Administradora Soreco	966281603	<del>966281603</del>
14.	Mauro Moreno	Rec. Adm. Bepfak	966836878	<del>966836878</del>
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	LUYFANFOR	969217983	Sulmirante
20.	Telesmo Santos	Comita Bumbala	966560784	Telesmo
21.	Salu Mhobeli	Celino Firda	-	-
22.	Balo Dalo	Sogoa Fida		F
23.	Breima Embelo	Samba Taca - gindo	969237504	WILLIAM.



24.	Chau Mauks Balde'	SPN - Bafete	96 672 4754	
25.	Saiva Zaldy	Regate	94-5-220926	
26.	Pemetelrei Balde'	garede - Cereira	-	
27.	Vero Canale'	ganade Cereira		
28.	Cumba Jamanca	Gabis	955806890	Cumba
29.	Maimuna Embalo'	Gambanaco	955563222	
30.	Cabi Balde	Madina - Sora Coniço		Cabi Balde
31.	Muhsmedie Balde	Madina - Sora Coniço	96 6295968	40
32.	Bilbocoe Jem	Durumbati'	6084456	
33.	Maisi Ferte	DRH - Gasea	6733537	
34.	Nicolau D Gilp	RR Fovaris - Garbe	957450554	
35.	AMADU Malae'	Manato		
36.	Dyadya Bange	calo Gada	966192764	
37.	Mar. edis thalo	Buene Babote		
38.	Seo ba. carsona	Pacara	955385758	



39.	Ötamatu Si	Coli-Cunda (Seneco)	955453792	
40.	Cach Incheer	Cojino - Fô Tch		
41.	Soma Ööou	Bafala		
42.	BANVA SANKA	Cuntubul		
43.	Panvera Balali	Bafafin		
44.	Fenla Morva	Granada	96-9272737	
45.	Kametuhei Balali	Cuntubul		
46.	Fai Balali	Tinoda		
47.	Amimola Balali	Cuntubul		
48.	Nhóra Balali	Cumpangão - Trobi		
49.	Zunba Balali	Seneco-cunda - Tinoda		
50.	Manoma Balali	Simou-cunda Nliu - Trobi		.77A
51.	TEMBRAS Comate	C		
52.	BRAIHA EMBALCO	SAMBRA TACO	92 97804	
53.	BORI ARAU	SARNA	96 6955403	



54.	Jão Loua Tchedna'	INM - Bissau / President	955422007	<del>Amma</del>
55.	Jário Bieguef	AAAC - Bissau / D. Gornel	955935077	<del>Amma</del>
56.	Borgastino Fanta	GDUR - Goodwin	766603319	<del>Amma</del>
57.	Manslo Montelua	Engº Agronomo	955209928	<del>Amma</del>
58.	<del>Amma</del> <del>Bissau</del> <del>Bissau</del>	Sec. Ex. F. R. E. / <del>Bissau</del>	955739572	<del>Amma</del>
59.	Amorito Baldi	Coliganda	955852463	<del>Amma</del>
60.	Aliu Hamadjo	Agricultor	.	<del>Amma</del>
61.	Sarcis B. Euzabalo'	Ex Pent Adajincho (SEA)	955367319	<del>Amma</del>
62.	Domingos Baktitis	INTN / Militar	955729972	<del>Amma</del>
63.	Eding E. Joma N'gali'	SEA - Bissau	955898888	<del>Amma</del>
64.	Apri Estreito Costa	Bissau (11)	955545888	<del>Amma</del>
65.	Seni Fimbalis'	Pinaga	955329694	<del>Amma</del>
66.	Melido Gomes Teixeira	Bissau / <del>Amma</del> / <del>Bissau</del>	955185015	<del>Amma</del>
67.	Francisco Alimare Gavi'	APSS / Gaby	86681-83.18	<del>Amma</del>
68.	Virick Capens'	Dea 115A	966784046	<del>Amma</del>



69.	Tulio M. L. B. S. /	COMISSÃO	955595887	Loic B.
70.	José A. S. /	Exat na Defesa de RL-	955507577	
71.				
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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: 9/12/16

Local: Instalações da Empresa ENAFUR

N.º	Nome Completo	Proveniência	Contacto	Assinatura
1.	Saramba Corde	Gamabou (Bafata) - (M)		
2.	Brasim Embodi (M)	Sombotaco - Pindola		
3.	Burbaron Jorri	Quimbal (M)	608 4456	Burbaron
4.	Maria Salim Balde	Sector de Pindola (M)	623 1300	<i>[Signature]</i>
5.	Yorlam Yoni	Sector de Pindola (M)	955560994	<i>[Signature]</i>
6.	Apá Patrício da Costa	Bissau (M)	955545881	<i>[Signature]</i>
7.	Renée Zeséio Fernandes	Bafata (M)	955310456	<i>[Signature]</i>
8.	Guamba Damamea	Galbu (F)	955806830	Guamba



9.	Olun Mwarojo (H)	Sawacunda. Gochi cumbubhiti			
10.	Francisco Mwaruwa Rame (H)	gabul 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.	Siuba Balde (H)	Camulawa (H)	6611362	Siuba	
14.	Momodu Djodi (H)	Buculo Babolo - Pitehi (H)			
15.	Jodi Djodi (H)	Buculo Babolo - Pitehi (H)			
16.	ALFA EMBALÓ (H)	SISSAUCUNWA ALIU	966378495		
17.	Djodilo Siki (F)	Edicunda - Sawa	955453792		
18.	Aminata Balde (F)	Sawacunda - Fajankilo			
19.	Fai Balde (F)	Duro-badi	969166705		
20.	Bori Djau (H)	Sawa - Fajankilo			
21.	Aminata Balde (F)	Sawa - Fajankilo			
22.	Muhomade Balde (H)	Comite Est. Secu GABAS	955765353	AP	
23.	Sawa Djau (F)	Camacunda - Ga sawacunda			



24.	Caê Inyáí (F)	Copino - Pítchí		
25.	Hariona Badoí (F)	Cispa eunde Píu		
26.	Harionna Badoí (F)	Sarama		
27.	Demings J. Hariona Comel (F)	GE. Somalo	966281603	<del>Hariona</del>
28.	Sulimane Garnein	Cumpra Ghor	9692117983	
29.	Mamudo Embaloí (M)	Bada	966950094	<del>Hariona</del>
30.	Fanka Harema (F)	Garema		
31.	Bona Samba (F)	Cumtubal		
32.	Tomon Garne (F)	Cumpogha		
33.	Berastodai Badoí (F)	Cumpogha		
34.	Berastodai Badoí (F)	Haratu		
35.	Julio M. L. Bó (M)	Bissau	955595887	Leia
36.	Harionna Badoí (M)	Bafata	966095282	Hariona
37.	Harionna Badoí (M)	Colindan	9558534	Badoí
38.	Harionna Badoí (M)	Flores de Gabu	955876391	<del>Hariona</del>



39.	Ediige Eke-Dime Jimo. <del>SE</del>	SEA - Birkou (F)	95 589.88.88	Joseph Di'
40.	Solun Nnabali (H)	Copino		
41.	Imoka BODDI (F)	Nnange cumba - Pivoda		
42.	Olo BODDI (H)	Chopokwona - Sonco cumba		
43.	Chorno Yomude BODDI (H)	AKH - Bafeta	96 677 47 54 / 95 505 36 75	<del>13-8</del>
44.	Amadu BODDI (H)	Nganaku		
45.	Cidi Dando (H)	Eganlucada		
46.	Sece Ba cossama (H)	PASSUÁ	95 538 57 58	SRB
47.	Máicio Fante (H)	Direcc. Regim. Agrull. Gaku	96 613 35 33	Quil's
48.	Abudoi Fave (H)	D.R. Hidricos - Galau	96 663 14 68	<del>House</del>
49.	Manuel Merend (H)	ARH - Bafeta -	96 683 68 78	<del>SH</del>
50.	Bubacan balai' (H)	R.R.F.F. / Bafeta'	96 670 04 28	Bubacan
51.	Muidama IOTA (H)	S. Penurria Bafeta	95 537 94 02	<del>copy</del>
52.	Fenifa Balde (H)	P.C Bombeiros Bafeta	96-623 62 48	of AR
53.	Baizo Ojola (H)	Sagaia - Pichni		



54.	Teodoro Romão (H)	Comité Emda	65 6 0 7 814	
55.	Aminda Bassa Demme (H)	Musica	95 513 9592	
56.	Mamadou Ali Diallo (H)	Comand. San - Robe. Civil/Bon	9553333210	
57.	Desp. Adm. dos Santos	Coordenador S.A.V.R	955804430 966603319	
58.	Henri Biague (H)	Bissau	955933078	
59.	Nicolau de Silva (H)	Dep. Repart Reg. Financeiro/Gal	95590654	
60.	Guilherme Escalante (H)	Alunos	955999016	
61.	João Louçã Tchédna (H)	Bissau - INN	955422007	
62.	Melinda C. Gomes Teixeira (H)	Secretaria PPR CASABHTE	955485045	
63.	Eng.º. Amos Camama (H)	PR CASABHTE / GB	955514640	
64.	Deming Cruz (H)	"	95307572	
65.	BURBACABENAL (H)	"	955753E17	
66.	João Valente Pinho (H)	Barragem	966586458	
67.	Garcia Beira Emdado	Ambiente / Bissau (M)		
68.	Faís Edmundo Gomes	LABOR NACIONAL (H)	955505062	



69.	Prof.ª Rosemaria (M)	Rafael Gabriel	6909-221553-2331	
70.	Alexandre Tomada Cardetti	Faelio 1 <sup>o</sup> 2000	966871635/9551217	Torres
71.	Domingos Roberto (M)	Neton Magin	95729972	
72.	Gene Finkels	Piracés	955329694	Finkels
73.	União Carreira	Carreira. Iny.	955789096	
74.	Mangla Murteluis	Projeto	955209928	Murteluis
75.				
76.				
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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
<b>I. Operating Income</b>				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	4000	kg		
1.3 Harvest loss and decoupling loss (20%)	800	Kg		0
<b>Total net product (Husked rice)</b>	<b>3200</b>	<b>Kg</b>	<b>350</b>	<b>1120000</b>
<b>II. Expenses</b>				
<b>2.1 Operating Expenses</b>				
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
<b>Total Expenses</b>				<b>327100</b>
<b>Net result per hectare with the project</b>	<b>2265.43</b>	<b>Kg</b>	<b>350</b>	<b>792900</b>
Result per hectare without the Adaptation Fund project				9750
<b>Value added to the project through the application of adaptation measures</b>				<b>783150</b>

### Operating Account of 1 ha of Rice in Lowland areas (without project)

Item	Quantity	Unit	Cost per item	Values
<b>I. Operating income</b>				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	600	kg		
1.3 Harvest loss and decoupling loss (20%)	120	Kg		0
<b>Total net product (Husked rice)</b>	<b>480</b>	<b>Kg</b>	<b>350</b>	<b>168000</b>
<b>II. Expenses</b>				
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
<b>Total Expenses</b>				<b>158250</b>
<b>Result per hectare without the project</b>	<b>27.86</b>	<b>Kg</b>	<b>350</b>	<b>9750</b>

## POTATO

### Operating Account of 1 ha of Potato with project

Items	Quantity	Unit	Cost per Unit	Values
<b>I. Operating Income</b>				
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			
<b>Total net marketable product</b>	<b>18,000</b>	<b>Kg</b>	<b>400</b>	<b>7200000</b>
<b>II. Expenses</b>				
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
<b>Total Expenses</b>				<b>2343000</b>
<b>Net result per hectare with the project</b>	<b>12142.50</b>	<b>kg</b>	<b>400</b>	<b>4857000</b>
Result per hectare without the Adaptation Fund project				<b>2901700</b>
<b>Value added to project through application of adaptation measures</b>				<b>1955300</b>



### Operating Account of 1 ha of Potato without project

Items	Quantity	Unit	Cost per unit	Values
<b>I. Operating Income</b>				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	10000	kg		
1.3 Harvest loss and decoupling loss (10%)	1000	Kg		0
<b>Total net marketable product</b>	<b>9000</b>	<b>Kg</b>	<b>400</b>	<b>3600000</b>
<b>II. Expenses</b>				
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
<b>Total Expenses</b>				<b>698300</b>
<b>Operating income per hectare without project</b>	<b>7254.25</b>	<b>Kg</b>	<b>400</b>	<b>2901700</b>

## TOMATO

### Operating Account with project – Tomato (1 ha)

Items	Quantity	Unit	Cost per Unit	Values
<b>I. Operating Income</b>				
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			
<b>Total net marketable product</b>	<b>20,520</b>	<b>Kg</b>	<b>300</b>	<b>6156000</b>
<b>II. Expenses</b>				
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
<b>Total Expenses</b>				<b>2393400</b>
<b>Net result per hectare with the project</b>	<b>12542.00</b>	<b>kg</b>	<b>300</b>	<b>3762600</b>
Result per hectare without the Adaptation Fund project				1461700
<b>Value added to project through application of adaptation measures</b>				<b>2300900</b>

**Operating Account without project – Tomato (1 ha)**

Items	Quantity	Unit	Cost per Unit	Values
<b>I. Operating Income</b>				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	8000	kg		
1.3 Harvest loss and decoupling loss (10%)	800	Kg		0
<b>Total net marketable product</b>	<b>7200</b>	<b>Kg</b>	<b>300</b>	<b>2160000</b>
<b>II. Expenses</b>				
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
<b>Total Expenses</b>				<b>698300</b>
<b>Operating income per hectare without project</b>	<b>4872.33</b>	<b>kg</b>	<b>300</b>	<b>1461700</b>

**Operating Account with project – Onion (1 ha)**

Items	Quantity	Unit	Cost per Unit	Values
<b>I. Operating Income</b>				
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			
<b>Total net marketable product</b>	<b>19,665</b>	<b>Kg</b>	<b>300</b>	<b>5899500</b>
<b>II. Expenses</b>				
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
<b>Total Expenses</b>				<b>2403300</b>
<b>Net result per hectare with the project</b>	<b>11654.00</b>	<b>kg</b>	<b>300</b>	<b>3496200</b>
Result per hectare without the Adaptation Fund project				1461700
<b>Value added to the project through application of adaptation measures</b>				<b>2034500</b>

### Operating Account without project – Onion (1 ha)

Items	Quantity	Unit	Cost per Unit	Values
<b>I. Operating Income</b>				
1.1 Operating Acreage	1	ha		0
1.2 Raw product	8000	kg		
1.3 Harvest loss and decoupling loss (10%)	800	Kg		0
<b>Total net marketable product</b>	<b>7200</b>	<b>Kg</b>	<b>300</b>	<b>2160000</b>
<b>II. Expenses</b>				
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
<b>Total Expenses</b>				<b>698300</b>
<b>Operating income per hectare without project</b>	<b>4872.33</b>	<b>Kg</b>	<b>300</b>	<b>1461700</b>

## 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
<b>Value added to the project through application of adaptation measures</b>	<b>783,150</b>	<b>1,066,552,800</b>

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
<b>Value added to the project through application of adaptation measures</b>	<b>1,955,300</b>	<b>391,060,000</b>

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
<b>Value added to the project through application of adaptation measures</b>	<b>2,300,900</b>	<b>230,090,000</b>

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
<b>Value added to the project through application of adaptation measures</b>	<b>2,034,500</b>	<b>203,450,000</b>

## 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
<b>Value added to the project through application of adaptation measures</b>	<b>1,066,552,800</b>	<b>391,060,000</b>	<b>230,090,000</b>	<b>203,450,000</b>	<b>1,891,152,800</b>



# 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

	Quantities after post-harvest losses	Percentage self-consumed
Speculation	kg	%
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)

	Average Price***
Speculations	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**





**REPUBLIQUE DE LA GUINEE BISSAU**

=====

**SCALING UP CLIMATE CHANGE-SMART AGRICULTURE IN EAST GUINEA  
BISSAU**

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**PLAN DE GESTION INTEGREE DES PESTES ET  
PESTICIDES**

**INTEGRATED PEST AND PESTICIDES  
MANAGEMENT PLAN**

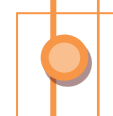
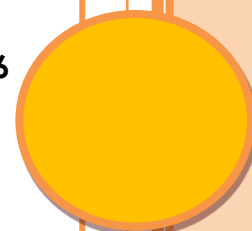
**PGIPP**

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**Novembre 2016**



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## **LISTE DES SIGLES ET ABRÉVIATIONS**

- AAAC : Autorité d'Evaluation Environnementale Compétente
- AGRHYMET : Agriculture, Hydrology, Meteorology research center ( ou Centre Regional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle)
- BOAD : Banque Ouest Africaine de Développement
- CCNUCC : Convention cadre des Nations-Unies pour le Changement Climatique
- CEDEAO : Communauté Économique Des États de l'Afrique de l'Ouest.
- CILSS : Comité Inter États de Lutte Contre la Sécheresse au Sahel
- CSP : Comité Sahélien des Pesticides
- DVP : Direction de la Protection des Végétaux
- EPI : Équipement de Protection Individuelle
- FAO : Organisation des Nations Unies pour l'Agriculture et l'Alimentation
- IEC : Information, Éducation et Communication
- PANA : Programme d'Action Nationale d'Adaptation
- PCN : Project concept note
- PGIPP : Plan de Gestion des Pestes et Pesticides
- SDPV : Services de la Direction de la Protection des Végétaux
- UEMOA : Union Économique et Monétaire Ouest Africaine

# **INTEGRATED PEST AND PESTICIDES MANAGEMENT PLAN SUMMARY**

East Guinea Bissau's agriculture is facing climatic constraints that are manifested by floods and sudden or early droughts that compromise the efforts of farmers.

Although the country possesses significant surface water potential for irrigation development, it escapes rural technique that was called upon to mobilize it for agricultural purposes. It is to support the development of activities to adapt populations to the adverse effects of climate change through the mobilization of water for irrigation and support for the development of the perimeters that the Project "Smart agriculture in the East of Guinea Bissau" has been identified.

Despite the contribution that the project could make for rural development, in particular the improvement of food security and the living conditions of the population, its implementation calls for pests and pesticides management.

This Integrated Pest and Pesticides Management Plan (PGIPP in French) is designed to guide pest and pesticide management activities through sustainable practices that best protect the environment and human health.

## **0.1. Project Summary**

The project, as designed, will address key issues of vulnerability in agriculture and the rational management of water resources in order to contribute to the development and resilience of the immediate and long-term needs of extremely vulnerable farmers.

In line with the country's vulnerability and identified adaptation needs, three specific objectives are pursued within the framework of this project:

- Development of technical and institutional capacity to address climate risks in adaptation practices and planning
- Improving the resilience of existing agricultural productive systems , including water control and water management measures
- knowledge Management and lessons learned on climate smart agriculture and adaptation planning

To achieve the above objectives, the project has been structured into three components:

- Development of technical and institutional capacity to respond to climate risks in adaptation practices and planning
- Increased resilience of agricultural productive systems to climate, including water control and management measures
- Knowledge Management and Lessons Learned on Smart Agriculture

The implementation of the component 2 of the project involves the pest and pesticide management, which requires the preparation of an integrated management plan to ensure sustainable agricultural production.

## **0.2.Objective of the formulation of Integrated Pests and Pesticides Management Plan**

Although the project area is not recognized as an area of pest attack, the development of agricultural activities including food crops and vegetable crops (component 2), calls for preventive and curative pest and pesticide management methods/techniques and therefore the preparation of an Integrated Pest and Pesticide Management Plan (PGIPP).

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 objectives of this Integrated Pest and Pesticide Management Plan are to:

- Assess the capacity of the institutional and regulatory framework to promote and implement safe, effective and rational management of pests and pesticides and to integrate the required measures for capacity building;
- Define the rules and techniques to be adopted by the beneficiaries and other stakeholders of the project with regard to the control and management of pests and pesticides;
- Strengthen practices to reduce dependence on chemical pesticides;
- Ensure that negative effects and potential risks to human and animal health and environmental pollution (water, air, soil, etc.) are minimized.

The option for the promotion of integrated pest and pesticide management in the framework of the project is made to 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.

### **0.3. Environment and human aspect of the project area**

The project will mainly be carried out in the Bafatà and Gabù regions and will concentrate activities along the alluvial zones (valleys, low-lands or low pressure areas) where initiatives of groups, cooperatives, farming families or micro groups (often women) are developed.

The target population of the project is directly the population of the villages attached to the project intervention sites. Indirectly, the populations of the administrative sectors of Pitche, Pirada, Gabú, Sonaco, Contuboel and Ganadu are concerned.

### **0.4. Outline of the policy, legal and institutional framework**

The study takes into account the environmental and social policy of the Adaptation Fund. The national policy framework for environmental management is included in Act N<sup>o</sup>. 1/2011 of March 2, 2011 on the basic Environment Law.

At the legal level, several international and national texts adopted by Guinea-Bissau specifically addressing the protection of the environment will apply to the project.

*At the international level, these are:*

- the Convention on the biological diversity;
- the Convention on climate change;
- the Convention on Wetlands of International importance such as habitat for water birds known as "RAMSAR convention";
- the Convention on the conservation of migratory species belonging to the said wildlife "Bonn Convention" signed in Bonn (Germany);
- the African convention of phytosanitary;
- the sub-saharian phytosanitary convention;
- the Bamako Convention on hazardous wastes;
- the Convention of Rotterdam ;
- the Basle convention ;
- the Stockholm Convention;
- the Convention de l'Organisation Internationale de Lutte Contre le criquet Migrateur Africain ;
- the international Convention on plant protection;
- the Montreal protocol;
- etc.

At the national level, the obligations, legislative and regulatory provisions for environmental protection applicable to the project are:

- Constitution of the Republic of Guinea Bissau, adopted in 1984 and amended in 1991, 1993, 1996
- Environmental Assessment Act approved by the Government, at the meeting of the Council of Ministers on 19/03/08;
- Forest Law approved by Decree-Law No. 4-A / 91 and published on 29 October 1991,
- Wildlife Act, approved by Legislative Decree No. 2/2004 and published on 14 June 2004,
- Ordinances No. 045 / PRG / 87: Code for the Protection and Development of the Environment

At the institutional level, the implementation of the policy of protection and management of the environment for sustainable development is the responsibility of a multitude of actors including:

- the Ministry of Agriculture (Directorate of Plant Protection (DPV), Directorate of Agriculture (DGA))
- the Ministry of the Environment for Sustainable Development;
- the Ministry of Public Health;
- the Ministry of Livestock;
- the Ministry of Hydraulics and Sanitation;
- the Ministry of Energy and Natural Resources;
- the Ministry in charge of civil protection;
- etc.

Moreover, the registration of pesticides is since 1992, an allocation of CILSS with adoption of Resolution No. 7/17 / CM / 92 relative to "*the Regulations for the Registration of Pesticides in CILSS Member States.*" CILSS currently has 13 member countries, including Burkina Faso, Benin, Cape Verde, Côte d'Ivoire, Gambia, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Chad and Togo). With the support of FAO, the regulation of the CILSS was revised in 1999 by Resolution 8/34 / CM / 99 in order to facilitate its ratification by the National Assemblies of the Member States.

### **0.5.Existing pest and pesticide management strategies**

To combat the different pests, the strategies generally used revolve around preventive control and curative control.

Preventive control is widely used in the fight against insects, with material and human means, and a monitoring system set up for this purpose. As for the other

pests, they are generally monitored by the producers themselves, the decentralized services of agriculture and plant protection. This local monitoring makes it possible to identify pests early, areas at risk of infestation and to consequently prepare the curative fight. In addition, the choice of the most resistant varieties, the treatment of seeds, etc. are also used as preventive control methods.

In the curative field, several methods are used:

- chemical control, which is the most widely used method. On the rice-growing and market-garden areas, they are directly treated by the producers themselves for seeds, fruit and vegetable pests, stored crops and for rice herbicide applications. Unfortunately, these producers do not always follow operating procedures and generally do not apply protective measures during applications. This exposes them to health risks related to these products;
- less widespread biological control, which is the regulation of pest populations by introducing their predators and parasites into the same environment;
- mechanical control, which mainly concerns the control of grain-eating birds in rice-growing areas with the most common methods, such as pruning trees to prevent nesting ;
- agronomic or cultural control with methods such as respecting the crop calendar, in particular synchronization of transplanting dates to limit the period of maturation; The uprooting and burning of diseased plants; The removal of alternative hosts, drying of plots of rice, application of ash and reduction of the urea dose; The avoidance of excess nitrogen fertilization; The use of tolerant or disease-resistant varieties.

## **0.6. Impacts of non-controlled use of pesticides**

The use of pesticides is likely to cause changes in the composition of soils and thus their contamination especially if the application is not made according to the standards. There is a risk of declining fertility and soil acidification in the event of misuse of pesticides. Also, if pesticide residues are not well managed after application of the treatment, they will cause soil contamination and pollution as well as the accidental spill. This impact on soils could have potential negative impacts on crop yields, which, however, constitute the intended purpose through the use of these products.



Pesticides and other chemicals (especially unlicensed ones imported fraudulently) to combat pests will have potential negative impacts on surface water resources through runoff and underground by infiltration.

As far as surface water is concerned, the main threat is chemical pollution. As far as groundwater is concerned, the main problem with pesticides is pollution.

- the use of pesticides has effects on air quality. Their application will be a source of contamination of the air and olfactory nuisance.
- wildlife will be affected by pesticides as part of pest control. One of the significant negative effects of this component concern intoxication, death, etc.

One of the most significant negative impacts of pesticides on humans and animals is poisoning. The main routes of contact between humans and the pesticides that may cause this poisoning are:

- the cutaneous way when pesticides are handled without gloves, when the liquid is spilled on clothing or when the pesticides are mixed with the hand;
- the respiratory tract or inhalation involves exposure to the vapours of the concentrated product vapour during preparation of the slurry, exposure without suitable protective equipment during spraying;
- the consumption of processed agricultural products whose residual period is not respected;
- the digestive tract when siphoning a pipe with the mouth or when smoking or eating without washing hands after application of the pesticides.

In terms of risks, they relate to the application of pesticides to foot applicators, drivers and device handlers, transport: contamination of containers, bursting or spillage of drums; monitoring during treatment or prospecting operations. They concern: field workers and populations, women and children too.

## **0.7. 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; (iii) 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 protection<sup>1</sup>.

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 (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

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<sup>1</sup> See Climate-Smart Agriculture Sourcebook: FAO, 2013

PMU, the CNGP and the Regional Directorate for Agriculture for appropriate integrated pests and pesticides management actions.

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 at 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 FAO 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 give the information to the site facilitator and the project regional coordinator. In the same time, the beneficiaries will report the problem to the Regional Directorate of the DPV. The officers of the Regional Directorate of the DPV, who have received training from the FAO Expert on integrated pests and pesticides management, will conduct a field mission within 24 hours. The officers of the DPV once on the site, and after analyzing the problem, propose adequate measures in a spirit of environmental protection and human health. Mechanical control measures and biopesticides will be proposed. When the treatment requires the use of pesticides, the DPV refer to the National Pesticide Management Committee<sup>2</sup> (CNGP) who can be proposed, after analysis, the

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<sup>2</sup>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,

use of pesticides of Class III and U of WHO. The PMU reports to the BOAD with the conclusions of the CNGP and DPV to obtain approval for the implementation of the measures. Based on the analyses report, the BOAD will decide timely on the no-objection for the PMU to buy the class III or U pesticides. The actions proposed by the CNGP and endorsed by the implementation entity will be immediately implemented by the beneficiaries with the support of the PMU. All the fastest means of communication will be used during the process in order to act effectively in the shortest time.

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

<b>Indirect plant protection</b>	<b>Monitoring and forecasting</b>	<b>Direct plant protection</b>
<p>Optimal use of natural resources:</p> <ul style="list-style-type: none"> <li>• Use crop adapted to local conditions</li> <li>• Rely on appropriate yield expectations</li> <li>• Use of resistant varieties</li> <li>• Weed management with adequate intensity of competition</li> <li>• Adequate mixtures of varieties and crops</li> <li>• Optimal timing of sowing period</li> <li>• Training on pest and appropriate pesticides, particularly biological options, and importance of ecological compensation areas</li> </ul> <p>Use of farming practices without negative impact on the agro-ecosystems:</p>	<ul style="list-style-type: none"> <li>• Monitoring and forecasting of pest incidence will be done in accordance with the project's IPM plan.</li> <li>• 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</li> </ul>	<p>Use of selective pest control methods:</p> <ul style="list-style-type: none"> <li>• Wherever and whenever adequate, reliance on biological control, biopesticides, etc.</li> </ul> <p>Chemical pest control methods, only where other options are failing or will be very likely:</p> <ul style="list-style-type: none"> <li>• Preference for the most specific and selective pesticides (class III and U of WHO)</li> <li>• Preference for least harmful and least toxic</li> </ul>

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.

<ul style="list-style-type: none"> <li>• No use of surplus input of nutrients (especially N);</li> <li>• Optimal density of crop and foliage to facilitate ventilation</li> <li>• Low intensity of tillage/cultivation and production methods protecting soil fertility</li> <li>• Weed management for erosion control</li> <li>• Biodiversity conservation and protection to enhance biodiversity, therefore reducing pest incidence</li> <li>• Where adequate protection and augmentation of beneficial biological antagonists.</li> </ul>	<p>recruited for capacity building on integrated pest and pesticides management.</p>	<p>pesticides (class III and U of WHO)</p>
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## **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)<sup>3</sup>; 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).

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<sup>3</sup> 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.



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.

### **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 been 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.

# I. INTRODUCTION

## 1.1. Contexte et justification du projet

La République de Guinée Bissau est un pays côtier d'Afrique de l'Ouest avec une superficie de 36 125 km<sup>2</sup> et une population estimée à 1,73 millions d'habitants. Situé à l'est de l'Océan Atlantique, elle borde le Sénégal au Nord et la République de Guinée à l'Est et au Sud, le pays est organisé en 8 régions administratives. La densité de la population est de 47,8 habitants par km<sup>2</sup> avec un taux annuel de croissance de la population est de 1,9%. Malgré la forte urbanisation au cours de ces dernières années, encore environ 58% de la population vit dans les zones rurales. Bissau, la capitale, abrite environ un quart de la population totale.

Les principales activités socio-économiques du pays concernent l'agriculture, la pêche, la sylviculture, l'élevage et l'extraction minière. L'agriculture comme secteur économique primaire de la Guinée Bissau est en grande partie basée sur l'agriculture de subsistance. Elle emploie 82% de la population active et génère 45% du PIB.

Cependant, cette agriculture est confrontée à d'énormes contraintes notamment d'ordre climatique et édaphique surtout dans les régions de l'Est de la Guinée Bissau. En effet, l'Est de la Guinée Bissau est une région aride qui est vulnérable au changement climatique et à la variabilité du climat. Cette zone connaît des événements climatiques extrêmes notamment les sécheresses. Les mécanismes d'adaptation développés par les agriculteurs familiaux dans certaines régions comme les régions de Gabú et Bafatá sont entre autres : le nomadisme temporaire, la réduction de la consommation alimentaire, la vente des actifs des ménages qui sont d'ailleurs rares, la migration vers les villes, etc. Ces mesures ne sont pas durables et plongent davantage les populations dans une situation de pauvreté, d'insécurité alimentaire, etc.

D'après, les résultats d'une récente enquête conduite sur la pauvreté dans le

pays dans le cadre du suivi des indicateurs de réduction de la pauvreté (ILAP2 2010)<sup>4</sup>, le taux de pauvreté globale de la population est à 69,3% contre 64,7% en 2002 (ILAP1). Le nombre de pauvres dans le pays est passé donc de 764 672 en 2002 à 1 014 277 personnes en 2010 soit une hausse de 24% le nombre de pauvre. Quant à l'extrême pauvreté, le taux est passé de 20,8% en 2002 à 33,0% en 2010 traduisant une nette détérioration de la situation dans le pays avec une dégradation des conditions de vie des ménages les plus pauvres et l'arrivée de « nouveaux pauvres ». Le phénomène est plus accentué en milieu rural.

Face à cette situation, le développement de l'agriculture résiliente au climat avec de techniques et pratiques de mobilisation et d'utilisation rationnelle d'eau à faible coût permettrait d'améliorer la production agricole et les moyens de subsistance des populations. C'est ainsi que le projet Scaling up climate change-smart agriculture in East Guinea Bissau, a été initié.

## 1.2. Objectif de l'étude

Bien que la zone ne soit reconnue comme étant potentiellement soumis à des attaques de parasites d'une importante ampleur, la mise en œuvre du projet fait appel au développement de techniques préventives et curatives de lutte contre les ennemis de cultures.

Les objectifs visés par le présent Plan de gestion intégrée des pestes et pesticides consistent à :

- Evaluer la capacité du cadre institutionnel et réglementaire à promouvoir et à mettre en œuvre une gestion sécuritaire, efficace et rationnelle des ennemis de cultures et des pesticides et d'intégrer dans les composantes du projet les mesures requises pour le renforcement des capacités ;

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<sup>4</sup> Inquérito Ligeiro para Avaliação da Pobreza (ILAP)



- Définir les règles et techniques à adopter par les bénéficiaires du projet en matière de contrôle et de gestion des ennemis de cultures ;
- Renforcer les pratiques visant à réduire la dépendance aux pesticides chimiques;
- S'assurer que les effets négatifs et les risques potentiels pour la santé humaine et animale et de la pollution de l'environnement (eau, air, sols,...) soient minimisés.

### **1.3. Approche méthodologique**

L'élaboration de ce Plan de Gestion Intégrée des Pestes et Pesticides découle, en premier lieu des informations recueillies au niveau de la zone d'intervention du projet par le biais des interviews et consultations des bénéficiaires et des services techniques du domaine de l'agriculture, de la protection des plantes (lutte antiparasitaire), de l'environnement, etc. Et en second lieu, ces informations de terrain ont été complétées par des recherches et analyses documentaires traitant la gestion des pestes et pesticides.

Les données de terrain ont été collectées lors des visites de sites potentiels et lors des consultations publiques dans le cadre du projet. Les données collectées ont été analysées et ont permis de faire un état des lieux de la gestion des pestes et pesticides. La dernière étape a consisté à la rédaction du rapport. La revue documentaire a consisté en l'exploitation de la documentation pouvant conduire à l'atteinte des objectifs fixés pour la présente étude. Il s'agit des rapports des études environnementales et sociales et des rapports de Plan de Plan de gestion des pesticides dans le domaine de l'agriculture irriguée, des textes réglementaires nationaux et les politiques de sauvegarde de la Banque Ouest Africaine de Développement matière , etc. Ces deux étapes se sont déroulées simultanément et ont permis de capitaliser les données récoltées sur le terrain, mais aussi de mettre à jour certaines données existantes.

## **II. CADRE INSTITUTIONNEL ET JURIDIQUE DE LA GESTION DES PESTES ET PESTICIDES EN GUINEE BISSAU**

### **2.1. Cadre institutionnel de gestion des pesticides**

La Guinée Bissau s'est bien doté d'un cadre institutionnel sur la question des pesticides. A l'échelon central, trois ministères techniques en sont concernés: le Ministère de l'Agriculture, pour les pesticides utilisés en agriculture; le Ministère de l'Environnement et du développement durable, qui est responsable de tous les produits chimiques y compris les pesticides et notamment le cadrage des mesures de leur impact sur l'environnement; le Ministère de la Santé Publique, responsable de l'utilisation des pesticides utilisés en santé publique (lutte contre le paludisme, l'élaboration de textes sur la réglementation des produits utilisés en traitement intra domiciliaire).

Le Ministère de l'Agriculture, à travers la Direction de la Protection des Végétaux (SDPV), est concerné à titre principal par la gestion des pesticides à usage agricole. Dans le domaine du contrôle des produits phytosanitaires, la SDPV s'appuie essentiellement sur les Services de contrôle phytosanitaire et de mise en quarantaine des produits et sur le Comité National de Gestion des Pesticides (CNGP).

#### **- Les Services de la Direction de la Protection des Végétaux**

Les services de la Direction de la Protection des Végétaux (DPV) sont chargés de contrôler les agréments professionnels et les produits phytopharmaceutiques importés et distribués. Le service de la DPV dispose d'antennes régionales à travers les neuf régions. Ces derniers assurent pour le compte de la DPV un contrôle phytosanitaire des pesticides utilisés dans la région. Les contrôles prioritaires sont le contrôle de l'étiquetage et de l'emballage qui, doivent être réalisés au niveau des magasins de stockage ou des points de distribution des produits (contrôle des formulations et de leur conformité aux étiquettes; contrôle des résidus

dans les produits agricoles surtout par rapport aux Limites Maximales de Résidus admises par la Commission du Codex Alimentation de la FAO et de l'OMS; contrôle des agréments des produits ou homologation). Les SDPV a aussi en charge la formation à l'utilisation des produits, mais aussi la gestion des stocks périmés et la réutilisation des emballages. Toutefois, faute de moyens matériels et de laboratoires spécialisés, la plupart de ces contrôles ne s'effectue pas.

- **Le Comité National de Gestion des Pesticides (CNGP)**

La vente des produits phytosanitaires à usage Agricole en Guinée Bissau est interdite sans autorisation préalable accordée par le Département du Développement Rural et de l'Agriculture. Afin de pallier aux problèmes liés à l'utilisation non contrôlée des pesticides et réduire les risques liés à l'utilisation de pesticides de mauvaise qualité il est mis en place un Comité National de Gestion des Pesticides (CNGP) en Guinée Bissau conformément à l'article 11 du Décret – Loi n° 7/2000 du 24 août 2000. Ce comité est formé des membres venant des structures tels que l'environnement, la santé, l'agriculture, les organisations d'agriculteurs, la douane<sup>5</sup>.

Le CNGP assure, entre autres : (i) la mise en œuvre et le suivi du respect des procédures et normes de contrôle de qualité des pesticides ; (ii) le contrôle post homologation des pesticides ; (iii) le contrôle de conformité des pesticides; (iv) le contrôle de la distribution et de l'utilisation des pesticides ; (v) le contrôle des Limites Maximales de Résidus (LMR) des produits d'importation destinés à la consommation locale ; (vi) le contrôle des professionnels de la filière des pesticides; (vii) la tenue du registre des opérateurs de la filière ; (viii) la tenue et l'actualisation des pesticides homologués ; (ix) la dénonciation des pesticides non homologués entrés dans le pays ; (x) le suivi en matière de toxicovigilance;

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<sup>5</sup> voir Réglementation Commune sur l'Homologation des Pesticides entre les Etats membres du CILSS.

(xi) le suivi des essais de pré-vulgarisation ; (x) le suivi de la mise en œuvre des conventions internationales relatives aux pesticides.

Plusieurs structures interviennent au sein de ce comité (l'environnement, la santé, les organisations d'agriculteurs, la douane).

## **2.2. Cadre réglementaire**

### **2.2.1. Réglementation régionale et Internationale**

#### **- Réglementation commune aux Etats membres du CILSS sur l'homologation des pesticides**

La Réglementation commune aux Etats membres du CILSS sur l'homologation des pesticides a été adoptée initialement en 1992 par la résolution N° 7/27/CM/92 de la 27e session ordinaire du Conseil des Ministres du CILSS. Elle est devenue opérationnelle en 1994 avec la mise en place et l'opérationnalisation du Comité Sahélien des Pesticides (CSP). Suite aux multiples tentatives de ratifications par les Assemblées Nationales des différents Etats membres, la Réglementation commune a été, avec l'appui de la FAO, révisée en 1999 par la Résolution 8/34/CM/99 et ce pour tenir compte de divers développements dans les législations des pesticides dans les Etats membres, ainsi que des expériences dans les procédures d'homologation des pesticides acquises par le CSP depuis sa création.

Ce système commun d'homologation des pesticides était justifié par les raisons suivantes:

- Les conditions agronomiques, climatiques et écologiques sont similaires dans le Sahel, ce qui facilite l'harmonisation des essais et l'acceptation mutuelle des données;
- Les expertises techniques et scientifiques nécessaires pour l'homologation, limitées dans chaque pays, peuvent être mises en commun au profit de tous les pays;

- Le marché de pesticides est plus grand au niveau de l'ensemble des pays, ce qui augmente le pouvoir réglementaire, notamment pour imposer des frais de dossier, de la structure commune d'homologation;
- Un « guichet unique » est créé pour déposer des demandes d'homologation, et une seule autorisation est valable dans l'ensemble des Etats membres du CILSS, ce qui facilite les procédures pour l'industrie des pesticides;
- Une autorisation unique pour la circulation des pesticides dans l'espace CILSS réduit le nombre de frontières où l'importation de pesticides doit être contrôlée;
- La prise de décision commune, sur le plan régional, réduit le risque d'être confronté aux conflits d'intérêt nationaux.

Le champ d'application de la Réglementation commune est « l'autorisation, la mise sur le marché, l'utilisation et le contrôle de matières actives et de produits formulés de pesticides dans les Etats membres ». Elle est également applicable à « la classification, l'étiquetage, le conditionnement et l'emballage des formulations de pesticides. »

La gestion des pesticides, comme précisée dans le document de la Réglementation commune, est basée sur un partage des responsabilités entre le niveau régional et le niveau national.

Les activités pré-homologation (expérimentation) et post-homologation (mise sur le marché, importation/exportation, utilisation, surveillance, information et destruction des produits périmés) sont menées par les structures nationales de recherche et de vulgarisation. Le niveau régional procède à l'évaluation des dossiers pour l'homologation.

- **Règlement C/REG.3/5/2008 portant sur l'harmonisation des règles régissant l'homologation des pesticides dans l'espace CEDEAO.**

Il porte sur l'harmonisation des règles régissant l'homologation des pesticides dans l'espace CEDEAO. Le but de cette réglementation commune est de :

- protéger les populations et l'environnement Ouest Africain contre les dangers potentiels de l'utilisation des pesticides ;
- faciliter le commerce intra et inter-états des pesticides, à travers la mise en place de règles et de principes acceptés de commun accord au niveau régional pour démanteler les barrières commerciales ;
- faciliter à un accès convenable et à temps des pesticides de qualité aux paysans ;
- contribuer à la création d'un climat propice à l'investissement privé dans l'industrie des pesticides, et ;
- promouvoir le partenariat public-privé.

Cette réglementation s'applique à toutes les activités impliquant l'expérimentation, aussi bien que l'autorisation, le commerce, l'utilisation et le contrôle des pesticides et bio-pesticides dans les états membres. La mise en œuvre du présent projet doit se faire dans le respect de ces textes.

### **2.2.2. Conventions internationales et régionales**

La Guinée Bissau est partie prenante des conventions internationales et régionales ci-après, qui touchent plus ou moins aux aspects gestion des Pesticides, à savoir :

- Code de bonne conduite en matière de gestion des pesticides de la FAO
- Réglementation Commune sur l'Homologation des Pesticides aux Etats membre du CILSS en 1999;
- Convention de Stockholm sur les Polluants Organiques Persistants adoptée le 22 Mai 2001 à Stockholm, Suède ;
- Protocole de Montréal relatif à des substances qui appauvrissent la couche d'ozone, entrée en vigueur le 1er Janvier 1989 et ratifié par 183 pays ;
- Convention International pour la Protection des Végétaux "CIPV" ;
- Convention de Berne sur la conservation de la faune et de la flore sauvage Européennes et de leurs Habitats naturels ;



- Convention de Bonn sur les espèces migratrices de faune ;
- Convention de Ramsar sur les zones humides ;
- Convention de Bâle sur le contrôle des mouvements transfrontaliers des déchets dangereux et de leur élimination, conclue à Bâle, Suisse, le 22 Mars 1989 et entrée en vigueur en Mai 1992 ;
- Convention de Rotterdam sur la procédure de consentement préalable en connaissance de cause applicable à certains produits chimiques et pesticides dangereux qui fait l'objet d'un commerce International signé en 1999;
- Convention sur la diversité biologique adoptée au Sommet de la Terre de 1992 à Rio de Janeiro, Brésil ;
- Convention de Bamako sur l'interdiction d'importer des déchets dangereux et le contrôle de leurs mouvements transfrontaliers en Afrique, adoptée le 30 Janvier 1991.

Par rapport à la Gestion des Pesticides, toutes les conventions citées ci-dessus sont ratifiées, mais leur traduction dans la législation nationale n'est pas effective dans leur totalité.

Le tableau suivant indique les énoncées de quelques conventions :

**Tableau 1** : Quelques conventions internationales applicables aux activités du projet.

Intitulé du texte	Dates de signature/entrée en vigueur	Date de signature et ratification par la Guinée Bissau	Textes
Convention sur la Diversité Biologique	Signée le 11 juin 1992 à Rio de Janeiro (Brésil), et entrée en vigueur le 24 mars 1994	27 octobre 1995	« Chaque partie contractante adopte des procédures permettant d'exiger l'évaluation des impacts sur l'environnement des projets qu'elle a proposés et qui sont susceptibles de nuire sensiblement à la diversité biologique en vue d'éviter et de réduire au minimum de tels effets et s'il y a lieu, permet au public de participer à ces procédures » article 141a-b. Ainsi, le projet doit prendre toutes les dispositions pour éviter la destruction des éléments de la biodiversité, surtout avec les traitements phytosanitaires.
Convention Cadre des Nations Unies sur les Changements Climatiques	Signée le 11 juin 1992 à Rio de Janeiro (Brésil), et entrée en vigueur le 24 mars 1994	27 octobre 1995	Cette convention précise à l'article 4, alinéa f, « que les parties signataires tiennent compte, dans la mesure du possible, des considérations liées aux changements climatiques dans leurs politiques et actions sociales, économiques et environnementales, et utilisent des méthodes appropriées, par exemple des études d'impacts, formulées et définies sur le plan national pour réduire au minimum les effets préjudiciables à l'économie, à la santé publique et à la qualité de l'environnement des projets ou mesures qu'elles

Intitulé du texte	Dates de signature/entrée en vigueur	Date de signature et ratification par la Guinée Bissau	Textes
			entreprennent en vue d'atténuer les changements climatiques ou de s'y adapter ».
Convention relative aux zones humides d'importance internationale particulièrement comme habitat des oiseaux d'eau, dite « convention RAMSAR ».	Adoptée le 02 février 1971 (IRAN) et entrée en vigueur le 21 décembre 1975	14 mai 1990	La Convention de RAMSAR vise à enrayer la dégradation et la perte de zones humides (par exemple les dallols), en reconnaissant les fonctions écologiques fondamentales de celles-ci ainsi que leur valeur économique, culturelle, scientifique et récréative. Ainsi, elle a protégé les zones humides d'importance internationale (dallols avec les interventions du PROJET dans la région de Dosso).
Convention Africaine sur la conservation de la Nature et des ressources Naturelles dite 'Convention d'Alger», remplacée par la Convention adoptée par la 2 <sup>ème</sup> Session Ordinaire de la Conférence de l'Union Africaine tenue à Maputo (Mozambique).	Signée le 15 sept. 1968 et entrée en vigueur le 09 octobre 1969, puis modifiée le 11 juillet 2003		En Afrique, la désertification et les changements climatiques sont des faits réels et perceptibles, et ont conduit à la prise de conscience des préoccupations environnementales et de la nécessité de la protection de l'environnement.
Convention sur la conservation des espèces migratrices appartenant à la faune sauvage dite "Convention de	Signée le 23 juin 1979 et entrée en vigueur le 1 <sup>er</sup> novembre 1983.	1 septembre 1995	Elle a pour objectifs de conserver les espèces migratrices sur la totalité des parcours qu'elles empruntent et de protéger certaines espèces migratrices menacées.

Intitulé du texte	Dates de signature/entrée en vigueur	Date de signature et ratification par la Guinée Bissau	Textes
Bonn", signée à Bonn (Allemagne)			
Convention de Stockholm sur la protection de la santé humaine et de l'environnement contre les Polluants Organiques Persistants (POPs)	Adoptée à Stockholm le 22 mai 2001, entrée en vigueur le 17 mai 2004		Elle a pour objectifs de protéger la santé humaine et l'environnement contre les Pollutions Organiques Persistants. Ainsi, le projet doit veiller à l'utilisation des produits homologués lors des traitements phytosanitaires.
Convention de Rotterdam	-		Elle offre aux pays un outil de choix pour réduire les risques liés à l'utilisation des pesticides.
Politique Commune d'Amélioration de l'Environnement (PCAE) de l'UEMOA	Adoptée le 17 janvier 2008		L'acte additionnel n°001/CCEG/UEMOA portant adoption de la PCAE, dispose à son article 6 énonce que la PCAE respecte entre autres, les principes directeurs suivants : la précaution, la prévention, l'information et la notification préalable et la réparation ou le pollueur-payeur ».

### **2.2.3. Réglementation nationale**

#### **- La loi de base sur l'environnement**

La Loi organique sur l'environnement est un instrument législatif qui dispose comme principe général en son article 2 que : « Toute personne a droit à un environnement humain écologiquement équilibré et a le devoir de le défendre, et il est de la responsabilité de l'Etat, par le biais d'organismes qualifiés et en faisant appel à l'initiative populaire et communautaire, d'œuvrer pour l'amélioration de la qualité de la vie, soit au niveau individuel, soit au niveau collectif ».

La politique de l'environnement cherche à optimiser et à garantir la continuité dans l'utilisation des ressources naturelles, qualitativement et quantitativement, comme principe fondamental pour un développement durable.

Ces principes sont établis à partir d'un éventail de mesures (article 4) dont l'objectif est de fournir un cadre qui favorise la santé et le bien-être des personnes, le développement social et culturel des communautés, ainsi que l'amélioration de la qualité de vie.

Au plan des normes, la loi ne dispose pas les limites réglementaires environnementales, comme par exemple, la qualité du sol, la qualité de l'eau, et qui pourraient être applicables au projet.

#### **- Décret – Loi n° 7/2000 du 24 aout qui définit un encadrement technique et scientifique de l'utilisation des produits phytopharmaceutiques**

Ce décret – Loi constitue la législation en matière de produits phytosanitaires en République Bissau-Guinéenne. Il stipule en son Article 2: 1. qu'il est interdit d'importer, de fabriquer, de formuler, conditionner ou rénover, stocker, utiliser ou mettre sur le marché tous les produits de protection des plantes non approuvé ou non autorisé par CSP

A ce décret-loi s'ajoute :

- Les directives contenues dans la convention de Rotterdam qui permettent au pays de sélectionner les types de pesticides dont il autorise l'importation;
- Les directives contenues dans le code de bonne conduite pour la distribution et l'utilisation des Pesticides, de la FAO sont un appui à toute cette gamme de textes.

#### **2.2.4. Politiques environnementale et sociale du Fonds d'Adaptation**

La politique vise à faire en sorte que dans la poursuite de la mission du Fonds de lutter contre les effets néfastes et les risques posés par le changement climatique, les projets et programmes soutenus par le Fonds ne donnent pas lieu à des dommages environnementaux et sociaux inutiles.

La politique environnementale et sociale est fondamentale pour assurer que le Fonds ne soutient pas les projets / programmes qui nuisent inutilement à l'environnement, la santé publique ou les communautés vulnérables. Dans le cadre des responsabilités des entités d'exécution du projet / programme, toutes les entités d'exécution devront (i) disposer d'un système de gestion environnementale et sociale qui garantit que les risques environnementaux et sociaux sont identifiés et évalués le plus tôt possible à la conception du projet / programme, (ii) d'adopter des mesures pour éviter ou si l'évitement est impossible de minimiser ou d'atténuer ces risques lors de la mise en œuvre, et (iii) de surveiller et de faire des rapports sur l'état de mise en œuvre de ces mesures pendant et à la fin du projet.

Conformément à la Politique environnementale et sociale du Fonds d'Adaptation, en aucun cas, les fonds du Fonds d'adaptation peuvent être utilisés pour l'achat de pesticides contenant des ingrédients actifs ou des pesticides de classe I ou de classe II dont la composition ne peut être déterminée.



Le tableau suivant présente les différentes classes des pesticides en fonction des dangers qu'ils présentent.

Tableau: Classification OMS recommandée des pesticides

Classe		DL <sub>50</sub> pour un rat (mg/kg de poids vif)			
		Voie orale		Voie cutanée	
		Solide	Liquide	Solide	liquide
Ia	Extrêmement dangereux	<5	<20	<10	<40
Ib	Très dangereux	5-50	20-200	10-100	40-400
II	Modérément dangereux	50-500	200-2000	100-1000	400-4000
III	Légèrement dangereux	>500	>2000	>1000	>4000
U	Sans danger en cas d'usage normal	>2000	>3000	-	-

Source: Copplestone J.L (1988). *The development of the WHO recommended Classification of Pesticides by Hazard*

### **III. DESCRIPTION DU PROJET ET ZONE D'INTERVENTION**

#### **3.1. Description des principales activités du projet**

Le projet, tel que conçu, traitera des principales questions de vulnérabilités dans l'agriculture et de la gestion rationnelle des ressources en eau afin de contribuer au développement et à la résilience des besoins immédiats et à long terme des agriculteurs extrêmement vulnérables, avec un accent particulier sur les groupes extrêmement vulnérables notamment les femmes, les personnes âgées et les enfants.

En lien avec la vulnérabilité du pays et les besoins d'adaptation identifiés, trois objectifs spécifiques sont poursuivis dans le cadre de ce projet:

1. Développer les capacités techniques et institutionnelles du gouvernement et de la société civile (secteur privé, communautés locales, ONG, etc.) pour faire face à l'augmentation du risque climatique dans la planification de l'adaptation au changement climatique;
2. Améliorer la résilience des systèmes de production agricoles existantes et contribuer à la diversification de la production, y compris la mise en œuvre d'un système de contrôle et de gestion de l'eau pour réduire au minimum les risques de sécheresses intenses et les inondations;
3. Promouvoir la diffusion des connaissances, des leçons apprises sur l'agriculture intelligente au climat et de la planification de l'adaptation à d'autres régions de la Guinée Bissau, à d'autres pays d'Afrique de l'Ouest.

Ces objectifs s'inscrivent en droite ligne de ceux énoncés par le Fonds d'Adaptation visant à "Réduire la vulnérabilité et accroître la capacité d'adaptation pour répondre aux impacts du changement climatique, y compris la variabilité au niveau local et national".

Le projet s'intègre également dans les documents de politique, stratégie et plan relatifs au développement de l'agriculture en Guinée Bissau, à la réduction de la pauvreté, au renforcement de la sécurité alimentaire et les capacités des populations à mieux s'adapter au changement climatique. Le projet s'intègre également dans la vision de développement 2035 de la Guinée Bissau.

Pour atteindre les objectifs ci-dessus, le projet a été structuré en trois composantes à savoir :

- Développement des capacités techniques et institutionnelles pour répondre aux risques climatiques dans les pratiques d'adaptation et de la planification
- Accroissement de la résilience des systèmes productifs agricoles existants, y compris les mesures de contrôle et de gestion de l'eau
- Gestion de la connaissance et des leçons apprises sur l'agriculture intelligente

Au-delà de ces trois composantes de base, le projet comporte une composante relative à la gestion et coordination du projet.

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- Accroissement de la résilience des systèmes productifs agricoles existants, y compris les mesures de contrôle et de gestion de l'eau
- Gestion de la connaissance et des leçons apprises sur l'agriculture intelligente

Au-delà de ces trois composantes de base, le comporte une composante relative à la gestion et coordination du projet.

Pour chacune desdites composantes, les activités ont été planifiées afin d'atteindre les objectifs poursuivis par le projet.

***Composante 1. Développement des capacités techniques et institutionnelles pour répondre aux risques climatiques dans les pratiques d'adaptation et de la planification***

Le projet propose un renforcement des capacités techniques et institutionnelles pour la planification des mesures d'adaptation au changement climatique. Cela comprendra le développement participatif des mesures d'adaptation agricole et de gestion de l'eau sur les sites et l'élaboration de plans d'intervention d'urgence (protection contre les inondations par exemple) pour la gestion des risques climatiques. Un autre accent sera mis sur le renforcement des interactions entre les acteurs concernés par l'adaptation au changement climatique: le gouvernement, les services météorologiques, le secteur de l'agriculture, des instituts de recherche, le gouvernement régional et national, ainsi que les médias et les communautés locales et autochtones.

Dans le but d'assurer une intégration parfaite des questions environnementales et sociales et le genre, le projet propose des actions de renforcement des capacités des acteurs impliqués dans la mise en œuvre du projet.

Il sera mis en place des brigades de feu qui bénéficieront des formations de renforcement de capacités dans la surveillance et la lutte contre les feux de brousse dans l'intérêt de préserver les formations forestières restantes et les plantations qui constituent des sources de revenus substantiels pour les populations.

Les résultats attendus et les activités planifiés sont:

**Résultat 1.1 :** Une évaluation de la vulnérabilité socio-climatique de l'Est de la Guinée-Bissau est conduite afin de sortir les réels besoins d'adaptation. Les activités envisagées sont :

- Évaluation des besoins en matière de capacité technique pour les ministères et les agents de terrain ;
- Plan d'intervention détaillé pour les actions pilotes d'agriculture intelligente en faveur du climat en Guinée-Bissau-Est.

**Résultat 1.2 :** Les groupes d'agriculteurs, les professionnels du développement et les experts gouvernementaux ont intégré des connaissances sur l'agriculture intelligente au climat, en pratique (sur place) et sur la planification de l'adaptation

- Formation technique pour les groupes cibles identifiés sur les pratiques agricoles
- Renforcement des capacités organisationnelles des agriculteurs
- Développement participatif d'actions d'adaptation agricole et de gestion de l'eau sur place
- Assistance technique et vulgarisation rurale pour les sous-projets
- Renforcement des capacités en matière de gestion des S & S et d'intégration de la dimension de genre
- Renforcement des capacités des brigades de pompiers pour prévenir les incendies de forêt
- Sensibilisation des populations locales à la gestion de la protection des forêts
- Renforcement des capacités des groupes de producteurs sur les bonnes pratiques et la gestion des pesticides et des pesticides
- Renforcement des capacités en matière de gestion des plans d'urgence.

## **Composante 2. Améliorer la résilience des systèmes de production agricole existants, y compris les mesures de contrôle et de gestion de l'eau**

Cette composante vise à mettre en place les infrastructures de rétention des eaux pour assurer l'irrigation des cultures. Elle vise à accroître les productions et rendre disponible les produits alimentaires pour la consommation propre et éventuellement pour la commercialisation. Il s'agira de construire des seuils d'irrigation sur les sites identifiés. Des actions d'amélioration de la qualité du sol et de la protection des zones de mise en valeur contre l'ensablement seront entreprises.

Le projet apportera un appui technique dans le développement et la mise en valeur des sites à travers les services techniques du Ministère de l'agriculture et les autres institutions impliquées dans le projet.

Le projet réalisera au profit de la population des forages à motricité humaine dans les villages retenus pour améliorer l'alimentation en eau potable. A ces forages seront associés des abreuvoirs pour l'alimentation en eau du bétail.

Les résultats et activités spécifiques sont :

**Résultat 2.1:** Les activités agricoles sont intelligentes sur le plan du climat et contribuent à une augmentation durable de la productivité et renforcent la sécurité alimentaire nationale. Les activités sont :

- Construction de systèmes d'irrigation (digues, diguettes, bassin de rétention d'eau pluvial, forage, etc.) pour maintenir la production agricole en période de sécheresse
- Protection des sites contre l'érosion et l'ensablement à travers la mise en place des digues antiérosives et le reboisement des alentours des sites avec les arbres fruitiers adaptés
- Réhabilitation de la productivité des sols avant la mise en valeur des périmètres, y compris les investissements à petite échelle dans les machines et les outils de production



- Réalisation des forages d'eau à action humaine dans les villages bénéficiaires pour améliorer l'approvisionnement en eau domestique et pour le bétail

### ***Composante 3. La gestion des connaissances des enseignements tirés de l'agriculture intelligente face au climat et à la planification de l'adaptation***

Afin de garantir la visibilité des résultats du projet une stratégie de gestion des connaissances sera développée. Le produit de diffusion de base du projet sera un manuel de bonnes pratiques dans l'agriculture résiliente au changement climatique. Différentes versions du manuel seront produits, les deux sujets thématiques pertinents, techniques et non techniques, en portugais, en français et en anglais. Des informations sommaire sur feuilles / brochures / calendriers seront produites. Les manuels seront diffusés sur le site Web du projet et une suite d'ateliers au niveau national et provincial. En outre la diffusion aura lieu dans toute la région Afrique de l'Ouest grâce à des ateliers et à la diffusion de copies papier. L'équipe du projet sera en outre en interaction avec des médias nationaux (presse, internet, radio, etc.) pour rendre le public conscient des risques climatiques et des besoins d'adaptation.

**Résultat 3.1:** Des pratiques et une gestion agricoles intelligentes et respectueuses du climat sont adoptées dans des régions comparables du pays et diffusées dans d'autres pays d'Afrique de l'Ouest, contribuant ainsi à la résilience et aux besoins de développement dans ces régions. Les activités sont :

- Développement d'une stratégie de gestion des connaissances
- Création et animation d'un site web du projet pour la diffusion des informations
- Elaboration des manuels sur les meilleures pratiques agricoles et les mesures en faveur d'une agriculture respectueuse du climat

- Diffusion des résultats dans d'autres régions de la Guinée-Bissau, en Afrique de l'Ouest.

### 3.2. Zone d'intervention du projet

Le projet couvre les régions de Bafata et de Gabù. Ces deux régions forment l'Est Bissau-Guinéen. Les secteurs administratifs couverts par le projet sont les secteurs de Pitche, Pirada, Gabú, Sonaco, Contuboei et Ganadu.



Figure 1 : Carte de localisation de la zone d'intervention du projet

## IV. ENNEMIS DE CULTURES ET PROBLEMES INDUITS

### 4.1. Ennemis de cultures

Les principaux ennemis des cultures vivrières (riz, maïs, etc.) et diverses plantes maraîchères (tomates, oseille, piment, gombo, etc.) sont connus et combattus avec usage de diverses techniques.

Dans plusieurs rapports de recherche agronomique, on peut noter que les conditions de climat tropical humides ou sèches avec des niveaux de températures suffisamment élevées favorables pour le développement de micro-organismes phyto-pathogènes.

Pour toutes les cultures prises globalement, de nombreux ennemis sont connus aux différents des taxons dont les dégâts sont susceptibles d'atteindre des seuils économiques. Nombreux phytophages qui s'attaquent principalement au riz sont :

#### Les Insectes et acariens :

- Nymphula Spp;
- Diopsis;
- Heteroninchus oryzae;
- Les ravageurs polyphages (pucerons-mouches blanches-criquets-termites) ;
- Sauteriaux;
- spodotera
- Les ravageurs avec plantes hôtes spécifiques (cochenilles farineuses (manguiers et Agrumes)

### Les rongeurs et oiseaux

- Les rats au semis (arachide, niébé, maïs, riz) ; □ Les oiseaux au semis et à la maturité (riz).

### Les mauvaises herbes :

- L'herbe de Laos (*chromolena odérata*) ;
- Les cypéracées ;
- Les euphorbiacées ;
- Les astéracées.

### Les maladies

- *Pyricularia oryzae*
- *Helmithosporium oryzae*
- *Rhynchospodium oryzae*
- Fausse charbon

#### **4.2. Pertes et dégâts causés par les ennemis de la culture**

Les pertes et dégâts que ces ennemis de la culture occasionnent sur les cultures vivrières et les cultures maraichères traduisent généralement par la baisse de rendement, et par conséquent par la diminution de la production affectant la sécurité alimentaire et le bien être des producteurs.

### 4.3. **Stratégies de lutte contre les ennemis de cultures**

Pour combattre les différentes pestes, les principales stratégies généralement utilisées s'articulent autour de la lutte préventive, la lutte curative et la lutte culturale.

#### **4.3.1. Lutte préventive**

La lutte préventive est beaucoup plus utilisée dans le cadre de la lutte contre les insectes, avec des moyens matériels et humains, ainsi qu'un système de surveillance mis en place à cet effet. Quant aux autres pestes, elles sont généralement suivies par les producteurs eux-mêmes, les services déconcentrés de l'agriculture et de la protection des végétaux. Ce suivi local permet d'identifier précocement les pestes, les zones à risques d'infestation et de préparer conséquemment la lutte curative. Par ailleurs, il faudra signaler aussi le choix des variétés les plus résistantes, le traitement des semences comme méthodes de lutte préventive.

#### **4.3.2. Lutte curative**

Dans le cadre de la lutte curative, plusieurs méthodes sont utilisées:

- **Lutte chimique**

Elle constitue la méthode la plus employée. Sur les périmètres rizicoles et maraîchers, ils sont directement traités par les producteurs eux-mêmes aussi bien pour les semences, les ravageurs des fruits et légumes, les récoltes stockées, que pour les épandages des herbicides du riz. Malheureusement, ces producteurs ne maîtrisent ou ne respectent pas toujours les modes opératoires et ne portent généralement pas des mesures de protection lors des applications. Ce qui les expose à des risques sanitaires liés à ces produits.

- **Lutte biologique**

Elle consiste en la régulation des populations de ravageurs par l'introduction de leurs prédateurs et parasites dans le même milieu. Cette méthode n'est pas répandue en Guinée Bissau.

- **Lutte mécanique**

Elle concerne principalement la lutte contre les oiseaux granivores dans les périmètres rizicoles. Les méthodes les plus courantes sont :

- l'élagage des arbres pour empêcher les nidifications : cette méthode comporte des risques environnementaux liés au déboisement ;
- le dénichage.

- **Lutte agronomique ou culturale**

Plusieurs méthodes de lutte agronomique ou culturale sont recensées dans la zone du projet et concernent principalement le riz :

- Contre les oiseaux granivores : respect du calendrier cultural, notamment synchronisation des dates de repiquage pour limiter la période de maturation ;
- Contre les insectes : u.
- Contre la Panachure jaune et le flétrissement bactérien :
- Arrachage et brûlage des plants malades ;
- Arrachage des hôtes alternatifs (les riz sauvages, *Echinochloa stagnina* et d'autres graminées comme *Leersia hexandra*)
- Mise à sec des parcelles des riz, application de cendre et réduction de la dose d'urée ;
- Évitement de fortes densités ;
- Évitement des excès de la fertilisation azotée ;
- Utilisation de variétés tolérantes ou résistantes aux maladies.
- Etc.



## V. UTILISATION ET GESTION DE PESTICIDES

### 5.1. Importation des pesticides

Les pesticides utilisés en agriculture sont en totalité importés par des firmes ou sociétés représentant les grandes industries agro-chimiques. Le circuit d'importation des pesticides en Guinée Bissau n'est pas encore bien maîtrisé. Il n'est donc pas possible de connaître la quantité totale de pesticides importés dans le pays. La situation géographique de la Guinée Bissau en fait un marché d'écoulement et d'utilisation et/ou de transit de divers produits aux caractéristiques souvent douteuses. Cette situation est favorisée par:

- la perméabilité des frontières (Sénégal, Guinée Conakry, Mali);
- la non disponibilité en tous lieux des pesticides homologués. ;
- l'ignorance par les populations de certains produits à base de matières actives extrêmement et hautement dangereuses;
- l'accessibilité à faible coût de ces produits en comparaison des pesticides homologués;

L'importation n'est pas encore maîtrisée par le Département du Développement Rural et de l'Agriculture de la Guinée Bissau. Les importations viennent principalement de la sous-région notamment du Sénégal, du Mali, ou de la Guinée Conakry voisin. Compte tenu des nombreuses larges et élastiques frontières, le circuit d'importation des pesticides n'est pas totalement maîtrisé pour connaître la quantité totale de pesticides en circulation dans le pays.

En effet, 87 produits sont autorisés par le CSP d'après la liste de janvier 2009 du Secrétariat Permanent du CSP à Bamako. Cependant, dans les faits beaucoup de produits non autorisés entre clandestinement dans le pays en provenance des pays limitrophes comme le Sénégal, la Guinée.

## **5.2. Organisation et pratique de la distribution et commercialisation**

La distribution et la vente ne sont pas assumées par des revendeurs non agréés, mais on trouve sur le marché des vendeurs informels notamment dans les marchés hebdomadaires. Il est noté à travers le pays quelques revendeurs et d'étalagistes de pesticides dont la gestion pose problème aux services chargés de la réglementation et du contrôle. En effet, bon nombre d'entre eux ne répondent pas aux profils exigés par le métier. Dans les régions, il n'existe pas de magasins appropriés de stockage des pesticides.

Les Services de la Direction de la Protection des Végétaux (DPV) sont chargés du contrôle des distributeurs afin de s'assurer que seuls les produits homologués sont mis à la disposition des producteurs. Mais il faut souligner que leur nombre est relativement insuffisant pour couvrir le pays. L'insuffisance des points de vente officiels et les nombreux points de vente clandestins ne facilitent pas ce contrôle. On notera (i) les Postes de Police Phytosanitaires (postes fixes) aux points d'entrée et de sortie (postes frontières, ports, aéroports internationaux, service en charge des colis postaux) ; (ii) les services locaux de contrôle à l'intérieur du territoire (services itinérants).

## **5.3. Utilisation des pesticides**

### **5.3.1. Au niveau de la Direction de la protection des végétaux/ institution publique**

L'intervention de la DPV dans sa mission de promouvoir des mesures de lutte contre les organismes nuisibles se traduit pas la coordination, l'expertise et l'appui technique en matière de protection des végétaux et du phytosanitaire. Cependant, elle peut intervenir directement sur terrain dans le cas de fléaux ou d'une grande infestation des ennemis de la culture en

organisant la lutte (appui technique) et autant que possible en appliquant les mesures phytosanitaires adéquates (recherche de solutions alternatives et écologiques).

### **5.3.2. Au niveau des producteurs**

Au niveau des producteurs, le degré d'utilisation des pesticides varie suivant les types de cultures et l'intensification culturale. Les cultures de riz ne font pas généralement appel à une utilisation de quantités importantes de pesticides dans la zone du projet. L'utilisation des pesticides dépend aussi des capacités financière des producteurs. Les producteurs qui disposent d'un peu de moyens s'approvisionnent de pesticides de qualité et homologués.

Dans la lutte chimique, les agricultures font recours à divers produits. Parmi ces produits, on peut citer: Endo sulfan-DDT; Endo sulfan-DDTméthylparathion ; Aldrin-DDT ; Poly chloro camphène-DDT-méthylparathion. La facilité d'accès aux pesticides, parfois même des pesticides prohibés notamment certains organochlorés (DDT, Dieldrine, Endosulfan, Endrine, etc.) est due à la multiplicité des points de vente de produits phytosanitaires mais aussi et surtout, du manque de contrôle de l'usage et de la commercialisation de ces substances. Ces produits sont dans la plupart des cas des produits à risques ou interdits.

### **5.3.3. Stockage des pesticides au niveau des paysans**

Au niveau des populations, le système de stockage à domicile n'est pas souvent conforme et présente des risques majeurs. En effet il peut arriver que les produits soient stockés dans les chambres, au niveau d'un coin de l'habitation, dans des contenants non identifiés avec tous les risques inhérents à cette pratique notamment l'utilisation pour des fins d'alimentation par les enfants et aussi les adultes.

### **5.3.4. Application des pesticides**

Ces pesticides sont parfois utilisés à tort et à travers, par les agriculteurs mais aussi par des applicateurs informels, surtout dans le maraîchage. Les produits sont même utilisés à des fins médicamenteuses (traitement de poux). Dans la plupart des cas, les agriculteurs effectuent les opérations sans équipement de protection adaptés (masques, gants, tenues, etc.).

### **5.3.5. Gestion des emballages vides et des obsolètes**

Les emballages vides de pesticides sont utilisés pour stocker, conserver et transporter des boissons (dont l'eau, le vin de palme, du vin d'acajou, l'huile de palme, le lait, etc.) ainsi que des aliments tels que les bouillies et l'huile.

Il n'existe pas de système de gestion et d'élimination des emballages vides et des obsolètes de produits phytosanitaires en Guinée Bissau. En général, ces emballages vides sont réutilisés par les agriculteurs avec tous les risques sanitaires que cela comporte, soit ils sont rejetés dans la nature d'une manière anarchique, soit ils sont enfouis ou brûlés sur place.

## **5.4. Contraintes liées la gestion des pesticides**

Les problèmes et contraintes suivantes ont été identifiés dans le cadre de la gestion actuelle des pesticides:

### ***Au plan institutionnel, législatif et réglementaire***

- Insuffisance des agents techniques auprès des producteurs ;
- Insuffisante de l'organisation des producteurs pour l'acquisition des produits ;
- Insuffisance de l'application des textes relatifs à la gestion des pesticides ;

- Insuffisance de la diffusion des textes juridiques en matière de gestion des pesticides ;
- Insuffisance de la diffusion des résultats de la recherche.

### ***Au plan des capacités des acteurs et de la conscientisation des populations***

- Insuffisance de la formation des producteurs agricoles sur l'usage des pesticides ;
- Insuffisance de l'information des populations sur la gestion sécuritaire des pesticides;
- Manque de contrôle de la qualité des pesticides et de la recherche des résidus dans les eaux, les sols et les aliments par la DPV et l'AAAC ;
- Coûts élevés des pesticides homologués par rapport aux pesticides fraudés.

### ***Au plan de la gestion technique des pesticides***

- Introduction de pesticides frauduleux, toxiques et de qualité douteuse ;
- Insuffisance/inadéquation d'infrastructures de stockage des produits;
- Insuffisance des agents techniques auprès des producteurs
- Insuffisance de contrôle, par les agents compétents, des pesticides vendus par les revendeurs et ceux utilisés par les producteurs ;
- Difficultés de retrait des pesticides non homologués et vendus sur le marché ;
- Insuffisance de la diffusion des méthodes alternatives aux pesticides et de lutte intégrée;
- Absence de collecte et de traitement des flacons ou contenants vides de pesticides ;
- Insuffisance de systèmes d'élimination des déchets.

### ***Au plan des méthodes de lutte intégrée***

- Insuffisance des expérimentations/ démonstrations, au niveau paysan, sur les méthodes de lutte alternatives aux pesticides ;

- Insuffisance d'agents formés en gestion intégrée des pestes et pesticides des cultures ;
- Insuffisance de la mise en œuvre des méthodes alternatives en lutte contre les déprédateurs.

### ***Au plan de suivi et contrôle***

- Absence d'analyse des résidus de pesticides dans les sols et dans les eaux;
- Absence de structure et de système de collecte et de gestion des emballages vides ;
- Absence de protection spécifique des canaux secondaire et tertiaire qui traversent les champs ;
- Insuffisance de techniciens spécialisés en évaluation environnementale et en suivi évaluation.

### **5.5. Impacts négatifs de l'utilisation non contrôlée des pesticides**

Si les pesticides permettent de détruire les insectes, rongeurs, mauvaises herbes ou champignons qui peuvent se révéler indésirables pour l'agriculture, ils provoquent d'autre part des pollutions graves de l'environnement, qui ont des conséquences sur la santé humaine.

En effet, les pesticides se disséminent dans l'atmosphère lorsqu'ils sont appliqués, ou parce qu'ils s'envolent lorsqu'ils sont répandus. Ils retombent avec la pluie dans la terre, les plans d'eau, les rivières et sont drainés par les ruissellements et les infiltrations jusque dans les nappes phréatiques et les cours d'eaux souterraines.

La mauvaise application des pesticides, leur stockage sans précaution, les rejets de résidus sont responsables d'une contamination importante. Une pollution diffuse des cours d'eau, eaux souterraines existe aujourd'hui : il



devient difficile voire impossible d'assainir, et de rendre consommable pour l'homme.

Les pesticides ont des effets graves sur la santé humaine, qui varient en fonction de l'exposition, des doses : atteintes dermatologiques, neurologiques, du système cardio-vasculaire, du système respiratoire, maladies neurodégénératives, cancers...

Lorsqu'un organisme est exposé vis-à-vis d'un pesticide, il survient un effet qui est la manifestation de la toxicité du pesticide. Les toxiques produisent des effets au niveau de l'organisme à partir du moment où ils ont été absorbés, principalement au niveau de la peau, du tube digestif et des poumons ; les effets des produits toxiques sur l'organisme sont liés à leur concentration dans les organes cibles. Dans le cadre de l'emploi des pesticides comme mentionné dans la section précédente, les risques prévisibles sont liés aux étapes suivantes :

- stockage des produits ;
- manutention ;
- transport ;
- dosage lors des traitements particulièrement contamination des agents terrain (applicateurs) qui pourraient être exposés aux effets des pesticides si les consignes relatives aux normes d'utilisation des produits ne sont pas suffisamment appliquées ;
- etc.

Les principaux impacts/risques sur les milieux biophysique et humain, dans le cas où des pesticides traditionnels devraient être employés restent les suivants :

#### **5.5.1. Impacts sur le milieu biophysique**

Les composantes biophysiques les plus affectées sont entre autres le sol, l'eau, la faune, la flore.

- *Impacts sur les sols*

Le projet va induire l'utilisation ou l'augmentation de l'utilisation des pesticides dans les zones d'intervention. Ce qui aura des impacts négatifs potentiels sur les sols au niveau de la zone concernée.

En effet, pour accroître les rendements des cultures irriguées, la lutte contre les ennemis des cultures est une condition nécessaire et indispensable. Etant donné que c'est la lutte chimique qui est de loin la plus utilisée, l'usage des pesticides est susceptible de provoquer la modification de la composition des sols donc leur contamination surtout si l'application n'est pas faite dans les normes. Il y a risque d'acidification des sols en cas de mauvaise utilisation des pesticides.

Aussi, si les restes des pesticides ne sont pas bien gérés après l'application du traitement, ils contribueront à favoriser la contamination et la pollution des sols tout comme le déversement accidentel. Cet impact sur les sols pourrait avoir des incidences négatives potentielles sur les rendements des cultures qui constituent pourtant la finalité visée à travers l'utilisation de ces produits. Ceci justifie la nécessité de mettre en application les mesures que proposera le présent Plan de gestion des pesticides.

- *Impacts sur les ressources en eau*

L'utilisation des pesticides et autres produits chimiques pour lutter contre les ennemis des cultures aura des impacts négatifs potentiels sur les ressources en eau de surface et souterraine par ruissellement, lixiviation, lessivage et infiltration.

Pour ce qui concerne les eaux de surface, la principale menace est la pollution chimique. En effet, les pesticides utilisés peuvent se retrouver dans les eaux et les contaminer. Les principaux facteurs sont le ruissellement, le transfert et les vents. Une fois qu'ils s'y trouvent, ces pesticides peuvent altérer le PH et perturber l'équilibre écologique. Ainsi, les organismes vivants dans ces eaux tels

que les poissons et les autres microorganismes ne sont pas épargnés dans la mesure où ils peuvent être intoxiqués. On peut donc assister à une mortalité importante.

L'infiltration constitue la principale voie de contact entre les eaux et les pesticides. Par ce processus, les sources d'approvisionnement en eau de boisson que sont les retenues d'eau, les rivières, etc. peuvent être contaminées et devenir ainsi un problème de santé pour les populations.

- *Impacts sur la qualité de l'air*

L'utilisation des pesticides comporte des effets sur la qualité de l'air. Leur application sera source de contamination de l'air et engendra des nuisances olfactives.

- *Impacts sur la faune*

La faune sera affectée par les pesticides dans le cadre de la lutte antiparasitaire. En effet, la plupart des pesticides utilisés dans la lutte antiparasitaire peuvent toucher non seulement les ravageurs pour lesquels ils sont appliqués mais aussi « la faune non cible » à cause notamment de la non sélectivité de certains d'entre eux. Il faut noter également que les animaux peuvent être intoxiqués à travers les prises d'eau polluée par les pesticides. Les principaux mécanismes de l'intoxication chez cette dernière peuvent être :

- l'exposition pendant l'application surtout si elle est effectuée en période des conditions météorologiques défavorables (exemple : périodes de vents forts). En effet, lors du traitement des cultures par des pesticides, une proportion non négligeable de produit se trouve disséminée dans l'environnement, et ceci au-delà même du site traité.
- la consommation par les animaux, des pâturages récemment traités ;
- l'utilisation des contenants vides pour l'abreuvement des animaux.

Cette intoxication peut se traduire par des avortements chez les femelles en gestation. Elle peut également conduire à la perte des animaux.

On notera également des impacts tels que le développement d'autres formes de parasitisme, les accidents génétiques, la baisse de la productivité

- *Impacts sur la flore*

L'application non contrôlée des pesticides va occasionner des impacts négatifs sur la population végétale. Ces impacts sont entre autres :

- la réduction des effectifs et/ou des biomasses
- la disparition d'espèces ou de groupes d'espèces
- l'érosion et la perte de la biodiversité

Ces impacts sur la flore et la faune vont finalement induire à la rupture de l'équilibre écologique du milieu.

### **5.5.2. Impacts sur le milieu humain (santé humaine)**

L'exposition aux pesticides peut être directe (contact lors de l'application, passage sur un site traité) ou indirecte ou secondaire (par l'eau, par l'alimentation...) et est susceptible de concerner dans ce cas l'ensemble de la population.

Les risques (définis comme l'existence d'une probabilité de voir un danger se concrétiser dans un ou plusieurs scénarios associée à des conséquences dommageables sur des personnes) d'exposition ponctuelle ou prolongée, pouvant provoquer des intoxications aiguës ou chroniques, augmentent dans le cas présent lors de l'application (manipulation du pulvérisateur ...), d'un contact avec les végétaux traités ou d'un problème technique.

Ainsi, les risques varient en fonction non seulement du profil toxicologique du produit (danger du produit) mais aussi de la nature des expositions et de leurs intensités.

Ponctuellement, l'intoxication aiguë provoque des irritations, des lésions (yeux, peau), des brûlures, des intoxications, de l'asthme, des évanouissements, et ce, en cas d'accident mais également en cas de mauvaise manipulation. De manière prolongée, l'intoxication, due à une exposition à de petites doses répétées dans le temps, peut être la cause d'effets graves pour les organes (cancers, maladies neurologiques, baisse de la fertilité, ...).

Ainsi, l'un des impacts négatifs le plus significatif des pesticides sur l'homme concerne l'intoxication. En effet, le recours à ces produits pour lutter contre les ennemis des cultures pour accroître la production agricole peut être source d'intoxication des populations pouvant souvent entraîner la mort. Les principales voies de contact entre l'homme et les pesticides qui peuvent être à l'origine de cette intoxication sont :

- la voie cutanée lorsque les pesticides sont manipulés sans gants, lorsque le liquide est renversé sur les vêtements ou quand le mélange des pesticides se fait avec la main ;
- la voie respiratoire ou l'inhalation concerne l'exposition aux vapeurs des produits concentrés lors de la préparation de la bouillie, l'exposition sans équipements de protection appropriés lors de la pulvérisation ;
- la consommation des produits agricoles traités dont le délai de rémanence n'est pas respecté ;
- la voie digestive lors du siphonage d'un tuyau avec la bouche ou lorsqu'on fume ou mange sans laver les mains après l'application des pesticides.

Il faudrait par ailleurs noter que si les sources d'approvisionnement en eau de boisson sont contaminées, la consommation de cette eau peut à long terme engendrer une bioaccumulation des pesticides chez les consommateurs et provoquer des maladies. Enfin, la consommation des produits contaminés (légumes) à la suite de traitement peut également être source de plusieurs maladies.

### 5.5.3. Impacts sur l'économie régionale ou locale

Il est évident que si la santé des acteurs est détériorée, cela aura des impacts négatifs aussi bien sur les économies locale, régionale que nationale. En effet, non seulement les jours de travail vont diminuer mais les dépenses liées aux soins vont augmenter, mettant ainsi en péril la vie des familles impactées.

Les impacts négatifs liés à l'utilisation des pesticides sont résumés dans le tableau suivant.

**Tableau 2 :** Impacts négatifs de l'utilisation non contrôlée des pesticides.

Milieu	Nature de l'impact
Sol	<ul style="list-style-type: none"> <li>- Baisse de la Fertilité</li> <li>- Acidification</li> <li>- Alcanisation</li> <li>- salinisation</li> </ul>
Eau	<ul style="list-style-type: none"> <li>- perte de la qualité (contamination)</li> <li>- modification du PH</li> </ul>
Air	<ul style="list-style-type: none"> <li>- Contamination de l'air</li> <li>- Nuisances olfactives</li> </ul>
Biodiversité (faune et flore)	<ul style="list-style-type: none"> <li>- Chimiorésistance des ravageurs</li> <li>- Intoxication de la faune</li> <li>- Empoisonnement et mortalité</li> <li>- Réduction des effectifs et/ou des biomasses</li> <li>- Disparition d'espèces ou de groupes d'espèces</li> <li>- Rupture de l'équilibre écologique</li> <li>- érosion de la biodiversité</li> <li>- perte des espèces utiles</li> </ul>
Santé humaine	<ul style="list-style-type: none"> <li>- Intoxications aiguës <ul style="list-style-type: none"> <li>o maux de tête, vertiges, nausées, douleurs thoraciques, vomissements,</li> <li>o éruptions, cutanées, douleurs musculaires, transpiration, excessive, crampes,</li> <li>o diarrhée et difficultés respiratoires, coloration et chute des ongles, Empoisonnement, Décès</li> </ul> </li> <li>- Intoxications chroniques : <ul style="list-style-type: none"> <li>o Baisse du taux de cholinestérase,</li> <li>o Effets sur le système nerveux (neurotoxines),</li> <li>o Effets sur le foie et l'estomac</li> <li>o Baisse du système immunitaire</li> <li>o Perturbation de l'équilibre hormonale (cerveau, thyroïde, parathyroïdes, reins, surrénale, testicules et ovaires)</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>○ Risque d'avortement (embryotoxines)</li> <li>○ Mortalité à la naissance (foetotoxines)</li> <li>○ Stérilité chez l'homme (spermatotoxines).</li> </ul>
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## 5.6. Risques et effets des pesticides

### 5.6.1. Identification des populations exposées aux risques liées à l'utilisation des pesticides

Les risques ont lieu pendant le transport, le stockage, la manipulation (préparation de la bouillie), l'application. Les personnes exposées sont :

- *les agents de terrain*

Ce sont les personnes impliquées dans les opérations de traitement qui sont les plus exposées mais, il est important de signaler que tous les autres agents peuvent être en danger.

- *les populations*

Les utilisateurs sont exposés aux pesticides pendant les opérations de traitement et après les opérations, et l'utilisation sans décontamination préalable des récipients de pesticide vides. L'absence d'application des mesures d'hygiène et les bonnes pratiques liées à l'utilisation des pesticides les exposent dangereusement aux effets des pesticides.

L'emploi abusif des pesticides et les utilisations déviées entraînent des résidus dans les produits de récolte exposant ainsi dangereusement les consommateurs aux dangers de ces derniers. De même l'application des pesticides à proximité des sources d'eaux entraînent leur contamination par les eaux de ruissellement (pour les eaux de surface) et de lessivage/lixiviation pour les eaux souterraines exposant ainsi les consommateurs ces eaux aux effets néfastes des pesticides.

La situation est telle que les mesures de sécurité recommandées par les organisations internationales notamment l'OMS et la FAO ne sont pas respectées par les utilisateurs de pesticides. On note en générale, l'ignorance des effets indésirables des pesticides, l'absence d'Equipement de Protection individuelle (EPI) l'ignorance des voies de pénétration des toxines dans l'organisme ; manque d'hygiène (alimentation au cours des traitements); utilisation des emballages vides dans la chaîne alimentaire ; ignorance de l'influence des conditions météorologiques au cours des traitements.

A ces deux catégories de personnes exposées aux risques de pesticides, s'ajoutent la classe des enfants, les femmes et les personnes âgées :

- *Vulnérabilité des enfants*

Du fait de leur système immunitaire qui n'a pas atteint un développement complet comme celui des adultes, les enfants sont particulièrement vulnérables aux impacts de l'exposition aux pesticides. Aussi sont-ils exposés à travers l'allaitement maternel si leurs mères ont été victimes des intoxications dues aux pesticides.

- *Vulnérabilité des femmes*

Chez les femmes, plusieurs facteurs physiologiques, socioculturels et économiques sont à l'origine de leur vulnérabilité. Il s'agit entre autres de :

- la peau des femmes absorbe plus facilement les pesticides que celle des hommes ;
- l'abondance des matières grasses chez la femme: pesticides peuvent y résider plus longtemps que chez l'homme ;
- l'œstrogène (présente seulement chez les femmes) augmente les effets des pesticides sur le système nerveux ;
- Certaines activités liées à la récolte et au stockage incombent aux femmes » à la puce vulnérabilité des femmes.

- *Vulnérabilité des personnes âgées*

Les personnes âgées quant à elles constituent une couche fragile du fait de leur âge avancé entraînant la diminution de la capacité de défenses de leur organisme contre des attaques externes diverses (microbes, virus, produits dangereux,...).

### **5.6.2. Risques de gestion des pesticides**

Des quantités de pesticides font peser des risques majeurs sur la santé des hommes, des femmes, des animaux et l'environnement. Les conditions de stockage de ces déchets toxiques sont souvent inadaptées. Les pesticides sont souvent stockés dans les chambres à coucher, dans les cases de cuisines, dans les vestibules, dans des magasins situés au milieu des habitations. Les personnes sont donc exposées à l'émission dans l'air de ces déchets dangereux, aux risques intoxication alimentaire, etc.

L'utilisation des emballages des pesticides comme contenant des denrées alimentaires, des intoxications alimentaires par inadvertance, utilisation des pesticides comme arme de chasse et de pêche, des suicides volontaires sont autant de situations qui peuvent engendrer des accidents d'intoxications dus aux pesticides.

Les risques liés à l'usage des pesticides sont résumés dans le tableau suivant selon les étapes.

**Tableau 3** : Synthèse des risques liés à l'usage des pesticides.

Etape	Causes	Risques/Impacts		
		Santé publique	Environnement	Producteurs
Transport	Manque de formation Utilisation des véhicules non appropriés	Contamination de personnes	Déversement accidentel, pollution de la nappe par lixiviation	Inhalation de produit : vapeur, poussière, risque de contact avec la peau
Stockage	Insuffisance de structure de stockage Manque de structure de récupération des obsolètes Déficit de formation sur la gestion des pesticides	Contamination accidentelle Gêne, nuisance des populations à proximité	Contamination du sol, des eaux, de l'air	Contact avec la peau par renversement occasionné par l'exiguïté des lieux
Manutention manipulation	Déficit de formation et de sensibilisation	Contamination des sources d'eau par le lavage des contenants	contamination du sol par déversement accidentel ou intentionnel, pollution de la nappe	Inhalation vapeur, contact dermique par éclaboussure lors de préparation ou transvasement
Elimination des emballages	déficit d'information de sensibilisation Manques de structures appropriées pour l'élimination des emballages vides	Ingestion des produits par le biais de la réutilisation des contenants	Contamination de l'environnement	Contact dermique et appareil respiratoire Intoxication chronique du personnel et des riverains
Lavage des contenants	déficit de d'information de sensibilisation	Contact dermique, contamination des puits	Intoxication aigue des poissons et autres crustacées, pollution des puits et mares, nappes	Contact dermique

## **VI. INFORMATION ET PERCEPTION DE LA POPULATION**

Dans le cadre de la préparation du projet, il a été mené plusieurs consultations publiques. Il a été mené des interviews et consultations publiques auprès des producteurs dans les zones d'intervention. Les objectifs de ces consultations ont consisté à savoir et à déterminer les niveaux de capacité des planteurs de cannes dans la gestion des pesticides (utilisation, manipulation, maîtrise de consigne de sécurité à l'usage de ces produits) et de recueillir des témoignages de cas d'existence d'intoxications, de dangers vécus ou de l'état de santé des planteurs ou un des membres de leur famille.

### **6.1. Consultation publique**

La consultation publique a lieu dans les zones d'interventions avec les bénéficiaires et dans les ministères avec les agents techniques.

Cette consultation s'est déroulée en plusieurs phases:

- une première consultation a été menée lors de la préparation de la note conceptuelle du projet (PCN);
- une seconde consultation lors de l'étude sur les leçons apprises du projet LDCF en cours d'achèvement;
- une troisième lors de la préparation du Full Project; et
- Une quatrième lors de l'identification des sites potentiels du projet.

L'objectif est de rechercher les points de vue des bénéficiaires et de recueillir les informations de base pour permettre une meilleure conception du projet avec une implication particulière des groupes vulnérables, des aînés, des femmes et des jeunes.

L'objectif principal de cette approche de l'information, de la communication et de la participation des parties prenantes était de créer des échanges mutuellement bénéfiques, favorables à un dialogue ouvert visant à: (i) la propriété du projet par les bénéficiaires au stade de la préparation et de la planification; (ii) l'examen des préoccupations de toutes les parties prenantes, y compris les groupes vulnérables (femmes, jeunes, enfants, etc.) dans la conception et la mise en œuvre du projet; (iii) échanges sur le financement et la durabilité des actions du projet du point de vue environnementale, sociale et économique.

Au cours de la préparation du projet, une revue de la littérature a été réalisée. Des entretiens avec des personnes-ressources travaillant dans différents ministères et structures concernés ont été réalisés. Des visites sur le terrain (sites potentiels et sites en exploitation) et des entretiens avec les bénéficiaires ont été effectués. Cela a permis d'établir de manière participative les problèmes à résoudre, les types de solutions adaptées, etc.

Pour le cas spécifiques de la gestion des pestes et pesticides, les points de débat/échanges se portent sur les points suivants : perception sur l'utilisation des pesticides ; la maîtrise de l'utilisation des pesticides ; la manipulation des produits et des matériels de traitement ; les types de formation reçus sur les pesticides et leur utilisation ; les risques encourus et les préjudices physiques ou séquelle sur la santé des utilisateurs ; les menaces sur l'environnement et sur les éléments biotiques qui y existent.

Les résultats des discussions organisées se résument comme suit :

- les producteurs n'utilisent des intrants chimiques agricoles et plus particulièrement des pesticides occasionnellement lorsqu'aucune alternative ne s'offre notamment pour ce qui concerne la lutte contre les ennemis de culture ;
- Les menaces de ravageurs au niveau des cultures sont tolérables et ne provoquent pas de diminution perceptible de rendement ;



- l'encadrement des producteurs est assuré par des techniciens du Ministère de l'agriculture notamment les Directions régionaux de l'agriculture et les services de la Direction de la protection des végétaux sur le traitement phytosanitaire ;
- les producteurs achètent les pesticides auprès des revendeurs d'intrants ;
- les revendeurs fournissent les produits selon les demandes des producteurs et donnent des instructions sommaires sur leur utilisation ;
- les produits utilisés auparavant n'existent plus sur le marché actuel avec la législation en vigueur;
- l'offre de travail en main-d'œuvre est tellement inférieure à la demande des producteurs que ces derniers font parfois recours à l'utilisation des herbicides mais se heurtent au manque de moyens financiers.
- Aucun accident ni aucune maladie contractée dû à l'utilisation des pesticides n'a été observée par les producteurs.

## **6.2. Doléance et traitement des doléances**

Plusieurs doléances ont été formulées par les bénéficiaires potentiels dans le cadre de la préparation de ce projet. Celles qui concerne la gestion des pestes et pesticides, doléances majeures qui ont été sorties des discussions avec les planteurs, elles se convergent sur deux points :

- Le problème d'accès aux pesticides qui se traduit par l'impossibilité pour les producteurs d'acquérir des pesticides homologué dont le prix reste élevé par rapport aux autres pesticides ;

- Les besoins des producteurs en encadrement technique et en formation sur l'utilisation des pesticides et le traitement phytosanitaire.

Pour venir à bout de ces préoccupations, le projet compte promouvoir la lutte intégrée des pestes avec des alternatives agronomiques, culturales, mécaniques, biologiques afin d'éviter le recours aux pesticides chimiques ou de réduire considérablement l'utilisation de ces derniers. Ainsi, le projet apportera un appui technique et des conseils aux producteurs à travers les agents de la Direction de la protection des végétaux qui seront formés en gestion intégrée des pestes et pesticides dans le cadre du projet. Les producteurs seront formés sur des méthodes de gestion durable et intégrée des pestes et pesticides. Un appui organisationnel est également prévu afin de mieux organiser les producteurs.

Les principales actions de lutte intégrée de pestes et pesticides dans le cadre du projet sont présentées dans le Plan d'action suivant.

## **VII. PLAN D'ACTION POUR LA GESTION INTEGREE DES PESTES ET PESTICIDES**

Le plan d'action du PGIPP comprend : (i) l'approche de gestion intégrée des pestes et pesticides ; (ii) les principes d'intervention ; (iii) le renforcement du cadre législatif de gestion des pesticides ; (iv) le renforcement des capacités des acteurs à travers les formations; (v) les sensibilisations en vue de la promotion de l'usage des stratégies alternatives de lutte ; (vi) les bonnes pratiques à adopter durant le cycle de gestion des pesticides ; (vii) les mesures à prendre en cas d'intoxication ; et (viii) le plan de suivi- évaluation.

### **7.1. Approche de gestion intégrée des pestes et pesticides dans le cadre du projet**

La lutte intégrée contre les parasites (IPM) est concernée par une approche holistique des techniques de lutte antiparasitaire, visant à maintenir les applications des pesticides et d'autres interventions dans des limites économiquement justifiées tout en minimisant les risques (réels ou potentiels) pour la santé humaine ou l'environnement. La lutte contre les nuisibles naturels joue un rôle important dans l'IPM, et comprend des mesures directes et indirectes (voir le tableau ci-dessous). Le projet actuel sur l'agriculture intelligente pour le climat vise à réduire de manière significative l'application des pesticides chimiques directement, où de nombreuses activités - utilisation des cultures adaptées aux conditions locales, dépendance aux attentes de rendement appropriées, utilisation de variétés résistantes, densification optimale des cultivars, etc. - chevauchement avec protection indirecte des plantes.

L'option pour la promotion de la lutte intégrée contre les ravageurs et les pesticides dans le cadre du projet est faite pour éviter ou réduire considérablement l'utilisation de pesticides chimiques. En cas d'attaque parasitaire, les méthodes les moins dangereuses seront préférées. Les pesticides chimiques seront utilisés dans des cas extrêmes où des méthodes

moins dangereuses s'avéreront inefficaces. Dans ce cas, le choix de l'utilisation de pesticides chimiques sera effectué conformément aux recommandations du plan intégré de lutte antiparasitaire et pesticide. Étant donné que la Guinée-Bissau n'a pas une expérience soutenue dans la lutte intégrée contre les ravageurs et les pesticides, il est très important de tenir compte des expériences et des enseignements tirés de la FAO dans la gestion intégrée des ravageurs et des pesticides dans les pays subsahariens de l'Afrique. C'est pourquoi, les membres du comité national de gestion des pesticides et des pesticides (CNGP), les agents DPV, le PMU, les représentants des ONG chargés de la supervision des bénéficiaires sur les périmètres seront formés à la gestion intégrée des parasites et des pesticides Dans la zone du projet par un expert très expérimenté dans la gestion intégrée des pesticides et des pesticides de la FAO dans les pays subsahariens d'Afrique (voir l'élément d) ci-dessous). Cet expert sera recruté par l'UGP sous la supervision de l'Entité d'exécution.

À la fin des séances de formation, une boîte d'outils intégrés de lutte contre les ravageurs et les pesticides sera mise à la disposition des bénéficiaires, du DPV, de l'UGP, du CNGP et de la Direction régionale de l'agriculture pour des actions intégrées de lutte intégrée contre les ravageurs et les pesticides.

L'approche suivante garantira une gestion coordonnée et durable des pestes et pesticides dans le cadre du projet :

**Étape 1:** Diffusion des alternatives de lutte antiparasitaire.

Les alternatives aux pesticides en tant que contrôle agronomique, culturel, mécanique et biologique seront diffusées pour une meilleure utilisation par les producteurs. Les semences résistantes seront également promues. Ces actions seront intégrées au début des sites ou au développement des cultures afin de prévenir l'attaque par des ravageurs. La boîte d'outils intégrés de lutte contre les ravageurs et les pesticides élaborée à la suite de la formation par l'expert de la FAO sera mise à la disposition des bénéficiaires

Pour la gestion intégrée des pestes et des pesticides et d'autres activités durables dans le cadre du projet, le projet collaborera étroitement avec les

bureaux régionaux (CILSS à Ouagadougou (Burkina Faso, AGRHYMET à Niamey (Niger), EMPRES-FAO (Prévention des principales poussées de parasites en Afrique de l'Ouest et du Nord-Ouest) impliqués dans le développement durable de l'agriculture

Aucune modélisation spécifique des préjugés, exemple : Via le niveau de blessure économique et les seuils d'action, l'épidémiologie et les modèles de prévision, est prévu pour ce projet. Si disponible, cela peut être entrepris en collaboration avec des projets tiers identifiés par le Consultant recruté pour renforcer les capacités en matière de lutte intégrée contre les ravageurs et les pesticides

**Étape 2:** Lorsqu'une attaque de cultures par des organismes nuisibles est observée sur un site, les bénéficiaires donnent l'information au facilitateur du site et au coordonnateur régional du projet. Dans le même temps, les bénéficiaires signaleront le problème à la direction régionale de la DPV. Les agents de la direction régionale de la DPV, qui ont reçu une formation de l'expert de la FAO sur la lutte intégrée contre les ravageurs et les pesticides, effectueront une mission sur le terrain dans les 24 heures. Les agents du DPV une fois sur le site, et après avoir analysé le problème, propose des mesures adéquates dans un esprit de protection de l'environnement et de santé humaine. Des mesures de contrôle mécanique et des bio-pesticides seront proposés. Lorsque le traitement nécessite l'utilisation de pesticides, le DPV se réfère au Comité national de gestion des pesticides (CNGP)<sup>6</sup> qui peut être

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<sup>6</sup> Pour pallier aux problèmes liés à l'utilisation non contrôlée des pesticides et réduire les risques liés à l'utilisation de pesticides de mauvaise qualité il est mis en place un Comité National de Gestion des Pesticides (CNGP) en Guinée Bissau conformément à l'article 11 du Décret – Loi n° 7/2000 du 24 août 2000. Ce comité est formé des membres venant des structures tels que l'environnement, la santé, l'agriculture, les organisations d'agriculteurs, la douane. Le CNGP assure, entre autres : (i) la mise en œuvre et le suivi du respect des procédures et normes de contrôle de qualité des pesticides ; (ii) le contrôle post homologation des pesticides ; (iii) le contrôle de conformité des pesticides; (iv) le contrôle de la distribution et de l'utilisation des pesticides ; (v) le contrôle des Limites Maximales de Résidus (LMR) des produits d'importation destinés à la consommation locale ; (vi) le contrôle des professionnels de la filière des pesticides; (vii) la tenue du registre des opérateurs de la filière ; (viii) la tenue et l'actualisation des pesticides homologués ; (ix) la dénonciation des pesticides non homologués entrés dans le pays ; (x) le suivi en matière de toxicovigilance; (xi) le suivi des essais de pré-vulgarisation ; (x) le suivi de la mise en œuvre des conventions internationales relatives aux pesticides. Plusieurs

proposé, après analyse, à l'utilisation de pesticides de classe III et U de l'OMS. Le PMU rapporte à la BOAD les conclusions du CNGP et DPV pour obtenir l'approbation de la mise en œuvre des mesures. Sur la base du rapport d'analyse, la BOAD décidera en temps opportun de la non-objection pour l'UGP d'acheter les pesticides de classe III ou U. Les actions proposées par le CNGP et approuvées par l'entité de mise en œuvre seront immédiatement mises en œuvre par les bénéficiaires avec le soutien De l'UGP. Tous les moyens de communication les plus rapides seront utilisés pendant le processus afin d'agir efficacement dans les plus brefs délais.

Protection indirecte des plantes	Suivi et prévision	Protection directe des plantes
<p>Utilisation optimale des ressources naturelles:</p> <ul style="list-style-type: none"> <li>- Utiliser une culture adaptée aux conditions locales</li> <li>- S'appuyer sur les attentes de rendement appropriées</li> <li>- Utilisation de variétés résistantes</li> <li>- Gestion des mauvaises herbes avec une intensité de concurrence suffisante</li> <li>- Des mélanges adéquats de variétés et de cultures</li> <li>- Calendrier optimal de la période de semis</li> <li>- Formation sur les ravageurs et les pesticides appropriés, en particulier les options biologiques, et l'importance des zones de compensation écologique</li> </ul> <p>Utilisation des pratiques agricoles</p>	<ul style="list-style-type: none"> <li>• Le suivi et la prévision de l'incidence des ravageurs seront effectués conformément au plan d'IPM du projet.</li> <li>• Aucune modélisation spécifique des préjugés, p. Via le niveau de blessure économique et les seuils d'action, l'épidémiologie et les modèles de prévision, est prévu pour ce projet. Si disponible, cela peut être entrepris en collaboration avec des projets tiers identifiés par le Consultant recruté pour renforcer les capacités en matière de lutte intégrée contre les ravageurs et les pesticides</li> </ul>	<p>Utilisation de méthodes sélectives de lutte antiparasitaire:</p> <ul style="list-style-type: none"> <li>• Partout et chaque fois que cela est adéquat, dépend de la lutte biologique, des bio pesticides, etc.</li> </ul> <p>Méthodes chimiques de lutte antiparasitaire, uniquement lorsque d'autres options échouent ou seront très probables:</p> <ul style="list-style-type: none"> <li>• Préférence pour les pesticides les plus spécifiques et sélectifs (classe III et U de l'OMS)</li> <li>• Préférence pour les pesticides les moins nocifs et les moins</li> </ul>

structures interviennent au sein de ce comité (l'environnement, la santé, les organisations d'agriculteurs, la douane).



<p>sans impact négatif sur les agro-écosystèmes:</p> <ul style="list-style-type: none"> <li>- Absence d'apport excédentaire de nutriments (en particulier N);</li> <li>- Densité optimale de la culture et du feuillage pour faciliter la ventilation</li> <li>- Faible intensité du travail du sol / méthodes de culture et de production protégeant la fertilité des sols</li> <li>- Gestion des mauvaises herbes pour le contrôle de l'érosion</li> <li>- Conservation et protection de la biodiversité pour améliorer la biodiversité, réduisant ainsi l'incidence des ravageurs</li> <li>- Lorsqu'une protection et une augmentation adéquates des antagonistes biologiques bénéfiques.</li> </ul>		<p>toxiques (classe III et U de l'OMS)</p>
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## 7.2. Principes d'intervention

La gestion des pestes et pesticides dans le cadre du projet devrait porter sur les principes suivant:

- Précaution et attention ;
- Renforcement des capacités des acteurs sur la gestion intégrée des pestes et des pesticides ;
- Traçabilité des produits utilisés ;
- Coordination et coopération intersectorielle ;

- Information et gestion des données relatives à la gestion des pesticides ;
- Rationalisation et renforcement des structures de surveillance et prévention des risques ;
- Suivi et évaluation ;
- Contrôle de l'impact sanitaire et environnemental ;
- Effectivité de la participation de tous les acteurs concernés ;
- promotion de la lutte intégrée dans les systèmes de vulgarisation/information des producteurs.

Pour ce qui concerne la lutte intégrée, les 16 principes de base internationalement reconnus seront appliqués. Ces principes sont :

- Principe 1 : Obtenir et planter du matériel végétal de qualité
- Principe 2 : Choisir des sols fertiles et des lieux adaptés à la plantation
- Principe 3 : Adopter de bonnes pratiques en pépinière
- Principe 4 : Adopter les dispositifs et les dispositifs adéquats de plantation
- Principe 6 : Pratiquer la rotation des cultures
- Principe 7 : Adopter de bonnes pratiques de conservation du sol
- Principe 8 : Adopter les pratiques adéquates de gestion hydrique
- Principe 9 : Désherber régulièrement
- Principe 10 : Inspecter régulièrement les champs
- Principe 11 : Maintenir les champs parfaitement propres
- Principe 12 : Lutter efficacement contre les ravageurs et les maladies
- Principe 13 : Favoriser l'accroissement des populations d'ennemis naturels (auxiliaires)
- Principe 14 : Réduire au minimum l'application de pesticides chimiques
- Principe 15 : Adopter de bonnes pratiques de récolte
- Principe 16 : Adopter des dispositifs de stockage propres et de qualité.

Le détail de ces 16 principes est joint en annexe 3 du document.

### **7.3. Renforcement du cadre législatif de gestion des pesticides**

Il s'agit de :

- Prendre des mesures incitatives pour encourager l'utilisation des méthodes de lutte agronomiques, culturales, mécaniques et biologiques des pestes pour limiter considérablement l'utilisation de pesticides chimiques ;
- Vulgariser la gestion intégrée des pesticides et des pesticides.

### **7.4. Renforcement des capacités techniques des acteurs à travers les formations**

Le projet organisera des sessions de renforcement des capacités sur la gestion intégrée des ravageurs et des pesticides pour les acteurs impliqués dans le projet. Le renforcement des capacités sera axé sur les alternatives aux pesticides en tant que contrôle agronomique, culturel, mécanique et biologique. Il s'agit des techniques ou des mesures prises en compte dans le développement des cultures pour prévenir les ruptures de parasites et éviter ou réduire considérablement l'utilisation de pesticides chimiques (les alternatives à l'utilisation des pesticides chimiques sont présentées dans l'approche intégrée de gestion des pestes et pesticides présentée ci-dessous. Les activités de renforcement des capacités sur la gestion intégrée des pestes et pesticides concerneront au moins les institutions et individus suivants: les Directions régionales de la protection des végétaux, le Comité national de gestion des pesticides (CNGP), les Directions régionales de l'environnement et du développement durable, les Directions régionales de l'agriculture, les Directions régionales de la gestion des infrastructures hydrauliques de l'agriculture, représentant du gouvernorat de la région, Autorité compétente pour l'évaluation environnementale (AAAC), les Directions régionales de la santé publique, le Laboratoire national de recherche agraire (INPA), les

membres du comité de gestion des périmètres, les représentants des ONG chargés de la supervision des bénéficiaires sur les sites, l'UGP et les présidents des périmètres seront formés à la gestion intégrée des parasites et des pesticides.

Cette formation sera menée par un expert très expérimenté dans la gestion intégrée des pesticides et des pesticides de la FAO dans les pays subsahariens d'Afrique. Cet expert sera recruté par l'UGP sous la supervision de l'Entité d'exécution sur la base d'une liste restreinte d'experts recommandée par le bureau de la FAO basé à Rome (Italie) et en Afrique de l'Ouest à Accra (Ghana).

À la fin des séances de formation, une boîte d'outils intégrés de lutte contre les ravageurs et les pesticides sera mise à la disposition des bénéficiaires, du DPV, de l'UGP, du CNGP et de la Direction régionale de l'agriculture pour des actions intégrées de lutte intégrée contre les ravageurs et les pesticides.

Comme mentionné plus haut, pour la gestion intégrée des pestes et des pesticides et d'autres activités durables dans le cadre du projet, le projet collaborera étroitement avec les bureaux régionaux (CILSS à Ouagadougou (Burkina Faso, AGRHYMET à Niamey (Niger), EMPRES-FAO (Prévention des grands ravages dans Afrique de l'Ouest et du Nord-Ouest)) impliqués dans le développement durable de l'agriculture.

#### **7.5. Sensibilisation des producteurs pour promouvoir les stratégies de lutte intégrée des pestes**

Il consiste à :

- Renforcer l'échange d'information sur les alternatives de lutte intégrée des pestes et de leurs bénéfices pour l'environnement, la santé humaine et la production agricole ;
- Sensibiliser les groupements de producteurs sur les dangers et les bonnes pratiques d'hygiène en matière d'utilisation des pesticides ;

- Sensibiliser, éduquer et informer les groupements de producteurs sur l'utilisation judicieuse des pesticides ;
- Sensibiliser la population à la protection des personnes vulnérables aux pesticides ;
- Impliquer de manière active la société civile dans l'information/éducation/communication en matière de gestion des pesticides.

### Stratégie d'information et sensibilisation des usagers et de la population

La sensibilisation devrait viser la vulgariser des méthodes de gestion intégrée et même des méthodes traditionnelles très efficaces ainsi que des méthodes naturelles de lutte contre les insectes nuisibles.

En effet, l'information et la sensibilisation aux risques environnementaux et sanitaires sont très peu avancées dans le pays. Des stratégies à long terme et des approches efficaces sont nécessaires pour informer et sensibiliser toutes les parties prenantes en mettant l'accent sur les axes d'intervention suivants:

- élaborer et diffuser des outils/documents sur les différents risques liés à l'utilisation des pesticides et les bonnes pratiques de gestion intégrée des pestes en tant que solutions de rechange;
- sensibiliser des acteurs à travers des émissions débats radiodiffusées et télévisées pour promouvoir la gestion intégrée des pestes et pesticides
- apporter un soutien aux syndicats opérant dans les différents secteurs concernés pour la sensibilisation de leurs membres sur les risques professionnels liés aux produits chimiques dans leur domaine respectifs.

#### **7.6. Bonnes pratiques à adopter durant le cycle de gestion des pesticides dans les cas extrêmes d'utilisation des pesticides de classes III et U de l'OMS**

Dans le cadre du projet, les méthodes agronomiques, culturales, mécaniques et biologiques de lutte intégrée contre les pestes seront utilisées. Au cas où, ces

mesures se révèlent inefficaces face au problème qui persiste, seuls les pesticides de classe III et U de l'OMS peuvent être utilisés. Dans ce dernier cas, certaines des bonnes pratiques à appliquer dans le cycle d'utilisation de ces pesticides sont présentées dans le tableau suivant :



**Tableau 4** : Mesures de bonnes pratiques.

Étape	Risques	Bonnes pratiques
<b>Transport et manipulation</b>	<ul style="list-style-type: none"> <li>- Risque pour la santé.</li> <li>- Possible détérioration des emballages et de fuite et renversement des produits.</li> <li>- Risque de déversement sur le sol</li> </ul>	<ul style="list-style-type: none"> <li>- Utiliser les équipements de protection ;</li> <li>- Utiliser des appareils mécaniques appropriés pour transporter et lever les produits ;</li> <li>- Bien arrimer les charges ;</li> <li>- Isoler les produits de l'habitacle ;</li> <li>- Posséder les documents autorisant le transport de produits dangereux.</li> <li>- Séparer les produits dangereux des autres.</li> </ul>
<b>Stockage</b>	<ul style="list-style-type: none"> <li>- Risque de contamination par ingestion, contact avec la peau ou les yeux pour le gestionnaire du local, des personnes extérieures ou des animaux.</li> <li>- Risque de pollution de l'environnement par déversement</li> <li>- Risque d'incendie</li> </ul>	<ul style="list-style-type: none"> <li>- Stocker les produits dans un local réservé, ventilé et fermé à clé.</li> <li>- Conserver les produits dans leur emballage d'origine.</li> <li>- Réviser périodiquement les produits stockés pour s'assurer de leur bon état.</li> <li>- Pour l'approvisionnement, suivre la méthode des « premier entré = premier sorti ».</li> <li>- Ne pas laisser de matières combustibles dans le local (palette en bois, carton ...).</li> <li>- Identifier et isoler les produits non étiquetés dans le local et informer les services compétents</li> </ul>

	<ul style="list-style-type: none"> <li>- Risque de confondre deux produits qui ne sont pas destinés au même usage.</li> </ul>	<ul style="list-style-type: none"> <li>- Identifier et isoler les produits classés CMR (Cancérogènes, Mutagènes et toxiques pour la Reproduction).</li> </ul>
<b>Entretien du matériel</b>	<ul style="list-style-type: none"> <li>- Risque mécanique</li> <li>- Risque de contamination si les équipements de protection ne sont pas portés</li> <li>- Risque de mauvais fonctionnement de l'appareil (ex : buses ou tuyaux bouchés)</li> <li>- Risque de pollution accidentelle.</li> </ul>	<ul style="list-style-type: none"> <li>- Entretenir les équipements afin qu'ils soient toujours propres et en parfait état.</li> <li>- Changer régulièrement les filtres</li> <li>- Contrôler périodiquement les conduits de distribution en caoutchouc et les buses. Les remplacer suivant les recommandations du fabricant.</li> <li>- Adapter le matériel au type de traitement.</li> <li>- Utiliser un clapet anti-retour afin d'éviter tout siphonage de la cuve.</li> <li>- Veiller à ce que les réglages soient corrects.</li> <li>- Réviser les équipements avant l'emploi pour surveiller la présence de fuite.</li> <li>- Ne pas utiliser d'équipements ayant des défauts de qualité ou des fuites.</li> </ul>
<b>Préparation de la bouillie</b>	<ul style="list-style-type: none"> <li>- Risque de pollution d'eau et de l'environnement.</li> </ul>	<ul style="list-style-type: none"> <li>- Porter les équipements de protection individuelle. Les changer s'ils sont souillés ou usagés.</li> <li>- Bien lire les étiquettes et ne pas utiliser de produit non-étiqueté.</li> </ul>

	<ul style="list-style-type: none"> <li>- Risque pour la santé humaine, animale ou le matériel en cas de mauvais mélange.</li> <li>- Risque de chute si le remplissage se fait par le haut de la cuve.</li> <li>- Risque de confusion entre deux produits.</li> </ul>	<ul style="list-style-type: none"> <li>- Surveiller le remplissage pour éviter tout débordement et utiliser des appareils évitant tout risque de pollution accidentelle (cuve intermédiaire, clapet anti-retour, volucompteur ...).</li> <li>- Faire le remplissage sur une aire prévue à cet effet et équipé d'une cuve de recueillement des eaux souillées.</li> <li>- Calculer les volumes à l'avance et ajuster les doses de produits.</li> <li>- Réserver uniquement à cet usage les outils utilisés (entonnoir, pot doseur, ...).</li> <li>- Rincer les bidons à 3 reprises puis les laisser égoutter et sécher.</li> </ul>
<b>Application de la bouillie</b>	<ul style="list-style-type: none"> <li>- Risque pour la santé.</li> <li>- Risque pour l'environnement.</li> <li>- Risque de phyto-toxicité</li> </ul>	<ul style="list-style-type: none"> <li>- Porter les équipements de protection si le tracteur n'est pas équipé d'une cabine filtrée et climatisée et penser à changer les filtres régulièrement.</li> <li>- Tenir compte des conditions météorologiques (température, hygrométrie, vent).</li> <li>- Lors des fortes chaleurs, préférer un traitement aux premières heures ou aux dernières heures de la journée.</li> <li>- Tenir éloignés de la zone de traitement et des cultures traitées, les personnes et les animaux ne participant pas aux opérations.</li> <li>- Eviter au maximum le phénomène de dérive et bien choisir les buses d'application.</li> </ul>

		<ul style="list-style-type: none"> <li>- Ne pas traiter les bordures de cours d'eau Traiter en respectant la réglementation relative à la protection de la faune et en particulier des abeilles.</li> <li>- Respecter les doses d'épandage.</li> <li>- Rouler doucement en terrain irrégulier ou inconnu.</li> <li>- Terminer l'application par un rinçage de la cuve.</li> <li>- Prévoir des buses d'avance et des gants et/ou se munir d'une bombe d'air comprimé en cas de bouchage.</li> </ul>
<b>Fond des cuves ou récipients</b>	<ul style="list-style-type: none"> <li>- Risque de pollution des cours d'eau.</li> <li>- Risque pour la santé.</li> </ul>	<ul style="list-style-type: none"> <li>- Diluer le fond de cuve au moins 3 fois avec de l'eau claire.</li> <li>- Epandre sur la parcelle en veillant à ne pas dépasser la dose maximale ou vidanger sur une aire de remplissage équipée d'un système de récupération.</li> <li>- Eliminer les restes de fond de cuve au moyen d'un équipement agréé par le ministère ou par un prestataire de service.</li> </ul>
<b>Gestion des emballages</b>	<ul style="list-style-type: none"> <li>- Risque de pollution pour l'environnement.</li> <li>- Risque pour la santé de l'utilisateur, des personnes extérieures et des animaux.</li> </ul>	<ul style="list-style-type: none"> <li>- Ne pas déverser les restes sur la terre.</li> <li>- Rincer les bidons à 3 reprises, puis les laisser égoutter et sécher.</li> <li>- Ne jamais submerger ou introduire les récipients dans des canaux d'irrigation, cours d'eau ou lagune pour les laver.</li> <li>- Ne pas brûler les emballages vides.</li> </ul>

		<ul style="list-style-type: none"> <li>- Déposer les emballages vides dans des sacs spéciaux afin de les confier par la suite à des structures appropriées</li> <li>- Ne pas laisser des emballages vides sur la zone de traitement ou dans des endroits accessibles.</li> <li>- Identifier les produits non utilisés. Les isoler dans le local phytosanitaire en attendant leur collecte par des services spécialisés</li> </ul>
<b>Fin d'application</b>	Risques de contamination diverses	<ul style="list-style-type: none"> <li>- Laver les EPI réutilisables.</li> <li>- Se laver les mains avec de l'eau et du savon, prendre une douche à la fin du traitement et changer de vêtements.</li> <li>- Porter les équipements de protection pour le nettoyage des appareils de pulvérisation, des filtres.</li> <li>- Ne jamais souffler ou aspirer dans une buse.</li> <li>- Nettoyer l'appareil sur une aire prévue pour cet effet, qui peut être l'aire de remplissage.</li> <li>- Traiter l'eau de nettoyage comme un déchet dangereux.</li> </ul>

## 7.7. Mesures à prendre en cas d'intoxication

Les pesticides de classe III et U OMS ont moins d'effet sur la santé humaine en cas d'utilisation normale. Toutefois, en cas d'intoxication, des soins appropriés seront apportés aux victimes. Si la situation se présente comme étant préoccupante, la victime sera évacuée vers un centre de santé de la région qui a reçu les formations nécessaires en matière de gestion des intoxications par des pesticides. Le tableau suivant indique certains des signes d'intoxication et les soins primaires à apporter avant l'évacuation d'une victime,» si nécessaire.

**Tableau 5 :** Signes d'intoxication et soins primaires

Signes d'intoxication	Soins primaires
Contamination des yeux - douleurs ou irritations	<ul style="list-style-type: none"><li>- Rincer abondamment à l'eau du robinet</li><li>- Si cela aggrave consulter un médecin</li></ul>
Irritation de la peau- sensations de picotement et brûlure	<ul style="list-style-type: none"><li>- Laver la partie contaminée avec de l'eau, <i>jamais</i> avec de l'huile</li></ul>
Sensation de fatigue, maux de tête ou vertiges	<ul style="list-style-type: none"><li>- Se reposer</li><li>- Ne pas recommencer avant de se sentir totalement reposé</li></ul>
Inhalation du produit	<ul style="list-style-type: none"><li>- Rester à l'ombre</li><li>- Mettre sous surveillance médicale</li></ul>

## 7.8. Plan de suivi- Evaluation

Le plan de suivi est subordonné aux activités prévues dans le cadre du projet. Le Suivi est soutenu par la collecte et l'analyse de données pour vérifier si la mise en œuvre des activités se déroule comme prévu et pour procéder à des

adaptations immédiates, si nécessaires. Il s'agit donc d'une activité d'évaluation axée sur le court terme, afin de permettre d'agir à temps réel. La fréquence du suivi dépendra du type d'information nécessaire, cependant il sera continu tout le long de la mise en œuvre du projet.

Le suivi global sera assuré, par les structures mise en place pour la mise en œuvre du projet. Il sera organisé par le biais de visites périodiques sur le terrain. Un plan de suivi complet sera élaboré et mis à la disposition des acteurs impliqués dans la mise en œuvre et qui sont interpellés, chacun en ce qui le concerne, dans le suivi.

### **7.8.1. Indicateurs de suivi**

Les indicateurs à suivre lors de la mise en œuvre aussi bien des activités de recherche que celles relatives à la vulgarisation agricole par les coordonnateurs régionaux, les vulgarisateurs agricoles, les services chargés de la protection des végétaux, des services environnementaux et des services sanitaires du pays sont les suivants :

#### **a) Indicateurs d'ordre stratégique**

Les indicateurs stratégiques à suivre sont les suivants:

- Tenue de réunion de partage et de dissémination du Plan de gestion intégrée des pestes et pesticides;
- Niveau d'articulation et de synergie du PGIPP avec stratégies nationales en cours/en vue ;
- Processus, étapes et critères environnementaux dans les activités ;
- Nombre d'acteurs formés/sensibilisés sur la gestion intégrée des pestes et pesticides;
- Effectivité du suivi environnemental national et du reporting.

#### **b) Indicateurs liées au renforcement de capacités - Information/sensibilisation des populations à suivre par l'UGP**

- Nombre de sessions de formation effectuées;



- Nombre d'agents formés;
- Nombre d'agriculteur adoptant les pratiques de lutte intégrée des pestes ;
- Pourcentage de la population touchée par les campagnes de sensibilisation sur les risques liés à l'utilisation des pestes et les avantages environnementaux et sociaux liés à l'usage des alternatives de lutte contre les pestes ;
- Niveau de connaissance des utilisateurs sur les produits et les risques associés.

**c) Indicateurs à suivre par les coordonnateurs régionaux et autres structures de mise en œuvre du projet**

Les indicateurs ci-dessous sont proposés pour être suivi par les coordonnateurs régionaux en collaborations avec les structures étatiques impliquées dans la mise en œuvre du projet :

- Niveau de réussite de l'application des alternatives de lutte intégrée
- Degré de toxicité des produits utilisés ;
- Quantité disponible des équipements de protection
- Niveau de connaissance des bonnes pratiques de gestion (pesticides, emballages vides, etc.)
- Niveau de maîtrise des procédés de pulvérisation et d'imprégnation en cas d'usage de pesticides (pesticides moins dangereux) ;
- Niveau d'impact sur les animaux domestiques, les organismes aquatiques et la faune
- Niveau des risques associés au transport et à l'entreposage ;
- Mode de gestion des emballages vides.

**d) Indicateurs à suivre par d'autres institutions étatiques**

Lors de la phase de mise en œuvre des activités du Plan de gestion des pesticides, le suivi va porter sur les principales composantes environnementales

(eau, sol, végétation et faune, cadre de vie, santé, etc.) et sera assuré par les structures étatiques ayant en charge la gestion de ces composantes (services forestiers, services hydrauliques, services sanitaires, etc.).

Tableau: récapitulatif du Plan de suivi

Composante	Éléments de suivi	Indicateurs et éléments à collecter	Périodicité	Responsables du suivi
Eaux	Etat de pollution / contamination des eaux)	- Paramètres physico-chimique et bactériologique des plans d'eau (résidus de pesticides, etc.)	Une fois par an	DPV AAAC
Sols	Etat de pollution des sites	- Typologie et quantité des rejets (solides et liquides)	Une fois par an	DPV DRA AAAC
Végétation et faune	Évolution de la faune et de la microfaune ; et l'état de la flore de la biodiversité animale et végétale	- Type de méthode utilisée pour la gestion des pestes - Niveaux de destruction des non cibles (animaux, faune aquatiques et végétation)	Une fois par an	DPV AAAC DGE <sup>7</sup>
Environnement humain	Hygiène et santé Pollution Protection et Sécurité lors des opérations	- Types de méthodes utilisées - Nombre de producteurs formés sur les méthodes de lutte intégrée - Nombre d'accident/intoxication - Niveau du suivi effectué par les agents de la DPV	Une fois par semestre	DPV DRA AAAC

### 7.8.2. Arrangement institutionnel du suivi du PGIPP

Le suivi du Plan de gestion intégrée des pestes et pesticides est assuré par la DPV et l'AAAC. Ils seront appuyés par les institutions suivantes, chacune selon ses attributions :

- les Directions régionales de la protection des végétaux;
- le Comité nationale de gestion des pesticides ;
- les Directions régionales de l'environnement et du développement durable ;

<sup>7</sup> Direction générale de l'environnement

- les Directions régionales de l'agriculture ;
- les Directions régionales de la santé publique ;
- le service de la protection civile ;
- le Laboratoire nationale de la recherche agraire (INPA) ;
- les représentants des ONG.

L'entité d'implémentation évaluera la mise en œuvre des mesures du PGIPP à travers les rapports périodiques qui lui seront soumis par l'UGP et ses missions de vérification sur le terrain. Le rapport annuel de l'entité d'implémentation comportera une rubrique sur la mise en œuvre du PGIPP dans le cadre de l'exécution du Plan de gestion environnementale et sociale du projet.

### **7.8.3. Évaluation**

Deux évaluations seront effectuées dans le cadre du projet pour mesurer la performance du Plan de gestion des pestes et pesticides. Il s'agit de l'évaluation à mi-parcours et de l'évaluation finale. Toutefois des missions de suivi seront organisées à raison de deux missions par an pour mesurer l'efficacité des mesures proposer (formations, sensibilisation, mesures de bonnes gestion, etc.).

L'objet de l'évaluation sera de déterminer l'évolution correcte du plan de gestion, les résultats à mi-parcours. Les partenaires financiers, les bénéficiaires du projet et les autres partenaires impliqués participeront entièrement à l'évaluation du PGPP.

### **7.9. Coût des activités proposées dans le Plan d'action**

Le cout de mise en œuvre des mesures contenues dans le plan d'action est présenté dans le tableau suivant.

Les différentes actions proposées sont intégrées dans les composantes du projet et leurs coûts dans le budget du projet.

**Tableau 6 : Coût des activités.**

Composantes	Résultats	Activités	Indicateurs	Responsable de mise en œuvre	Responsable de suivi	Coût (USD)
Renforcement du cadre législatif de gestion des pesticides	Les textes réglementaires sont diffusés pour promouvoir la gestion intégrée des pestes	Diffuser les textes réglementaires Diffuser les listes des produits autorisés Promouvoir les mesures incitatives pour l'utilisation des méthodes de lutte intégrée Sensibiliser les différents acteurs	Nombre d'émissions produites Nombre d'exemplaire diffusés Nombre de séances organisées Type de facilité accordée	UGP	DPV AAAC	Sous l'activité et budget 1.1.3.b)
Promotion de la lutte intégrée et mesures techniques	lutte intégrée des pestes et pesticides est largement diffusés et appliquée	Organiser des sessions de renforcement de capacités techniques sur la gestion intégrée des pestes et pesticides pour les acteurs impliqués dans le projet notamment : les Directions régionales de la protection des végétaux ; le Comité national de gestion des pesticides (CNGP); les Directions régionales de l'environnement et du développement durable, les Directions régionales de l'agriculture, les Direction régionale de la gestion des infrastructures hydrauliques de l'agriculture, les représentants du gouvernement des régions,	Nombre de personnes formées sur la gestion intégrée des pestes et pesticides	UGP	AAAC DPV DGA	Confère activités et budgets : 1.2.1.d) 1.2.4, 2.1.3.7

Composantes	Résultats	Activités	Indicateurs	Responsable de mise en œuvre	Responsable de suivi	Coût (USD)
		<p>l'Autorité compétente pour l'évaluation environnementale (AAAC), les Directions régionales de la santé publique, le Laboratoire national de recherche agraire (INPA), les membres du comité de gestion des périmètres, les représentants des ONG chargés de la supervision des bénéficiaires sur les sites, l'UGP et les présidents des périmètres seront formés à la gestion intégrée des parasites et des pesticides</p> <p>Cette formation sera menée par un expert très expérimenté dans la gestion intégrée des pesticides et des pesticides de la FAO dans les pays subsahariens d'Afrique. Cet expert sera recruté par l'UGP sous la supervision de l'Entité d'exécution sur la base d'une liste restreinte d'experts recommandée par le bureau de la FAO basé à Rome (Italie) et en Afrique de l'Ouest à Accra (Ghana)</p>				

Composantes	Résultats	Activités	Indicateurs	Responsable de mise en œuvre	Responsable de suivi	Coût (USD)
		Préparer et diffuser et utiliser les boîtes à outils pour une gestion intégrée des pestes et pesticides avec l'appui de l'Expert de la FAO	Outils préparés et adéquatement utilisés par les acteurs en particulier les bénéficiaires	UGP	AAAC DPV DGA	
		Collaborer étroitement avec les bureaux régionaux (CILSS à Ouagadougou (Burkina Faso, AGRHYMET à Niamey (Niger), EMPRES-FAO (Prévention des grands ravages dans Afrique de l'Ouest et du Nord-Ouest)) impliqués dans le développement durable de l'agriculture	Niveau de collaboration du projet avec ces différentes institutions	UGP	DPV AAAC DGA	
		Promotion des méthodes de lutte intégrée des pestes et pesticides	Taux de pénétration des pratiques/méthodes de gestion intégrée des pestes et pesticides	UGP	DPV AAAC DGA	
		Renforcer le système de gestion des pesticides	Nombre et la qualité de la gestion des pesticides et la surveillance effectuée par les agents de protection des végétaux	UGP	DPV AAAC DGA	
			Niveau de gestion rationnelle des	UGP	DPV	



Composantes	Résultats	Activités	Indicateurs	Responsable de mise en œuvre	Responsable de suivi	Coût (USD)
			pesticides périmés et des paquets sur les chantiers		AAAC DGA	
			Quantité de pesticides périmés et des emballages contaminés détruits	UGP	DPV AAAC DGA	
		Appuyer à l'acquisition des équipements d'analyse de la qualité du sol et de l'eau	Qualité des équipements d'analyses	UGP	DPV AAAC DGA	
		Suivre la qualité des sols et de l'eau à travers des analyses	Nombre d'analyses de la qualité de l'eau et du sol	UGP	AAAC DPV	
Mesures de sensibilisation sur les risques liés à l'usage des pesticides chimiques et les avantages sur l'usage des méthodes de lutte intégrée	Lorsque les mesures agronomiques, culturales et biologiques se révèlent inefficace face au problème qui persiste, les pesticides de	Sensibiliser les groupements sur les effets liés à la mauvaise application des pesticides  Mettre à la disposition des producteurs une boîte à outils avec des guides indiquant les techniques d'utilisation	Nombre de personnes ayant bénéficié de la formation  Nombre de producteurs touchés  Taux d'utilisation des guides de bonnes pratiques	UGP	DPV AAAC DGA	Sous les activités et budgets : 1.2.1 d); 1.2.4.

Composantes	Résultats	Activités	Indicateurs	Responsable de mise en œuvre	Responsable de suivi	Coût (USD)
	classe III et U sont judicieusement appliqués					
	Les conditions d'entreposage sont améliorées	Sensibiliser les groupements aux bonnes pratiques en cas d'usage de pesticides (lorsque les méthodes de lutte agronomiques, culturales et biologiques se révèlent inefficaces et le problème persiste). Sensibiliser les groupements sur les dangers liés aux mauvaises conditions de stockage des pesticides et les mesures pour une bonne conservation	Nombre de d'exploitants sensibilisés État des entrepôts phytosanitaire des groupements	UGP	DPV AAAC DGA	Sous l'activité et budget 1.2.4.
	La gestion des emballages vides est améliorée (en cas d'usage des pesticides, classe U et III de l'OMS)	Recenser les emballages vides et les centraliser Détruire les emballages vides conformément aux principes du CILSS	Nombre d'emballages vides recensés et centralisés Nombre d'emballages détruits	UGP	DPV AAAC DGA	PM
Atténuation des effets néfastes sur les milieux biophysique et	Les impacts liés à l'utilisation des pesticides sont réduits	Sensibiliser les producteurs sur l'utilisation rationnelle et la gestion des pesticides	Nombre de producteurs touchés	UGP	DPV AAAC DGA	Sous les activités et budget) : 1.2.1. d),

Composantes	Résultats	Activités	Indicateurs	Responsable de mise en œuvre	Responsable de suivi	Coût (USD)
humain (en cas de recours au pesticides de classe III et U lorsque les mesures agronomiques, culturales et biologiques se révèlent inefficace face au problème qui persiste)		<p>Promouvoir les techniques de lutte antiparasitaire respectueuses de l'environnement</p> <p>Suivre régulièrement la qualité des eaux</p> <p>Sensibiliser les producteurs sur la nécessité du port des équipements de protection lors de la manipulation des pesticides (lorsqu'ils sont utilisés)</p>	<p>Nombre de techniques vulgarisées</p> <p>Nombre d'échantillon d'eau prélevé et d'analyses effectuées</p> <p>Nombre de manipulateurs touchés</p>			<p>1.2.4</p> <p>2.1.3.7</p>

**Le coût du Plan de gestion intégrée des pestes et pesticides intégrée dans le CGES et dans les composantes et budget du projet.**

# CONCLUSION

Le développement des activités agricoles est susceptible d'accroître l'usage des pesticides et des engrais chimiques. Or, dans la situation actuelle, la gestion de ces produits nocifs à l'environnement et à l'Homme présente plusieurs défaillances.

Au plan législatif et réglementaire, des textes sont élaborés par le pays concernant la gestion, l'utilisation, l'agrément et le contrôle des produits phytosanitaires. Malheureusement lesdits documents législatifs sont très peu diffusés et mal connus du public. Au plan technique, les agents de la DPV en charge de la gestion des pestes et pesticides en agriculture ne sont pas suffisamment formés pour apporter un appui efficace aux producteurs.

Le présent plan de gestion intégrée des pestes et pesticides vise à préconiser l'ensemble des mesures permettant de promouvoir l'utilisation des méthodes de contrôle biologique ou environnemental afin d'éviter au maximum le recours aux pesticides chimiques et de s'assurer que les risques sanitaires et environnementaux associés aux pesticides sont minimisés.

A cet effet, la gestion des pesticides interpelle plusieurs acteurs qui ont des missions différentes mais qui visent un même objectif, à savoir une utilisation raisonnée et rationnelle pour la préservation de la santé et de l'environnement. Aussi, la mise en place d'un cadre de concertation, d'échange et d'action, à travers les activités du projet, permettra de créer les conditions d'une synergie entre les différentes interventions sectorielles « Agriculture-Environnement-Santé-Laboratoire de recherche »

Dans le cadre de ces activités, le présent PGIPP constitue une contribution pour impulser une dynamique nationale visant à :

- renforcer les capacités techniques sur la gestion intégrée des pestes et pesticides ;

- promouvoir les principes et mesures de gestion intégrée des pesticides avec l'ensemble des acteurs ;
- apporter un appui technique effectif dans la gestion intégrée des pestes et pesticides ;
- renforcer l'information, la formation et la sensibilisation des acteurs sur l'importance de la gestion intégrée des pestes et pesticides dans l'amélioration de la protection de la santé humaine et de l'environnement.

Le Projet doit accorder une attention particulière au suivi des différentes composantes environnementales et sociales dans sa zone d'intervention. Ce suivi doit être fait par les services de la Direction de la Protection des Végétaux (DPV) en collaboration avec les autres structures impliquées dans : (i) la gestion de l'environnement ; (ii) le développement agricole ; (iii) la protection des ressources naturelles, (iv) le suivi et contrôle des mouvements des pesticides ; (v) des institutions de recherche et d'analyses physico-chimiques, etc.

Pour permettre une mise en œuvre adéquate des résultats de la présente étude, les mesures de gestion intégrée de pestes et pesticides ont été intégrées dans les composantes du projet et budgétisées.

## **ANNEXE**

## Annexe 1 : **Bibliographie**

### **A. Document généraux et/ou spécifiques**

- CNLA, 2012 : Cahier de charges environnementales national de la lutte anti acridienne, 26 p;
- PRODEX, novembre 2008 : plan de gestion des pestes et pesticides ;
- Secrétariat Permanent du Code rural, 2013 : Recueil des textes.
- Plan de de gestion des pestes et pesticides du Projet d'appui d'urgence pour la sécurité alimentaire, Rapport final, avril 2014.

### **B. Documents de politiques**

#### **B.1. Politiques de la BOAD**

- Politique opérationnelle en matière d'Etude d'impact environnemental et social
- Politique opérationnelle sur la Lutte antiparasitaire
- Politique opérationnelle en matière de participation du public dans le processus d'étude d'impact environnemental et social
- Manuel de politique de diffusion et d'accès à l'information

#### **B.2. Directives opérationnelles de la BOAD**

- Gestion des terres et des ressources en eau
- Lutte intégrée contre les parasites et emploi de produits chimiques agricoles
- Projets d'Irrigation et de drainage
- Gestion de la production agricole
- Santé et sécurité publique
- Renforcement des capacités

#### **B.3. Document juridique**

- Réglementation commune aux Etats membres du CILSS sur l'homologation des pesticides
- Règlement C/REG.3/5/2008 portant sur l'harmonisation des règles régissant l'homologation des pesticides dans l'espace CEDEAO.
- Décret – Loi n° 7/2000 du 24 aout qui définit un encadrement technique et scientifique de l'utilisation des produits phytopharmaceutiques



**Annexe 2 : Liste des pesticides de classe III et U autorisés  
par le CSP et éligibles dans le cadre du projet**

**Liste des pesticides de classe III et U autorisés par le CSP (Version de Mais 2015) et éligible dans le cadre du projet**

N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
1	AKIZON 40 SC	III	ARYSTA LIFESCIENCE	nicosulfuron (40 g/l)	0497-H0/He-12/HOM-SAHEL Expire en Juin 2017	Herbicide autorisé contre les graminées et les dicotylédones du maïs
2	ALLIGATOR®	III	SCPA SIVEX INTERNATION AL (SSI)	pendimethaline (400 g/l)	0502-H0/He/05-14/HOM-SAHEL Expire Mais 2019	Herbicide de pré-levée sélectif autorisé contre les mauvaises herbes sur le maïs
3	ANTOUKA 19 DP	III	SCPA SIVEX INTERNATION AL	Pirimiphos-méthyl (16g/kg)/ permethrine (3g/kg)	0804-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide en traitement des denrées alimentaires
4	ANTRACOL 70 WP	III	BAYER CROPSCIENCE AG	propineb (700g/kg)	0823-A0/Fo/11-14/APV-SAHEL Expire en Novembre 2017	Fongicide de contact à action préventive autorisé contre de nombreuses maladies (midiou, altermariose, anthracnose...) de la tomate
5	AQUATAIN AMF	III	AQUATAIN PRODUCTS PIY LTD	silicone (80%)	0748-A0/IN/05-13/APV-SAHEL Expire en Mai 2016	Insecticide autorisé pour lutter contre les femelles en ponte, les larves et les pupes de moustiques
6	APRON STAR 42 WS	III	SYNGENTA	thiamethoxam (200 g/kg)/ mefenoxam (200g/kg)/ difenoconazole (20g/kg)	0297-H1/In,Fo/01-15/HOM-SAHEL Expire en Janvier 2020	Insecticide/fongicide autorisé contre les insectes et maladies du sol en traitement de semences des cultures
7	AZOX	III	SAVANA	azoxystrobine (250g/l)	0762-A0/Fo/11-13/APV-SAHEL Expire en Novembre 2016	Fongicide semi-systématique autorisé contre la pyriculariose foliaire et paniculaire en culture de riz
8	BACCARA	III	ARYSTA LIFESCIENCE	propanil (260g/l)	0613-A1/He/11-13/APV-SAHEL Expire en Novembre 2016	Herbicide autorisé en post levée contre les adventices du riz
9	BARAKA 432 EC	III	TOPEX AGRO ELEVAGE DEVELOPPEMENT	propanil 360g/l)/ triclolyr(72g/l)	0639-A0/He/11-13/APV-SAHEL Expire en Novembre 2016	Herbicide sélectif autorisé contre les adventices annuelles et pluriannuels du riz
10	BATIK WG	III	ARYSTA LIFESCIENCE	<i>Bacillus thuringiensis</i> (32.000 UI/mg)	0614-A1/In/11-13/APV-SAHEL	Insecticide autorisé des chenilles du chou

					Expire en Novembre 2016	
11	CALLIFOR G	III	ARYSTA LIFESCIENCE	prométryne (250 g/l) fluométuron (250 g/l) glyphosate (60 g/l)	0408-H1/He/05-13/HOM-SAHEL Expire en Mai 2018	Herbicide systématique du cotonnier autorisé en pré-levée de la culture et des adventices
12	CALLIFOR 500 SC	III	ARYSTA LIFESCIENCE	fluométuron (250 g/l) prométryne (250 g/l)	0388-H1/He/05-13/HOM-SAHEL Expire en Mai 2018	Herbicide systématique du cotonnier autorisé en pré-levée de la culture et des adventices
13	CALLISTAR 250 EC	III	ARYSTA LIFESCIENCE	Oxadiazon (250 g/l)	0615-A1/He/11-13/APV-SAHEL Expire en Novembre 2016	Herbicide sélectif autorisé contre les adventices du riz irrigué ou pluvial
14	CAMIX 500 SE	III	SYNGENTA CROP PROTECTION AG	Mésotrione (83,3 g/l)/ S-métolachlore (416,7 g/l)	0606-A1/He/06-13/APV-SAHEL Expire en Juin 2016	Herbicide autorisé en pré-levée ou post-levée précoce contre les adventices du maïs
15	COGA 80 WP	III	SAVANA	Mancozeb (800 g/kg)	0698-A0/Fo/11-12/APV-SAHEL Expire en Novembre	Fongicide de contact à large spectre pour les cultures maraichères, fruitières, vivrières et florales
16	CORAGEN 20 SC	IV	ALM INTERNATION AL	Chlorantraniliprole (200 g/l)	0781-A0/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide autorisé contre les chenilles phyllophages et coprophages et contre les insectes piqueurs-suceurs
17	CRUISER EXTRA COTON 362 FS	III	SYNGENTA CROP PROTECTION AG	thiamethoxam (350 g/l)/ fludioxonyl (8,34 g/l)/ metalaxyl-m (3,34 g/l)	0643-A1/In,Fo/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide fongicide autorisé pour le traitement des semences contre les insectes et les champignons
18	CYPERCAL 50 EC	III	ARYSTA LIFESCIENCE	cyperméthrine (50 g/l)	0216-H1/In/06-15/HOM-SAHEL Expire en Juin 2020	Insecticide autorisé contre les insectes ravageurs de la tomate
19	DEKADE 720 SL	III	ENTREPRISE MULTI SERVICES DU BURKINA FASO (EMUS BF)	Sel de 2,4-dimethyl amine (720 g/l)	0735-A0/He/11-14/APV-SAHEL Expire en Novembre 2017	Herbicide de post-levée contre un large spectre de graminées adventices en culture céréalière
20	DOYEN 62	III	SCPA SIVEX INTERNATION AL (SSI)	Emamectine benzoate (12 g/l) imidaclopride (50 g/l)	0734-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide autorisé contre les chenilles, carpophages et les insectes piqueurs suceurs de la tomate
21	FINISH 360 SL	III	SAVANA	glyphosate (360 g/l)	0480-H0/He/11-11/HOM-SAHEL Expire en Novembre 2016	Herbicide systématique on sélectif autorisé contre les mauvaises herbes annuelles et pérennes avant plantation

22	PROPA 360	III	SCPA SIVEX INTERNATIONAL (SSI)	propanil (360 g/l)	0695-A0/He/11-12/APV-SAHEL Expire en Novembre 2015	Herbicide de post-levée sélectif du riz contre les mauvaises herbes annuelles
23	FENICAL 3 DP	III	ARYSTA LIFESCIENCE	Fénitrothion (3 g/kg)	0455-H0/In/11-11/HOM-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les acridiens
24	FENICAL 400 UL	III	ARYSTA LIFESCIENCE	Fénitrothion (400 g/l)	0456-H0/In/11-11/HOM-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les acridiens
25	FYFANON 880 EC	III	CHEMINOVA	Malathion (880 g/l)	0495-A0/X1/In/05-15/APV-SAHEL Expire en Mai 2018	Insecticide acaricide autorisé en culture de tomate contre <i>Bemisia tabaci</i> , <i>Aphis gossypii</i> , <i>Helicoverpa armigera</i> , <i>Spodoptera exigua</i> et les sauteriaux
26	GALAXY 450 EC	III	FMC	Clomazone (150 g/l) Pendiméthaline (300 g/l)	0366-H0/He/11-11/HOM-SAHEL Expire en Novembre 2016	Herbicide autorisé prélevée contre les adventices annuels du cotonnier et du riz
27	HERBALM 720 SL	III	ALM INTERNATIONAL	2,4-D amine (720 g/l)	0377-A1/He/05-14/APV-SAHEL	Herbicide sélectif autorisé contre les mauvaises herbes à feuilles larges du riz
28	KART 500 SP	III	SCPA SIVEX INTERNATIONAL (SSI)	Cartap (500 g/kg)	0585-A1/In/01-13/APV-SAHEL Expire en Janvier 2016	Insecticide autorisé contre les insectes ravageurs du chou
29	LASER 480 SC	III	DOW AGROSCIENCES	Spinosad (480g/l)	0265-H0-X1/In/11-14/HOM-SAHEL Expire en Novembre 2019	Insecticide autorisé dans la lutte contre les insectes nuisibles du chou et contre <i>Helicoverpa armigera</i> sur tomate
30	MAIA 75 WG	III	ALM INTERNATIONAL	Nicosulfuron (750 g/kg)	0646-A1/He/11-14/APV-SAHEL Expire en Novembre 2017	Herbicide sélectif autorisé contre les graminées annuelles vivaces et dicotylédones en culture du maïs
31	MARIGOLD	III	ARYSTA LIFESCIENCE	Thyme oil (5,55 g/l)/ tagetes oil (5,52 g/l)	0685-A1/In/06-15/APV-SAHEL Expire en Juin 2018	Insecticide biologique autorisé contre les mouches blanches de la tomate
32	MOMTAZ 45 WS	III	SAVANA	Imidaclopride (250 g/kg)/ thirame (200 g/kg)	0559-H0/In,Fo/11-14/HOM-SAHEL Expire en Novembre 2019	Insecticide/fongicide autorisé en traitement de semences contre les insectes et les champignons pathogènes du sol
33	NATIVO 300 SC	III	BAYER CROPSCIENCE AG	Tébuconazole (200 g/l) Trifloxystrobine (100 g/l)	0822-A0/Fo/11-14/APV-SAHEL Expire en Novembre 2017	Fongicide autorisé contre l'alternariose, la rouille, l'oïdium, la fusariose sur la tomate

34	NICODAF	III	ETS SDAGRI	Nicosulfuron (40 g/l)	0800-A0/He/11-14/APV-SAHEL	Herbicide autorisé contre les adventices du maïs
					Expire en Novembre 2017	
35	ORTIVA 250 SC	III	SYNGENTA CROP PROTECTION AG	Azoxystrobin (250 g/l)	0547-A1/Fo/11-14/APV-SAHEL	Fongicide systématique autorisé contre les maladies des cultures maraichères
					Expire en Novembre 2017	
35	PENDAF 500 EC	III	ETS SDAGRI	Pendimethaline (500 g/l)	0839-A0/He/05-15/ APV-SAHEL	Herbicide autorisé pour lutter contre la plupart des graminées et dicotylédones en cultures de maïs
					Expire en Mai 2018	
36	PENDISTAR	III	SAVANA	pendimethaline (400 g/l)	0741-A0-X1/He/05-15/APV-SAHEL	Herbicide de prélevée autorisé pour lutter contre les adventices monocotylédones en culture du maïs
					Expire en Mai 2018	
37	PROTECT DP	III	SAVANA	Deltamethrine (1 g/l)/pirimiphos-methyl (15 g/l)	0765-A0/In/11-13/ APV-SAHEL	Insecticide autorisé contre les ravageurs des denrées stockées
					Expire en Novembre 2016	
38	RAINBOW 25 OD	III	DOW AGROSCIEN CES	Penoxsulam (25 g/l)	0603-A1/He/06-13/ APV-SAHEL	Herbicide autorisé en post-levée contre les adventices en riziculture irriguée et de bas-fonds
					Expire en Mai 2016	
39	RELDAN 40 EC	III	DOW AGROSCIEN CES	Chlorpyriphos-méthyl (400 g/l)	0381-H1/In/11-15/ APV-SAHEL	Insecticide autorisé contre les insectes des cultures vivrières et maraichères
					Expire en Novembre 2020	
40	SELECT 120 EC	III	ARUSTA LIFESCIENCE	Cléthodime (120 g/l)	0444-A0-X3/He/05-14/APV-SAHEL	Herbicide sélectif autorisé en post-levée contre les graminées sur l'oignon
					Expire en Mai 2017	
41	SOFA	IV	AF CHEM-FOFACO	Nicosulfuron (40 g/l)	0791-A0/He/05-15/ APV-SAHEL	Herbicide autorisé contre les adventices du maïs
					Expire en Mais2018	
42	SOLITO 320 EC	III	SYNGENTA CROP PROTECTION AG	Piribenzoxim (20 g/l)/Prétilachlore (300 g/l)	0541-A1/He/01-13/ APV-SAHEL	Herbicide autorisé contre les mauvaises herbes du riz
					Expire en Janvier 2016	
43	SYSTHANE 240 EC	III	DOW AGROSCIEN CES	Myclobutanil (240 g/l)	0449-H0/Fo/05-15/HOM-SAHEL	Fongicide autorisé contre les maladies de la tomate
					Expire en Mai 2020	
44	SUNHALOTHRIN 2,5% EC	III	WYNCA SUNSHINE	Lambda-cyhalothrine (25 g/l)	0808-A0/In/11-14/APV-SAHEL	Insecticide non systématique de contact autorisé pour lutter contre Helicoverpa, les pucerons et les mouches blanches en culture de tomate
					Expire en Novembre 2017	

45	MOVENTO TOTAL 175 O-TEQ	III	BAYER CROPSCIENCE	Spirotetramate (75 g/l)/ flubendiamide (100 g/l)	0552-A0-X1/In/05-14/APV-SAHEL	Insecticide systématique autorisé pour le contrôle des chenilles et les insectes piqueurs suceurs de la tomate
	Expire en Mai 2017					
46	TOPSTAR 400 SC	III	BAYER CROPSCIENCE	Oxadiargyl (400 g/l)	0332-H1/He/08-12/HOM-SAHEL	Herbicide autorisé contre les adventices du riz pluvial et riz irrigué et repiqué
	RAFT 400 SC				Expire en Août 2017	
47	VELUM PRIME 400 SC	III	BAYER CROPSCIENCE	Fluopyram (400 g/l)	0849-A0/Ne/05-15/APV-SAHEL	Insecticide/Acaricide autorisé contre les nuisibles des cultures fruitières et légumières
					Expire en Mai 2018	
48	2. KD SUPER 720 SL	III	RMG COTE D'IVOIRE	2.4,D sel d'amine (720 g/l)	0815-A0/He/05-15/APV-SAHEL	Herbicide sélectif de post-levée efficace contre les dicotylédones annuelles et pérennes en culture de riz pluvial et irrigué
					Expire en Mai 2018	

### **Annexe 3 : Principes de base de la lutte intégrée**



## Principes de base de lutte intégrée

PRINCIPES	MISE EN ŒUVRE	RESULTATS
Principe 1 Obtenir et planter du matériel végétal de qualité	Choisissez des semences, des boutures, des tubercules, ou des rejets provenant de variétés très productives, saines et résistantes aux ravageurs/maladies. Pour obtenir les semences certifiées, adressez-vous à des semenciers homologués ou à des centres nationaux de recherche. Les agriculteurs pourront planter du matériel prélevé sur des plants sains, issus de la campagne précédente. Ne stockez pas le matériel de plantation plus d'une saison. Effectuez des tests sommaires de germination.	L'utilisation de matériel de plantation de qualité permettra d'obtenir une culture saine et productive et, par conséquent, une récolte de qualité. Les variétés certifiées sont souvent résistantes à plusieurs ravageurs et maladies. Rappelez-vous l'adage populaire selon lequel les bonnes semences font les bonnes récoltes.
Principe 2 Choisir des sols fertiles et des lieux adaptés à la plantation	Sélectionnez des sols à bon drainage naturel, adaptés à la culture. Certaines cultures (le riz de bas-fond ou le riz irrigués, par exemple) préfèrent les sols submergés. Effectuez toujours la plantation dans des champs exempts de mauvaises herbes.	Les cultures ont besoin d'un maximum de gestion du sol et de l'eau pour se développer et rivaliser efficacement avec les adventices.
Principe 3 Adopter de bonnes pratiques en pépinière	Etablissez les pépinières sur un sol exempt de maladies pour favoriser le développement des plantules. Recouvrez le sol avec un paillis de feuilles de margousier ou d'herbe sèche. Bouturer uniquement le matériel sélectionné et exempt de ravageurs /maladies.	Après repiquage au champ, les plantules rigoureuses ainsi obtenues produiront des plants robustes.
Principe 4 Adopter les dispositifs et les dispositifs adéquats de plantation	Plantez en ligne, avec un écartement approprié, pour éviter une densité de peuplement excessive. La culture intercalaire se pratique généralement en lignes, en lignes alternées ou en bandes.	Une densité trop élevée entrave le développement de la culture et, en créant un environnement humide, favorise l'apparition des maladies. La plantation en ligne permet d'épargner des semences et de réaliser plus

PRINCIPES	MISE EN ŒUVRE	RESULTATS
		facilement les opérations agricoles comme le désherbage et la récolte. La culture intercalaire réduit la pression des insectes et garantit les rendements.
Principe 6 Pratiquer la rotation des cultures	Plantez successivement des cultures ne possédant pas des ravageurs en commun (rotation de céréales et de plantes à racines et tubercules avec des légumes ou des légumineuses par exemple). Plantez des plantes de couverture durant la période de jachère.	La rotation des cultures empêche la prolifération des maladies et des ravageurs terricoles (nématodes ou agents pathogènes par exemple). Les plantes de couverture enrichissent les sols et étouffent les mauvaises herbes.
Principe 7 Adopter de bonnes pratiques de conservation du sol	Recouvrez le sol avec du paillis, amendez la terre avec un compost ou un engrais organique et, si nécessaire, rectifier le bilan nutritif avec les engrais minéraux pour enrichir les sols peu fertiles. Fractionnez les apports d'engrais, notamment azotés, pour mieux répondre aux besoins de la culture.	Les sols pauvres sont enrichis à peu de frais pour stimuler la croissance et le développement des cultures saines et obtenir des rendements élevés. L'engrais est utilisé de manière économique.
Principe 8 Adopter les pratiques adéquates de gestion hydrique	Plantez dans des sols à bon drainage naturel (excepté pour le riz). Le cas échéant, construisez des canaux de drainage pour éliminer l'excès d'eau ; préparer les canaux de collecte d'eau (dans les plantations de bananiers plantains, par exemple) pour disposer d'une réserve d'eau suffisante. En condition irriguée, irriguez régulièrement les plantes selon les besoins.	La croissance et le développement de la culture ne sont pas compromis par le manque d'eau ; en outre, les plants ne souffrent pas d'engorgement.
Principe 9 Désherber régulièrement	Installez les cultures dans des champs exempts de mauvaises herbes. Pour empêcher la production de semences de mauvaises herbes, binez dans les trois semaines après la	Cette mesure permet d'épargner la main-d'œuvre et d'éviter de blesser les racines de la culture. La concurrence entre les cultures et les mauvaises herbes est éliminée ; ces derniers ne

PRINCIPES	MISE EN ŒUVRE	RESULTATS
	<p>plantation et sarcler superficiellement à la main jusqu'à la fermeture du couvert de la culture.</p> <p>Arrachez les premiers plants de Striga avant leur floraison et leur monté en graines.</p>	<p>parviennent pas à produire des graines. Les mauvaises herbes parasites ne peuvent s'établir dans les champs</p>
<p>Principe 10</p> <p>Inspecter régulièrement les champs</p>	<p>Inspectez les champs chaque semaine pour surveiller la croissance et le développement des cultures, suivre l'évolution des populations d'auxiliaire et détecter rapidement l'arrivée des ravageurs, les maladies et adventices ; effectuez une analyse de l'agro-écosystème (AESA) et prenez une décision sur les opérations culturales à réaliser.</p>	<p>L'inspection régulière des champs permet aux cultivateurs de détecter les problèmes et de mettre en œuvre les mesures de lutte intégrée nécessaire pour éviter une aggravation des dégâts et, par conséquent, des pertes importantes de rendement.</p>
<p>Principe 11</p> <p>Maintenir les champs parfaitement propres</p>	<p>Conservez toujours les champs dans un état de grande propreté. Éliminez tous les résidus (plantes de la campagne précédentes et résidus végétaux, par exemple) ; la plupart des résidus sont employés comme fourrage pour le bétail. Arrachez et détruisez les cultures présentant des symptômes de maladie en début de cycle végétatif. À l'issue de la récolte, éliminez les résidus de culture (fauchez-les et utilisez-les comme fourrage pour le bétail ou enfouissez-les)</p>	<p>Ces résultats empêchent la prolifération des ravageurs et les maladies et leur passage d'une campagne à l'autre. Les ravageurs et les maladies ne peuvent se propager à l'ensemble de l'exploitation.</p>
<p>Principe 12</p> <p>Lutter efficacement contre les ravageurs et les maladies</p>	<p>Adoptez une stratégie sur la prévention et l'accroissement des populations auxiliaires. Évitez les moyens de lutte nocifs pour l'homme ou la culture ainsi que ceux qui dégradent l'environnement ; privilégiez les méthodes mécaniques ou naturelles (extrait de graines/feuilles de margousier, solution savonneuse par exemple). Si le recours aux pesticides chimiques s'avère inévitable, (par exemple cas de forêts infestées de ravageurs, appliquer le produit adéquat aux</p>	<p>Les problèmes de ravageurs et les maladies sont circonscrits, autorisant une production élevée et durable, avec un minimum d'intrant coûteux. Les produits naturels sont moins onéreux et moins nocifs pour l'homme et l'environnement.</p>

PRINCIPES	MISE EN ŒUVRE	RESULTATS
	zones recommandées, selon la technique requise en respectant les mesures de précaution.	
Principe 13 Favoriser l'accroissement des populations d'ennemis naturels (auxiliaires)	Adopter des pratiques qui créent des conditions environnementales favorables à la reproduction des ennemis (utilisation minimale de pesticide de synthèse, emploi de producteurs d'origine végétale comme les extraits de margousier et paillage pour stimuler la reproduction des ennemis naturels comme les fourmis prédatrices, les araignées, les carabes, les syrphides et les coccinelles).	Les populations de ravageurs sont maîtrisées efficacement et naturellement par les importantes populations d'ennemis naturels. La maîtrise naturelle des ravageurs ne nuit ni à l'homme ni à l'environnement.
Principe 14 Réduire au minimum l'application de pesticides chimiques	Eviter l'application systématique et régulière des pesticides. En cas de besoin réel uniquement avec des pesticides sélectifs. Privilégiez les produits d'origine végétale. Abstenez-vous de traiter avec des produits phytopharmaceutiques dès l'apparition des premiers ravageurs ou des premiers symptômes. Analysez toujours l'agro-système (AESA) avant toute décision de traitement. En cas de pullulation des ravageurs et de dégâts importants, traitez avec des produits naturels (extraits de graines/feuilles de margousier ou solution savonneuse).	L'utilisation parcimonieuse de pesticides chimiques sélectifs permet aux populations d'auxiliaire (fourmis, prédatrices, araignées, mantes et coccinelles, par exemple) de se développer au détriment des ravageurs. Il s'agit d'une méthode naturelle de lutte contre les ravageurs
Principe 15 Adopter de bonnes pratiques de récolte	Récoltez les cultures dès leur maturité ; soyez prudent pour éviter de blesser, de déchirer, de casser ou de causer d'autres dégâts aux produits récoltés. Evitez de récolter ou de stocker des fruits et légumes en plein soleil.	Les cultivateurs obtiennent de meilleurs prix pour des produits propres et indemnes. Les produits indemnes se conservent plus facilement car ils ne présentent aucun point d'entrée aux ravageurs et aux agents pathogènes. Les produits fraîchement récoltés et maintenus à

PRINCIPES	MISE EN ŒUVRE	RESULTATS
		basse température se conservent plus longtemps.
<p>Principe 16</p> <p>Adopter des dispositifs de stockage propres et de qualité.</p>	<p>Les magasins sont toujours propres, sec et bien ventilés. Stockez uniquement des produits entiers. Conservez les récoltes dans des conteneurs hermétiques pour les protéger contre les ravageurs des greniers. En général, les dégâts causés par les ravageurs des stocks s'aggravent fortement après trois mois de stockage ; par conséquent, répartissez les récoltes en plusieurs lots selon la durée de conservation. Traitez uniquement les lots destinés à une conservation de longue durée (avec des produits adéquats comme de l'huile de margousier ou des pesticides recommandés pour les produits stockés).</p>	<p>La qualité des produits stockés est conservée pendant l'entreposage. Les produits stockés sont peu exposés aux attaques des ravageurs et des agents pathogènes. Les grains stockés restent secs. Les pesticides recommandés pour le traitement des stocks sont utilisés économiquement.</p>

**Annexe 4 : Guide de bonnes pratiques de gestion des pesticides.**

## **A. Mesures requises pour la réduction des risques liés aux pesticides.**

### **▪ Sécurité d'emploi des pesticides**

Les pesticides sont toxiques pour les vermines mais aussi pour l'Homme. Cependant, si l'on prend des précautions suffisantes, il ne devrait constituer une menace ni pour la population, ni pour les espèces animales non visées. La plupart d'entre eux peuvent avoir des effets nocifs si on les avale ou s'ils restent en contact prolongé avec la peau. Lorsqu'on pulvérise un pesticide sous forme de fines particules, on risque d'en absorber avec l'air que l'on respire. Il existe en outre un risque de contamination de l'eau, de la nourriture et du sol. Des précautions particulières doivent être prises pendant le transport, le stockage et la manipulation des pesticides. Il faut nettoyer régulièrement le matériel d'épandage et bien l'entretenir pour éviter les fuites. Les personnes qui se servent de pesticides doivent apprendre à les utiliser en toute sécurité.

### **▪ Précautions**

#### **Etiquetage**

Les pesticides doivent être emballés et étiquetés conformément aux normes de l'OMS. L'étiquette doit être rédigée en anglais et dans la langue du lieu; elle doit indiquer le contenu, les consignes de sécurité (mise en garde) et toutes dispositions à prendre en cas d'ingestion ou de contamination accidentelle. Toujours laisser le produit dans son récipient d'origine. Prendre les mesures de précaution voulues et porter les vêtements de protection conformément aux recommandations.

#### **Stockage et transport**

Conserver les pesticides dans un endroit dont on puisse verrouiller l'entrée et qui ne soit pas accessible aux personnes non autorisées ou aux enfants. En aucun cas les pesticides ne doivent être conservés en un lieu où l'on risquerait de les prendre pour de la nourriture ou de la boisson. Il faut les tenir au sec et à l'abri du soleil. On évitera de les transporter dans un véhicule servant aussi au transport de denrées alimentaires.

Afin d'assurer la sécurité dans le stockage et le transport, la structure publique ou privée en charge de la gestion des insecticides et supports imprégnés d'insecticides qui auront été acquis devra respecter la réglementation en vigueur ainsi que les conditions de conservation recommandée par le fabricant en relation avec :



- la conservation de l'étiquetage d'origine,
- la prévention des déversements ou débordements accidentels,
- l'utilisation de récipients appropriés,
- le marquage convenable des produits stockés,
- les spécifications relatives aux locaux,
- la séparation des produits,
- la protection contre l'humidité et la contamination par d'autres produits,
- la restriction de l'accès aux locaux de stockage,
- le magasin de stockage sous clé afin de garantir l'intégrité et la sécurité des produits.
- Les entrepôts de pesticides doivent être situés à distance des habitations humaines ou abris pour animaux, des sources d'eau, des puits et des canaux. Ils doivent être situés sur une hauteur et sécurisés par des clôtures, leur accès étant réservé aux personnes autorisées.

Il ne faut pas entreposer de pesticides dans des lieux où ils risquent d'être exposés à la lumière solaire, à l'eau ou à l'humidité, ce qui aurait pour effet de nuire à leur stabilité. Les entrepôts doivent être sécurisés et bien ventilés.

Il faut éviter de transporter dans un même véhicule des pesticides et des produits agricoles, des denrées alimentaires, des vêtements, des jouets ou des cosmétiques car ces produits pourraient devenir dangereux en cas de contamination.

Les récipients de pesticides doivent être chargés dans les véhicules de manière à ce qu'ils ne subissent pas de dommages pendant le transport, que leurs étiquettes ne soient pas arrachées et qu'ils ne viennent pas à glisser et à tomber sur une route dont le revêtement peut être irrégulier. Les véhicules qui transportent des pesticides doivent porter un panneau de mise en garde placé bien en évidence et indiquant la nature du chargement.

### **Distribution**

La distribution doit s'inspirer des lignes directrices suivantes :

- L'emballage (emballage original ou nouvel emballage) doit garantir la sécurité pendant la distribution et éviter la vente ou la distribution non autorisées de produits destinés à la lutte anti-vectorielle ;

- le distributeur doit être informé et conscientiser de la dangerosité de son chargement ;
- le distributeur doit effectuer ses livraisons dans les délais convenus ;
- le système de distribution des insecticides et supports imprégnés doit permettre de réduire les risques liés à la multiplicité des manipulations et des transports ;
- si le département acquéreur n'est pas en mesure d'assurer le transport des produits et matériels, il doit être stipulé dans les appels d'offres que le fournisseur est tenu d'assurer le transport des insecticides et supports imprégnés jusqu'à l'entrepôt ;
- tous les distributeurs d'insecticides et matériels d'épandage doivent être en possession d'une licence d'exploitation.

## **B. Modes de traitement des contenants vides**

Le traitement des contenants vides s'articule autour de deux opérations fondamentales : le Nettoyage, la décontamination et l'élimination à proprement parler.

### ***Nettoyage des emballages et récipients vides de pesticides***

Réutiliser des récipients de pesticides vides présente des risques et il est déconseillé de le faire. Toutefois, on peut estimer que certains récipients de pesticides sont trop utiles pour qu'on les jette purement et simplement après usage. Peut-on donc nettoyer et réutiliser de tels récipients ? Cela dépend à la fois du matériau et du contenu. En principe, l'étiquette devrait indiquer quelles sont les possibilités de réemploi des récipients et comment s'y prendre pour les nettoyer. Il ne faut en aucun cas réutiliser des récipients qui ont contenu des pesticides classés comme très dangereux ou extrêmement dangereux. Dans certaines conditions, les récipients de pesticides classés comme peu dangereux ou ne devant pas en principe présenter de danger en utilisation normale, peuvent être réutilisés à condition que ce ne soit pas pour contenir des aliments, des boissons ou de la nourriture pour animaux. Les récipients faits de matériaux comme le polyéthylène, qui absorbent préférentiellement les pesticides, ne doivent pas être réutilisés s'ils ont contenu des pesticides dont la

matière active est classée comme modérément, très ou extrêmement dangereuse, quelle que soit la formulation. Dès qu'un récipient est vide, il faut le rincer, puis le remplir complètement avec de l'eau et le laisser reposer pendant 24 heures. Ensuite, on le vide et on recommence deux fois l'opération.

### **La décontamination**

Elle comprend trois étapes et concerne tous les récipients de pesticides :

- s'assurer de la vidange maximale du produit et égouttage pendant 30 secondes (le contenu est vidé dans un récipient à mélange, dans un verre pour le dernier dosage s'agissant de l'imprégnation) ;
- rincer le récipient au moins trois fois avec un volume d'eau qui ne doit pas être inférieur à 10% du volume total du récipient ;
- verser les eaux de rinçage dans un pulvérisateur, dans une fosse (imprégnation).

Un contenant décontaminé n'est cependant pas éligible pour le stockage de produits d'alimentation humaine ou animale ou d'eau pour la consommation domestique.

### **L'élimination**

Sauf s'il est envisagé que les contenants soient récupérés, la première opération d'élimination consiste à les rendre inutilisables à d'autres fins : « conditionnement ». Aussi il faut veiller à faire des trous avec un outil pointu et aplanir le récipient lorsqu'il s'agit de bidons en métal et pour les fûts ; les bouteilles en verre doivent être classées dans un sac pour éviter les esquilles ; les plastiques sont déchiquetés et broyés. Les bondes ou capsules sont auparavant retirés.

Les récipients combustibles sont éliminés par voie de brûlage surveillé (emballages en papier et en plastique [les bidons en PVC ne devront pas être brûlés], carton) ou déposés dans une décharge publique acceptant les déchets toxiques de cette nature (mettre en pièces les bidons en plastique, en verre et en métal) ; les cendres résultant du brûlage à nu sont enfouies.

Cependant l'étiquette collée sur le récipient peut porter une mention déconseillant le brûlage.

En effet le brûlage par exemple de certains récipients d'herbicides (à base d'acide phénoxy) peut entraîner le dégagement de vapeurs toxiques pour l'homme ou la flore environnante.

Précautions : la combustion ne doit avoir lieu que dans des conditions où le vent ne risque pas de pousser la fumée toxique en direction des maisons d'habitation, de personnes, de bétail ou de cultures se trouvant à proximité, ni vers ceux qui réalisent l'opération.

Les grands récipients non combustibles 50 à 200l peuvent suivre les filières suivantes :

- renvoi au fournisseur,
- vente/récupération à/par une entreprise spécialisée dans le commerce des fûts et barils usagés possédant la technologie de neutralisation de la toxicité des matières adhérentes qui peut aussi procéder à leur récupération,
- évacuation vers une décharge contrôlée dont l'exploitant est informé du contenu des fûts et est prévenu du potentiel dégagement de vapeurs toxiques si on applique une combustion,
- évacuation vers un site privé, clôturé, gardienné, respectant les normes environnementales et utilisé spécifiquement pour les pesticides.

Les petits récipients non combustibles jusqu'à 20 l sont soit :

- acheminés vers la décharge publique,
- enfouis sur site privé après retrait des capsules ou couvercles, perforations des récipients, brisure des récipients en verre. La fosse de 1 à 1,5 m de profondeur utilisée à des fins d'enfouissement sera rempli jusqu'à 50 cm de la surface du sol et recouvert ensuite de terre. Le site sera éloigné des habitations et des points d'eau (puits, mares, cours d'eau), doit être non cultivé et ne sera pas en zone inondable ; la nappe aquifère doit se trouver à au moins 3 m de la surface du sol, la terre doit y être imperméable (argileuse ou franche). Le site sera clôturé et identifié.

## **C. Hygiène générale**

Il ne faut ni manger, ni boire, ni fumer lorsqu'on manipule des insecticides. La nourriture doit être rangée dans des boîtes hermétiquement fermées. La mesure, la dilution et le transvasement des insecticides doivent s'effectuer avec le matériel adéquat. Ne pas agiter ni prélever des liquides les mains nues. Si la buse s'est bouchée, agir sur la vanne de la pompe ou dégager l'orifice avec une tige souple. Après chaque remplissage, se laver les mains et le visage à l'eau et au savon. Ne boire et ne manger qu'après s'être lavé les mains et le visage.

Prendre une douche ou un bain à la fin de la journée.

## **D. Protection Individuelle**

- Combinaison adaptée couvrant toute la main et tout le pied.
- Masques anti-poussière anti-vapeur ou respiratoire selon le type de traitement et de produit utilisé.
- Gants.
- Lunettes.
- Cagoules (écran facial).
- Protection des populations
- Réduire au maximum l'exposition des populations locales et du bétail.
- Couvrir les puits et autres réserves d'eau.
- Sensibiliser les populations sur les risques.
- 

## **E. Vêtements de protection**

### *Traitements à l'intérieur des habitations*

Les opérateurs doivent porter une combinaison de travail ou une chemise à manches longues par-dessus un pantalon, un chapeau à large bord, un turban ou autre type de couvre-chef ainsi que des bottes ou de grosses chaussures.

Les sandales ne conviennent pas. Il faut se protéger la bouche et le nez avec un moyen simple, par exemple un masque jetable en papier, un masque chirurgical jetable ou lavable ou un chiffon de coton propre. Dès que le tissu est humide, il faut le changer. Les vêtements doivent également être en coton pour faciliter le lavage et le séchage. Ils doivent couvrir le corps et ne comporter aucune ouverture. Sous les climats chauds et humides, il peut être inconfortable de porter un vêtement protecteur supplémentaire, aussi s'efforcera-t-on d'épandre les pesticides pendant les heures où la chaleur est la moins forte.

### *Préparation des suspensions*

Les personnes qui sont chargées d'ensacher les insecticides et de préparer les suspensions, notamment au niveau des unités d'imprégnation des moustiquaires, doivent prendre de précautions spéciales. Outre les vêtements de protection mentionnés ci-dessus, elles doivent porter des gants, un tablier et une protection oculaire, par exemple un écran facial ou des lunettes. Les écrans faciaux protègent la totalité du visage et tiennent moins chaud. Il faut se couvrir la bouche et le nez comme indiqué pour les traitements à l'intérieur des habitations.

On veillera en outre à ne pas toucher une quelconque partie de son corps avec les gants pendant la manipulation des pesticides.

### *Imprégnation des tissus*

Pour traiter les moustiquaires, les vêtements, les grillages ou les pièges à glossines avec des insecticides, il est impératif de porter de longs gants de caoutchouc. Dans certains cas, une protection supplémentaire est nécessaire, par exemple contre les vapeurs, les poussières ou les aspersion d'insecticides qui peuvent être dangereux. Ces accessoires de protection supplémentaires doivent être mentionnés sur l'étiquette du produit et peuvent consister en tabliers, bottes, masques faciaux, combinaisons et chapeaux.

### *Entretien*

Les vêtements de protection doivent toujours être impeccablement tenus et il faut procéder à des contrôles périodiques pour vérifier qu'il n'y a ni déchirures ni usures du tissu qui pourraient entraîner une contamination de l'épiderme. Les vêtements et les équipements de protection doivent être lavés tous les jours à l'eau et au savon, séparément des autres vêtements. Les gants doivent faire

l'objet d'une attention particulière et il faut les remplacer dès qu'ils sont déchirés ou s'ils présentent des signes d'usure. Après usage, on devra les rincer à grande eau avant de les ôter. A la fin de chaque journée de travail, il faudra les laver à l'extérieur et à l'intérieur.

## **F. Mesures de sécurité**

### *Lors des pulvérisations*

Le jet qui sort du pulvérisateur ne doit pas être dirigé vers une partie du corps. Un pulvérisateur qui fuit doit être réparé et il faut se laver la peau si elle a été accidentellement contaminée. Les occupants de la maison et les animaux doivent rester dehors pendant toute la durée des opérations. On évitera de traiter une pièce dans laquelle se trouve une personne un malade par exemple que l'on ne peut pas transporter à l'extérieur. Avant que ne débutent les pulvérisations, il faut également sortir tous les ustensiles de cuisine, la vaisselle et tout ce qui contient des boissons ou des aliments. On peut aussi les réunir au centre d'une pièce et les recouvrir d'une feuille de plastique. Les hamacs et les tableaux ou tentures ne doivent pas être traités. S'il faut traiter le bas des meubles et le côté situé vers le mur, on veillera à ce que les autres surfaces soient effectivement traitées. Il faut balayer le sol ou le laver après les pulvérisations. Les occupants doivent éviter tout contact avec les murs. Les vêtements et l'équipement doivent être lavés tous les jours. Il faut éviter de pulvériser des organophosphorés ou des carbamates plus de 5 à 6 heures par jour et se laver les mains après chaque remplissage.

### *Surveillance de l'exposition aux organophosphorés*

Il existe dans le commerce des trousse de campagne pour contrôler l'activité du cholinestérase sanguine. Si cette activité est basse, on peut en déduire qu'il y a eu exposition excessive à un insecticide organophosphoré. Ces dosages doivent être pratiqués toutes les semaines chez toutes les personnes qui manipulent de tels produits. Toute personne dont l'activité cholinestérasique est trop basse doit être mise en arrêt de travail jusqu'à retour à la normale.

### *Imprégnation des tissus*

Lorsqu'on manipule des concentrés d'insecticides ou qu'on prépare des suspensions, il faut porter des gants. Il faut faire attention surtout aux projections



dans les yeux. Il faut utiliser une grande bassine pas trop haute et il faut que la pièce soit bien aérée pour que l'on ne risque pas d'inhaler les fumées.

**Annexe 5 : Liste Globale des pesticides autorisés par le  
Comité sahélien des pesticides (CSP)**

Liste globale des pesticides autorisés par le CSP Version de Mai 2015

N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
1	ABSOLUT 90 WG	U	ARYSTA LIFE SCIENCE	fluométuron (900 g/kg)	0693-A0/He/05-14/APV-SAHEL Expire Mai 2017	Herbicide systémique à large spectre, sélectif du cotonnier
2	ACARIUS	II	SAVANA	abamectine (18 g/l)	0697-A1/In,Ac/06-15/APV-SAHEL Expire en Juin 2018	Insecticide / Acaricide autorisé contre les insectes et les acariens en cultures maraichères
4	ACEPRONET 400 EC	III	DTE	acétochlore (250 g/l) / prométryne (150 g/l)	0550-A1/He/06-13/APV-SAHEL Expire en Juin 2016	Herbicide autorisé en post semis pré-levée contre les adventices du cotonnier
5	ACTELIC 50 EC	III	SYNGENTA CROP PROTECTION AG	pirimiphos-méthyl (50 g/l)	0167-A1/In/01-13/APV-SAHEL Expire en Janvier 2016	Insecticide autorisé en santé publique contre les insectes volants et les insectes rampants.
6	ACTELIC 300 CS	U	SYNGENTA CROP PROTECTION AG	pirimiphos-méthyl (300 g/l)	0747-A0/In/11-13/APV-SAHEL Expire en Novembre 2016	Insecticide autorisé en santé publique contre les insectes volants et les insectes rampants
7	ACTELIC SUPER DUST	III	SYNGENTA CROP PROTECTION AG	perméthrine (3 g/kg) / pirimiphos-méthyl (16 g/kg)	0649-A1/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide autorisé contre les insectes ravageurs des denrées stockées
8	ACTELIC GOLD DUST	U	SYNGENTA CROP PROTECTION AG	pyrimiphos méthyl (16 g/kg) thiaméthoxam (3,6 g/kg)	0813-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide utilisé pour la protection des denrées stockées
9	ACTION 80 DF	III	SCPA SIVEX INTERNATIONAL (SSI)	diuron (800 g/kg)	0320-H0/He/11-11/HOM-SAHEL Expire en Novembre 2016	Herbicide autorisé en prélevée contre les dicotylédones annuelles et certaines graminées du cotonnier
10	AGIL 100 EC	III	ADAMA AGAN LTD.	propaquizafop (100 g/l)	0475-H0/He/11-12/HOM-SAHEL Expire en Novembre 2017	Herbicide de post levée autorisé contre les graminées annuelles et pérennes du cotonnier
11	AKIZON 40 SC	III	ARYSTA LIFESCIENCE	nicosulfuron (40 g/l)	0497-H0/He/06-12/HOM-SAHEL Expire en Juin 2017	Herbicide autorisé contre les graminées et les dicotylédones du maïs



Liste globale des pesticides autorisés par le CSP Version de Mai 2015

N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
12	ALADIN	Ib	SAVANA	phosphure d'aluminium (560 g/kg)	0806-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide fumigant à usage professionnel pour la protection des denrées stockées
13	ALLIGATOR <sup>R</sup>	III	SCPA SIVEX INTERNATIONAL (SSI)	pendimethaline (400 g/l)	0502-H0/He/05-14/HOM-SAHEL Expire Mai 2019	Herbicide de pré-levée sélectif autorisé contre les mauvaises herbes sur le maïs
14	ALLIGATOR <sup>R</sup>	III	SCPA SIVEX INTERNATIONAL (SSI)	pendimethaline (400 g/l)	0502-A0-X1/He/05-14/APV-SAHEL Expire Mai 2017	Herbicide de pré-levée sélectif autorisé contre les mauvaises herbes sur le cotonnier
15	ALMECTINE 20 EC	II	ALM INTERNATIONAL	emamectine benzoate (20 g/l)	0784-A0/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide autorisé contre les ravageurs du cotonnier
16	ASULOX	III	ALM INTERNATIONAL	asulam (400 g/l)	0783-A0/He/05-14/APV-SAHEL Expire Mai 2017	Herbicide autorisé en post-levée de la canne à sucre
17	ANTOUKA 19 DP	III	SCPA SIVEX INTERNATIONAL	pirimiphos-méthyl (16g/kg) / permethrine (3 g/kg)	0804-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide en traitement des denrées alimentaires
18	ANTRACOL 70 WP	III	BAYER CROPS SCIENCE AG	propineb ( 700 g/kg)	0823-A0/Fo/11-14/APV-SAHEL Expire en Novembre 2017	Fongicide de contact à action préventive autorisé contre de nombreuses maladies (mildiou, alternariose, anthracnose...) de la tomate
19	AQUATAIN AMF	III	AQUATAIN PRODUCTS PTY LTD	silicone (80%)	0748-A0/In/05-13/APV-SAHEL Expire en Mai 2016	Insecticide autorisé pour lutter contre les femelles en ponte, les larves et les pupes de moustiques
20	APRON STAR 42 WS	III	SYNGENTA	thiamethoxam (200 g/kg) / mefenoxam (200 g/kg) / difenoconazole (20 g/kg)	0297-H1/In,Fo/01-15/HOM-SAHEL Expire en Janvier 2020	Insecticide / fongicide autorisé contre les insectes et maladies du sol en traitement de semences des cultures
21	ATTAKAN C 344 SE	II	ARYSTA LIFESCIENCE	cyperméthrine (144 g/l) / imidacloprid (200 g/l)	0496-H0/In/06-12/HOM-SAHEL Expire en Juin 2017	Insecticide autorisé contre les chenilles phyllophages, carponphages et les pucerons du cotonnier





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22	AVAUNT 150 EC	III	DUPONT	indoxacarb (150 g/l)	0609-H0/In/05-13/HOM-SAHEL	Insecticide autorisé contre les insectes phyllophages et carpophages du cotonnier
	STEWART 150 EC				Expire en Mai 2018	
23	AZOX	III	SAVANA	azoxystrobine (250 g/l)	0762-A0/Fo/11-13/APV-SAHEL	Fongicide semi-systémique autorisé contre la pyriculariose foliaire et paniculaire en culture de riz
					Expire en Novembre 2016	
24	BACCARA	III	ARYSTA LIFESCIENCE	propanil (260 g/l) / 2.4-D (175 g/l)	0613-A1/He/11-13/APV-SAHEL	Herbicide autorisé en post levée contre les adventices du riz
					Expire en Novembre 2016	
25	BARAKA 432 EC	III	TOPEX AGRO ELEVAGE DÉVELOPPEMENT	propanil (360 g/l) / triclopyr (72 g/l)	0639-A0/He/11-13/APV-SAHEL	Herbicide sélectif autorisé contre les adventices annuelles et pluriannuels du riz
					Expire en Novembre 2016	
36	BATIK WG	III	ARYSTA LIFESCIENCE	<i>Bacillus thuringiensis</i> (32.000 UI/mg)	0614-A1/In/11-13/APV-SAHEL	Insecticide autorisé contre les chenilles du chou
					Expire en Novembre 2016	
27	BAYGON Contre tous les insectes	U	JOHNSON COMPANY LIMITED	imiprothrin (0,05%) / cyfluthrin (0,015%)	0731-A0/In/11-13/APV-SAHEL	Insecticide autorisé en usage domestique contre les insectes volants et rampants
	RAID Contre tous les insectes/Action immédiate				Expire en Novembre 2016	
28	BELUGA 480 SC	II	ARYSTA LIFESCIENCE	diflubenzuron (480 g/l)	0671-A1/In/11-14/APV-SAHEL	Insecticide autorisé contre les chenilles carpophages et phyllophages du cotonnier
					Expire en Novembre 2017	
29	BENEVIA 100 OD	III	DUPONT	cyantranilprole (100 g/l)	0676-A0/In/11-12/APV-SAHEL	Insecticide autorisé contre les ravageurs du cotonnier
					Expire en Novembre 2015	
30	BENEVIA 100 OD	III	DUPONT	cyantranilprole (100 g/l)	0676-A0-M1/In/11-13/APV-SAHEL	Insecticide autorisé contre les ravageurs du cotonnier à la dose de 0,4 l/ha
					Expire en Novembre 2016	
31	BIO K16	U	SAVANA	<i>Bacillus thuringiensis</i> var.Kurstaki (16000 UI)	0833-A0/In/05-15/APV-SAHEL	Insecticide foliaire autorisé pour lutter contre les chenilles ravageuses de cultures maraichères
					Mai 2018	



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N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
32	BRINO	III	BADA COMMERCE SARL	dimefluthrine (0,08%)	0773-A0/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide autorisé en Santé Publique contre les moustiques
33	BOMEK 18 EC	II	SCPA SIVEX INTERNATIONAL (SSI)	abamectine (18 g/l)	0719-A0/In,Ac/11-12/APV-SAHEL Expire en Novembre 2015	Insecticide/Acaricide autorisé sur cultures maraichères (Tomate)
34	CAIMAN ROUGE P	II	SCPA SIVEX INTERNATIONAL (SSI)	perméthrine (25 g/kg) / thirame (250 g/kg)	0636-A1/In,Fo/11-13/APV- SAHEL Expire en Novembre 2016	Insecticide/Fongicide autorisé contre les champignons pathogènes et les insectes en traitements de semences
35	CAIMAN B19	II	SCPA SIVEX INTERNATIONAL (SSI)	emamectine benzoate (19,2 g/l)	0638-A1/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide autorisé contre les chenilles phyllophages ( <i>A. flava</i> , <i>S. derogata</i> ), carpophages (exocarpiques : <i>H. armigera</i> , <i>E.insulana</i> et endocarpiques : <i>C. leucotetra</i> , <i>P. gossypiella</i> ) et les insectes piqueurs sucres ( <i>Aphis gossypii</i> , <i>Bemisia tabaci</i> , <i>Empoasca spp.</i> ) des cultures cotonnières
36	CALFOS 500 EC	II	ARYSTA LIFESCIENCE	profenofos (500 g/l)	0340-H1/In,Ac/05-13/HOM-SAHEL Expire en Mai 2018	Insecticide acaricide autorisé contre les chenilles phyllophages, carpophages, les piqueurs sucres et les acariens du cotonnier
37	CALIFE 500 EC	II	SAVANA	profenofos (500 g/l)	0478-H0/In/11-12/HOM-SAHEL Expire en Novembre 2017	Insecticide autorisé contre les chenilles phyllophages et carpophages du cotonnier
38	CALLIFAN EXTRA	II	ARYSTA LIFESCIENCE	acétamipride (32 g/l) / bifentrine (120 g/l)	0674-A1/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide autorisé contre les insectes piqueurs sucres et ravageurs du cotonnier
39	CALLIFOR G	III	ARYSTA LIFESCIENCE	prométryne (250 g/l) / fluométuron (250 g/l) / glyphosate (60 g/l)	0408-H1/He/05-13/HOM-SAHEL Expire en Mai 2018	Herbicide systémique du cotonnier autorisé en pré-levée de la culture et des adventices
40	CALLIFOR 500 SC	III	ARYSTA LIFESCIENCE	fluométuron (250 g/l)/ prométryne (250 g/l)	0388-H1/He/05-13/HOM-SAHEL Expire en Mai 2018	Herbicide systémique du cotonnier autorisé en pré-levée de la culture et des adventices
41	CALLIHERBE 720 SL	II	ARYSTA LIFESCIENCE	diméthylammonium (720 g/l)	0596-A1/He/06-15/APV-SAHEL Expire en Juin 2018	Herbicide sélectif systémique autorisé contre les dicotylédones annuelles et pérennes du riz





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N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
42	CALLIHERBE 720 SL	II	ARYSTA LIFESCIENCE	diméthylammonium (720 g/l)	0596-A0-X1/He/05-15/APV-SAHÉL Expire en Mai 2018	Herbicide sélectif systémique autorisé contre les dicotylédones annuelles et pérennes du maïs
43	CALLISTAR 250 EC	III	ARYSTA LIFESCIENCE	oxadiazon (250 g/l)	0615-A1/He/11-13/APV-SAHÉL Expire en Novembre 2016	Herbicide sélectif autorisé contre les adventices du riz irrigué ou pluvial
44	CALRIZ	II	ARYSTA LIFESCIENCE	propanil (360 g/l) / triclopyr (72 g/l)	0597-A1/He/05-14/APV-SAHÉL Expire Mai 2017	Herbicide autorisé contre les adventices en post-levée du riz
45	CALTHIO C 50 WS	II	ARYSTA LIFESCIENCE	thirame (250 g/kg) / chlorpyrifos éthyl (250 g/kg)	0551-A1/In,Fo/11-13/APV-SAHÉL Expire en Novembre 2016	Insecticide/Fongicide autorisé contre les insectes et les champignons en traitement de semences du cotonnier
46	CALTHIO I 350 FS	II	ARYSTA LIFESCIENCE	imidacloprid (250 g/l) / thirame (100 g/l)	0604-A1/In,Fo/11-14/APV-SAHÉL Expire en Novembre 2017	Insecticide / Fongicide autorisé pour le traitement des semences du cotonnier
47	CALTHIO MIX 485 WS	II	ARYSTA LIFESCIENCE	imidaclopride (350 g/kg) / thirame (100 g/kg) / metalaxyle (35 g/kg)	0709-A0/In,Fo/05-14/APV-SAHÉL Expire Mai 2017	Insecticide fongicide systémique autorisé en traitement de semences de maïs contre les ravageurs du sol
48	CALTHIO MIX 485 WS	II	ARYSTA LIFESCIENCE	imidaclopride 350g/kg / thirame 100g/kg / métalaxyl 35g/kg	0709-A0-X1/In,Fo/05-15/APV-SAHÉL Mai 2018	Insecticide fongicide autorisé pour le traitement des semences du cotonnier contre les ravageurs (iules, termites, vers blancs), les insectes piqueurs suceurs et les maladies
49	CAMIX 500 SE	III	SYNGENTA CROP PROTECTION AG	mésotrione (83,3 g/l) / s-métolachlore (416,7 g/l)	0606-A1/He/06-13/APV-SAHÉL Expire en Juin 2016	Herbicide autorisé en pré-levée ou post-levée précoce contre les adventices du maïs
50	CAPT 88 EC	II	ALM INTERNATIONAL	acétamipride (16 g/l) / cyperméthrine (72 g/l)	0415-H1/In/11-15/HOM-SAHÉL Expire en Novembre 2020	Insecticide autorisé contre les chenilles et les piqueurs-suceurs du cotonnier
51	CAPT 88 EC	II	ALM INTERNATIONAL	acétamipride (16 g/l) / cyperméthrine (72 g/l)	0415-A0-X1/In/11-12/APV-SAHÉL Expire en Novembre 2015	Insecticide autorisé sur le Haricot
52	CAPT 96 EC	II	ALM INTERNATIONAL	acétamipride (24 g/l) / cyperméthrine (72 g/l)	0510-A1/In,Ac/11-13/APV-SAHÉL Expire en Novembre 2016	Insecticide autorisé contre les insectes et les mouches blanches



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N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
53	COBRA 120 EC	II	ARYSTA LIFESCIENCE	acétamipride (64 g/l) / spinétoram (56 g/l)	0647-A1/In/05-14/APV-SAHEL	Insecticide autorisé contre les chenilles phyllophages et carpophages et contre les insectes piqueurs-suceurs du cotonnier
					Expire Mai 2017	
54	CODAL GOLD 412-5 DC	III	SYNGENTA CROP PROTECTION AG	prométryne (250 g/l) / s-métolachlore (162,5 g/l)	0470-H0/He/06-12/HOM-SAHEL	Herbicide autorisé en pré-levée contre les plantes adventices du cotonnier
					Expire en Juin 2017	
55	COGA 80 WP	III	SAVANA	mancozeb (800 g/kg)	0698-A0/Fo/11-12/APV-SAHEL	Fongicide de contact à large spectre pour les cultures maraichères, fruitières, vivrières et florales
					Expire en Novembre 2015	
56	CONFO	II	HAI HUA INDUSTRIE S.A	allethrine (0,35%)	0721-A0/In/11-12/APV-SAHEL	Insecticide (spirale) intra domiciliaire à combustion lente contre les moustiques
					Expire en Novembre 2015	
57	CONFO LIQUIDE	III	CIFI -SARL	camphre (25%) / huile de citronnelle (10%)	0779-A0/In/05-14/APV-SAHEL	Insecticide autorisé en Santé Publique contre les moustiques
					Expire Mai 2017	
58	CONFO POMMADE	III	CIFI -SARL	camphre (10%)	0778-A0/In/05-14/APV-SAHEL	Insecticide autorisé en Santé Publique contre les moustiques
					Expire Mai 2017	
59	CONQUEST C 88 EC	II	ARYSTA LIFESCIENCE	acétamipride (8 g/l) / cyperméthrine (80 g/l)	0240-H1/In/07-14/HOM-SAHEL	Insecticide autorisé contre les chenilles phyllophages, carpophages et les pucerons du cotonnier
					Expire Juillet 2019	
60	CONQUEST C 176 EC	II	ARYSTA LIFESCIENCE	acétamipride (32 g/l) / cyperméthrine (144 g/l)	0493-H0/In/11-11/HOM-SAHEL	Insecticide autorisé contre les chenilles phyllophages, carpophages et les acariens du cotonnier
					Expire en Novembre 2016	
61	CORAGEN 20 SC	IV	ALM INTERNATIONAL	chlorantraniliprole (200 g/l)	0781-A0/In/05-14/APV-SAHEL	Insecticide autorisé contre les chenilles phyllophages et coprophages et contre les insectes piqueurs-suceurs
					Expire Mai 2017	
62	CORIGNENA 500 EC	III	BARRY AGROCHEM	metolachlore (333 g/l) / terbutyne (167 g/l)	0811-A0/He/11-14/APV-SAHEL	Herbicide autorisé en prélevée contre les adventices du cotonnier.
					Expire en Novembre 2017	
63	COTOFORCE 80 WG	U	SCPA SIVEX INTERNATIONAL (SSI)	prometryne (790 g/kg) / trifloxysulfuron-sodium (10 g/kg)	0673-A0/He/11-13/APV-SAHEL	Herbicide sélectif autorisé en post-levée contre les adventices du cotonnier
					Expire en Novembre 2016	



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64	COTONET 500 EC	III	DTE	métolachlore (333 g/l) / terbutryne (167 g/l)	0519-A1/He/11-13/APV-SAHEL Expire en Novembre 2016	Herbicide autorisé en post-semis et pré-lévée contre les mauvaises herbes du cotonnier
65	CROTALE	II	ARYSTALIFESCIENCE	acetamipride (16g/l) / indoxacarbe (30g/l)	0797-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide contre les chenilles, carpophages ( <i>Helicoverpa</i> , <i>Earias</i> , <i>Diparopsis</i> ), phyllophages ( <i>Spodoptera</i> , <i>Cosmiphila</i> ) et les insectes piqueurs suceurs du cotonnier
66	CURACRON 500 EC	III	SYNGENTA CROP PROTECTION AG	profenofos (500 g/l)	0263-H1/In,Ac/01-14/HOM-SAHEL Expire en Janvier 2019	Insecticide / acaricide autorisé contre les principales espèces phyllophages et carpophages et les acariens du cotonnier
67	CRUISER 350 FS	III	SYNGENTA CROP PROTECTION AG	thiamethoxam (350 g/l)	0296-H0/In/11-10/HOM-SAHEL Expire en Novembre 2015	Insecticide autorisé en traitement de semences contre les insectes du sol en culture du cotonnier
68	CRUISER EXTRA COTON 362 FS	III	SYNGENTA CROP PROTECTION AG	thiamethoxam (350 g/l) / fludioxonyl (8,34 g/l) / metalaxyl-m (3,34 g/l)	0643-A1/In,Fo/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide, fongicide autorisé pour le traitement des semences contre les insectes et les champignons
69	CYPRA 100 EC	II	RIVALE	cyperméthrine (100 g/l)	0659-A0/In/11-13/APV-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les larves de <i>Helicoverpa armigera</i> et les mouches blanches
70	CYPERANET 88 EC	II	DTE	acétamipride (16 g/l) / cyperméthrine (72 g/l)	0563-A1/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide autorisé contre les chenilles phyllophages et carpophages du cotonnier
71	CYPERCAL P 230 EC	II	ARYSTA LIFESCIENCE	cyperméthrine (30 g/l) / profenofos (200 g/l)	0227-H1/In,Ac/07-14/HOM-SAHEL Expire Juillet 2019	Insecticide/Acaricide autorisé contre les chenilles phyllophages, carpophages et les acariens du cotonnier
72	CYPERCAL P 690 EC	II	ARYSTA LIFESCIENCE	cyperméthrine (90 g/l) / profenofos (600 g/l)	0598-H0/In/05-15/HOM-SAHEL Expire en Mai 2020	Insecticide autorisé contre les chenilles phytophages, carpophages et les insectes piqueurs suceurs du cotonnier
73	CYPERCAL P 720 EC	II	ARYSTA LIFESCIENCE	cyperméthrine (120 g/l) / profenofos (600 g/l)	0364-H0/In,Ac/11-10/HOM-SAHEL Expire en Novembre 2015	Insecticide /acaricide autorisé contre les principaux insectes carpophages et phyllophages du cotonnier et contre les acariens
74	CYPERCAL 50 EC	III	ARYSTA LIFESCIENCE	cyperméthrine (50g/l)	0216-H1/In/06-15/HOM-SAHEL Expire en Juin 2020	Insecticide autorisé contre les insectes ravageurs de la tomate





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75	CYPERPRONET 690 EC	II	DTE MALI	profénofos (600 g/l) / cyperméthrine (90 g/l)	0555-A1/In/11-15/APV-SAHEL	Insecticide autorisé contre les ravageurs des agrumes, du caféier, du cotonnier, et des cultures maraîchères
					Expire en Novembre 2018	
76	DANGELE	III	DOW AGRO SCIENCES	haloxyfop R-méthyl (104 g/l)	0414-H1/He/01-15/HOM-SAHEL	Herbicide sélectif autorisé en post-levée contre les graminées du cotonnier
					Expire en Janvier 2020	
77	DECIS 25 EC	II	BAYER CROPS SCIENCE AG	deltaméthrine (25 g/l)	0451-H0/In/11-14/HOM-SAHEL	Insecticides autorisé contre Helicoverpa en culture de la tomate
					Expire en Novembre 2019	
78	DEKADE 720 SL	III	ENTREPRISE MULTI SERVICES DU BURKINA FASO (EMUS BF)	Sel de 2,4-D diméthyl amine (720 g/l)	0735-A0/He/11-14/APV-SAHEL	Herbicide de post-levée autorisé contre un large spectre de graminées adventices en culture céréalière
					Expire en Novembre 2017	
79	DELTACAL 12,5 EC	II	ARYSTA LIFESCENCE	deltaméthrine (12,5 g/l)	0650-A1/In/05-14/APV-SAHEL	Insecticide autorisé contre Helicoverpa sur haricot vert
					Expire Mai 2017	
80	DELTACAL 12,5 EC	II	ARYSTA LIFESCENCE	deltaméthrine (12,5 g/l)	0650-A0-X1/In/05-13/APV-SAHEL	Insecticide autorisé contre les chenilles <i>Helicoverpa armigera</i> Hubner et les mouches blanches de la tomate
					Expire en Mai 2016	
81	DOYEN 62	III	SCPA SIVEX INTERNATIONAL (SSI)	emamectine benzoate (12 g/l) imidaclopride (50 g/l)	0734-A0/In/11-14/APV-SAHEL	Insecticide autorisé contre les chenilles, carpophages et les insectes piqueurs sucres de la tomate
					Expire en Novembre 2017	
82	DENIM FIT 50 WG	III	SYNGENTA CROP PROTECTION AG	benzoate d'emamectine (100 g/kg) / lufenuron (400 g/kg)	0677-A1/In/06-15/APV-SAHEL	Insecticide autorisé contre les insectes phyllophages et carpophages du cotonnier
	MATCH FIT 50 WG				Expire en Juin 2018	
83	DENIM SUPER EC	II	ARYSTA LIFESCENCE	bifenthrine (60 g/l) / emamectine benzoate (19g/l)	0840-A0/In,Ac /05-15/APV-SAHEL	Insecticide/Acaracide autorisé contre les insectes des genres Helicoverpa, Diparopsis, Earias Spodoptera et les acariens du cotonnier
					Mai 2018	
84	DESTROY 400 SL	III	ALM INTERNATIONAL	S-ethyl 4-chloro-o-tolyloxythioacetate (2,4-MCPA) (400 g/l)	0785-A0/He/05-14/APV-SAHEL	Herbicide sélectif à action systémique autorisé contre les adventices en pleine croissance de la canne à sucre
					Expire Mai 2017	



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85	DJIGIKAN 800 EC	III	ALM INTERNATIONAL	malathion (800 g/l)	0644-A1/In/05-14/APV-SAHEL	Insecticide autorisé contre les chenilles phyllophages et carpophages du cotonnier
					Expire Mai 2017	
86	DIGA FAGALAN	III	SAVANA	glyphosate (360 g/l)	0480-H0/He/11-11/HOM-SAHEL	Herbicide systémique non sélectif autorisé contre les mauvaises herbes annuelles et pérennes avant plantation / semis de toutes cultures
	FINISH 360 SL				Expire en Novembre 2016	
87	DIMILIN GR-2	III	CHEMTURA CORPORATION	diflubenzuron (20 g/kg)	0582-H0/In/05-15/HOM-SAHEL	Insecticide autorisé contre les larves des moustiques dans les gîtes larvaires
					Expire en Mai 2020	
88	DIMILIN OF 6	II	UNIROYAL CHEMICAL	diflubenzuron (60 g/l)	0058-H2/In/12-10/HOM-SAHEL	Insecticide autorisé contre les locustes
					Expire en Décembre 2015	
89	DITHANE M45	III	DOW AGRO SCIENCES	mancozeb (800 g/kg)	0466-H0/Fo/05-15/HOM-SAHEL	Fongicide à large spectre autorisé contre les maladies de la tomate
					Expire en Mai 2020	
90	DIURALM 80 WG	III	ALM INTERNATIONAL	diuron (800 g/kg)	0473-H0/He/11-13/HOM-SAHEL	Herbicide de pré-levée autorisé pour lutter contre les adventices du cotonnier
					Expire en Novembre 2018	
91	DOKAT	II	DOBYTRADE SARL	2,4-D sel d'amine (720 g/l)	0845-A0/He/05-15/APV-SAHEL	Herbicide autorisé contre les adventices du riz
					Expire en Mai 2018	
92	DOUMA WORO	II	ETS GNISSIEN & FRÈRES	glyphosate (480 g/l)	0679-A0/He/05-13/APV-SAHEL	Herbicide autorisé contre les mauvaises herbes saisonnières, et les herbes permanentes
					Expire en Mai 2016	
93	DURSBAN 4 EC	II	DOW AGRO SCIENCES	chlorpyrifos-ethyl (480 g/l)	0011-H3/In/07-12/HOM-SAHEL	Insecticide autorisé contre les ravageurs des arbres fruitiers, du caféier, du cotonnier, et des cultures maraîchères
					Expire en Juillet 2017	
94	DURSBAN 5% DP	III	DOW AGRO SCIENCES	chlorpyrifos-éthyl (50 g/kg)	0002-H3/In/07-12/HOM-SAHEL	Insecticide autorisé contre les sautériaux, les fourmis et les termites en cultures vivrières
					Expire en Juillet 2017	
95	DURSBAN 5 G	III	DOW AGRO SCIENCES	chlorpyrifos-éthyl (50 g/kg)	0003-H3/In/07-12/HOM-SAHEL	Insecticide autorisé contre les termites, les fourmis, les noctuelles, les taupins, les vers blancs sur maïs et sorgho
					Expire en Juillet 2017	
96	DURSBAN 450 ULV	II	DOW AGRO SCIENCES LLC	chlorpyrifos-éthyl (450 g/l)	0001-H3/In/07-12/HOM-SAHEL	Insecticide autorisé contre les locustes et sautériaux en traitement foliaire
					Expire en Juillet 2017	





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97	DURSBAN 240 ULV	II	DOW AGRO SCIENCES LLC	chlorpyrifos-éthyl (240 g/l)	0004-H3/In/07-12/HOM-SAHEL	Insecticide autorisé contre les sautériaux et le criquet pèlerin
					Expire en Juillet 2017	
98	EFORIA 045 ZC	II	SYNGENTA CROP PROTECTION AG	thiamethoxam (30 g/l) / lambda-cyhalothrine (15 g/l)	0608-A1/In/06-13/APV-SAHEL	Insecticide autorisé contre les insectes piqueurs suceurs, les phyllophages et carpophages du cotonnier
					Expire en Juin 2016	
99	EMA 19,2 EC	II	ADAMA MAKHTESHIM LTD.	emamectine benzoate (19,2 g/l)	0601-A1/In/11-14/APV-SAHEL	Insecticide autorisé pour le contrôle des ravageurs du cotonnier
					Expire en Novembre 2017	
100	EMA SUPER 56 DC	II	ADAMA MAKHTESHIM LTD.	emamectine benzoate (24 g/l) / acétamipride (32 g/l)	0751-A0/In/11-13/APV-SAHEL	Insecticide pour le traitement des champs de cotonniers contre les ravageurs phyllophages et carpophages
					Expire en Novembre 2016	
101	EMACOT 019 EC	II	SAVANA	emamectine benzoate (19 g/l)	0619-A1/In/11-13/APV-SAHEL	Insecticide autorisé contre les insectes phyllophages, carpophages et les piqueurs suceurs du cotonnier
					Expire en Novembre 2016	
102	EMACOT 050 WG	II	SAVANA	emamectine benzoate (50 g/kg)	0620-A1/In/05-14/APV-SAHEL	Insecticide autorisé contre les chenilles carpophages et phyllophages du cotonnier
					Expire Mai 2017	
103	EMAPYR	III	SAVANA	emamectine benzoate (20 g/l) / pyriproxyfene (60 g/l)	0740-A0/In/05-14/APV-SAHEL	Insecticide autorisé contre les ravageurs du cotonnier
					Expire Mai 2017	
104	EMARON	III	SAVANA	emamectine benzoate (20 g/l) / lufenuron (80 g/l)	0792-A0/In/05-14/APV-SAHEL	Insecticide autorisé contre les ravageurs du cotonnier
					Expire Mai 2017	
105	EMIR 88 EC	II	SAVANA	cyperméthrine (72 g/l) / acétamipride (16 g/l)	0476-H0/In/05-13/HOM-SAHEL	Insecticide autorisé contre les chenilles et les insectes piqueurs
					Expire en Mai 2018	
106	EMIR FORT 104 EC	II	SAVANA	cyperméthrine (72 g/l) / acetamipride (32 g/l)	0653-A1/In/11-14/APV-SAHEL	Insecticide autorisé contre les chenilles et les insectes piqueurs-suceurs du cotonnier
					Expire en Novembre 2017	
107	ENGE0 247 SC	II	SYNGENTA CROP PROTECTION AG	lambda-cyhalothrine (106 g/l) / thiamethoxam (141 g/l)	0711-A0/In/11-13/APV-SAHEL	Insecticide systémique binaire autorisé contre les insectes piqueurs-suceurs, des phyllophages et des carpophages en culture du cotonnier
	ALIKA 247 SC				Expire en Novembre 2016	



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108	EUREKA	III	SCPA SIVEX INTERNATIONAL (SSI)	propanil (360 g/l)	0695-A0/He/11-12/APV-SAHEL	Herbicide de post-levée sélectif du riz contre les mauvaises herbes annuelles
	PROPA 360				Expire en Novembre 2015	
109	FANGA 500 EC	II	ALM INTERNATIONAL	profenofos (500 g/l)	0410-H1/In/11-15/HOM-SAHEL Novembre 2020	Insecticide autorisé contre les insectes phyllo phages et carpophages du cotonnier
110	FENICAL 3 DP	III	ARYSTA LIFESCIENCE	fénitrothion (3 g/kg)	0455-H0/In/11-11/HOM-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les acridiens
111	FENICAL 400 UL	III	ARYSTA LIFESCIENCE	fénitrothion (400 g/l)	0456-H0/In/11-11/HOM-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les acridiens
112	FICAM VC	II	BAYER (PTY) LTD	bendiocarbe (800 g/kg)	0562-A1/In/06-15/APV-SAHEL	Insecticide autorisé contre les moustiques adultes en traitement intra-domiciliaire
					Expire en Juin 2018	
113	FINISH 68 SG	III	SAVANA	glyphosate (680 g/kg)	0621-A1/He/06-15/APV-SAHEL	Herbicide non sélectif autorisé contre les adventices annuelles et pérennes avant l'implantation des cultures
					Expire en Juin 2018	
114	FOCON 750 WG	III	ALM INTERNATIONAL	hexazinone (750 g/l)	0786-A0/He/11-13/APV-SAHEL	Herbicide sélectif autorisé en culture de la canne à sucre
					Expire en Novembre 2016	
115	FOCUS ULTRA 100 EC	III	BASF SE	cycloxydim (100 g/l)	0515-H0/He/05-14/HOM-SAHEL Expire Mai 2019	Herbicide autorisé en post-levée contre les plantes adventices du cotonnier
116	FOURALAN 480 SL	III	COMPTOIR 2000	glyphosate (480 g/l)	0411-H0/He/05-11/HOM-SAHEL	Herbicide systémique non sélectif autorisé en post-levée contre les adventices annuels et pérennes avant le semis de la culture
					Expire en Mai 2016	
117	FUSILADE FORTE 150 EC	III	SYNGENTA CROP PROTECTION AG	fluazifop-p-butyl (150 g/l)	0467-H0/He/06-12/HOM-SAHEL	Herbicide autorisé en post-levée contre les graminées adventices du cotonnier
					Expire en Juin 2017	
118	FLUORALM P 500 SC	III	ALM INTERNATIONAL	fluométuron (250 g/l) / prometryne (250 g/l)	0376-H0/He/05-13/HOM-SAHEL	Herbicide de pré-levée contre les mauvaises herbes monocotylédones et dicotylédones annuelles en culture du cotonnier
					Expire en Mai 2018	





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N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
119	FYFANON 925 UL	III	CHEMINOVA	malathion (925 g/l)	0447-H0/In/11-11/HOM-SAHEL	Insecticide autorisé contre les locustes et les sautériaux
					Expire en Novembre 2016	
120	FYFANON 880 EC	III	CHEMINOVA	malathion (880g/l)	0495-A0-X1/In/05-15/APV-SAHEL	Insecticide acaricide autorisé en culture de tomate contre <i>Bemisia tabaci</i> , <i>Aphis gossypii</i> , <i>Helicoverpa armigera</i> , <i>Spodoptera exigua</i> et les sautériaux
					Expire en Mai 2018	
121	GALLANT* SUPER	III	DOW AGROSCIENCES	haloxyfop-R-méthyl (104 g/l)	0268-H1/He/01-15/HOM-SAHEL	Herbicide sélectif autorisé contre les graminées du cotonnier en pulvérisation foliaire
					Expire en Janvier 2020	
122	GALAXY 450 EC	III	FMC	clomazone (150 g/l) / pendiméthaline (300 g/l)	0366-H0/He/11-11/HOM-SAHEL	Herbicide autorisé en prélevée contre les adventices annuels du cotonnier et du riz
					Expire en Novembre 2016	
123	GARIL 432 EC	II	DOW AGROSCIENCES	triclopyr (72 g/l) / propanil (360 g/l)	0010-H0/He/06-12/HOM-SAHEL	Herbicide autorisé contre les mauvaises herbes en post-levée, du riz pluvial, irrigué et de bas-fonds
					Expire en Juin 2017	
124	GLYCEL 710 SG	II	TOPEX AGRO ELEVAGE DÉVELOPPEMENT	glyphosate (710 g/l)	0700-A0/He/11-13/APV-SAHEL	Herbicide systémique non sélectif autorisé en post levée des adventices
					Expire en Novembre 2016	
125	GLYCEL 410 SL	II	TOPEX AGRO ELEVAGE DÉVELOPPEMENT	glyphosate (410 g/l)	0484-H0/He/11-14/HOM-SAHEL	Herbicide total systémique pour lutter contre les adventices annuels et pluriannuels des cultures
					Expire en Novembre 2019	
126	GLYPHADER 75 SG	III	SCPA SIVEX INTERNATIONAL (SSI)	glyphosate (750 g/kg)	0579-A1/He/01-13/APV-SAHEL	Herbicide systémique non sélectif autorisé avant la culture contre les adventices annuels et pérennes
					Expire en Janvier 2016	
127	GLYPHADER 360 SL	III	SCPA SIVEX INTERNATIONAL (SSI)	glyphosate (360 g/l)	0580-A1/He/06-13/APV-SAHEL	Herbicide systémique non sélectif autorisé contre les adventices en pré semis du cotonnier
	LADABA				Expire en Juin 2016	
128	GLYPHALM 360 SL	III	ALM INTERNATIONAL	glyphosate (360 g/l)	0504-H0/He/11-13/HOM-SAHEL	Herbicide systématique non sélectif autorisé contre les mauvaises herbes annuelles et pérennes avant plantation / semis de toutes cultures
					Expire en Novembre 2018	





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129	GLYPHOBAR 480 SL	III	BARRY AGROCHEM	glyphosate (480 g/l)	0770-A0/He/05-14/APV-SAHEL	Herbicide autorisé en post – levée contre les plantes adventices
					Expire Mai 2017	
130	GLYPHOGAN 480 SL	III	ADAMA AGAN LTD.	glyphosate (480 g/l)	0290-H0/He/11-11/HOM-SAHEL	Herbicide systémique non sélectif autorisé contre les mauvaises herbes annuelles et pérennes avant plantation ou semis de toutes cultures
					Expire en Novembre 2016	
131	GLYPHONET 360 SL	III	DTE MALI	glyphosate (360 g/l)	0440-H1/He/11-15/HOM-SAHEL	Herbicide systémique foliaire non sélectif, autorisé contre les adventices annuelles et pérennes
					Expire Novembre 2020	
132	GLYPHOTROP 480 SL	II	TROPICS	glyphosate (480 g/l)	0656-A0/He/11-12/APV-SAHEL	Herbicide systémique non sélectif autorisé avant la culture contre les adventices annuelles et pérennes
					Expire en Novembre 2015	
133	GLYSAHEL 41 SL	U	SEDAB SARL	glyphosate (410 g/l)	0725-A0/He/05-15/APV-SAHEL	Herbicide total non sélectif autorisé contre les mauvaises herbes annuelles et pérennes en culture du riz
					Expire en Mai 2018	
134	GOLDEN BLUE 985 SG	II	SCPA SIVEX INTERNATIONAL (SSI)	sulfate de cuivre pentahydraté (985 g/kg)	0720-A0/Fo/11-12/APV-SAHEL	Fongicide autorisé contre l'antracnose du manguier
					Expire en Novembre 2015	
135	GRAMI 108 EC	III	ALM INTERNATIONAL	haloxyfop-R-méthyl (108 g/l)	0737-A0/He/05-13/APV-SAHEL	Herbicide de post-levée autorisé contre un large spectre de graminées adventices en culture de coton
					Expire en Mai 2016	
136	GRANITE 240 SC	II	DOW AGROSCIENCES EXPORT SAS	penoxsulam (240 g/l)	0722-A1/He/11-15/APV-SAHEL	Herbicide post-levée autorisé contre les adventices du riz
					Expire en Novembre 2018	
137	GRANSTAR 75 WG	III	ALM INTERNATIONAL	tribénuron-méthyl (750 g/kg)	0574-A1/He/11-13/APV-SAHEL	Herbicide autorisé en post-levée contre les mauvaises herbes du blé
					Expire en Novembre 2016	
138	HALONET 104 EC	II	DTE	haloxyfop-R-méthyl (104 g/l)	0520-A1/He/06-13/APV-SAHEL	Herbicide autorisé contre les graminées de post levée des cultures
					Expire en Juin 2016	
139	HERBALM 720 SL	III	ALM INTERNATIONAL	2,4-D amine (720 g/l)	0377-A1/He/05-14/APV-SAHEL Expire Mai 2017	Herbicide sélectif autorisé contre les mauvaises herbes à feuilles larges du riz



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140	HERBASATE	III	RIVALE	glyphosate (360 g/l)	0657-A0/He/11-12/APV-SAHÉL Expire en Novembre 2015	Herbicide systémique non sélectif autorisé contre les mauvaises herbes
141	HERBEXBAR 720 SL	III	BARRY AGROCHEM	2,4-D (720 g/l)	0794-A0/He/05-14/APV-SAHÉL Expire Mai 2017	Herbicide sélectif post levée autorisé pour contrôler les mauvaises herbes saisonnières et pérennes
142	HERBEXTRA 720 SL	II	SCPA SIVEX INTERNATIONAL(SSI)	Sel de 2,4-D, dimethyl amine (720 g/l)	0318-H1/He/01-15/HOM-SAHÉL Expire en Janvier 2020	Herbicide systémique de post-levée des adventices dicotylédones en culture du riz
143	HERBICOTON DF	III	SCPA SIVEX INTERNATIONAL (SSI)	fluométuron (440 g/l) / prométryne (440 g/l)	0439-H0/He/11-12/HOM-SAHÉL Expire en Novembre 2017	Herbicide autorisé en pré-levée contre les adventices du cotonnier
144	HERBIMAÏS 240 OF	III	SCPA SIVEX INTERNATIONAL (SSI)	dicamba (200 g/l) / nicosulfuron (40 g/l)	0767-A0/He/11-13/APV-SAHÉL Expire en Novembre 2016	Herbicide de post-levée autorisé pour lutter contre les adventices du maïs
145	HERBIRIZ 10 WP	III	ALM INTERNATIONAL	bensulfuron méthyl (100 g/kg)	0716-A1/He/11-15/APV-SAHÉL Expire en Novembre 2018	Herbicide autorisé contre les adventices du riz en post-levée
146	HERBO TOTAL 360 SL	III	ENTREPRISE MULTI SERVICES DU BURKINA FASO (EMUS BF)	glyphosate (360 g/l)	0682-A0/He/11-14/APV-SAHÉL Expire en Novembre 2017	Herbicide non sélectif autorisé en culture du cotonnier
147	HEXACANE 75 WDG	III	SAVANA	hexazinone (750 g/kg)	0699-A0/He/11-12/APV-SAHÉL Expire en Novembre 2015	Herbicide systémique de pré émergence autorisé contre les adventices de la canne à sucre
148	ICON 10 CS	III	SYNGENTA CROP PROTECTION AG	lambda-cyhalothrine (10 g/l)	0518-A1/In/01-13/APV-SAHÉL Expire en Janvier 2016	Insecticide autorisé en santé publique contre les moustiques vecteurs du paludisme
149	IDEFIX	II	SAVANA	hydroxyde de cuivre (65,6%)	0793-A0/Ba,Fo/05-14/APV-SAHÉL Expire en Mai 2017	Fongicide bactéricide autorisé pour les cultures maraichères et fruitières
150	IMIDALM T 450 WS	III	ALM INTERNATIONAL	imidacloprid (350 g/kg) / thirame (100 g/kg)	0513-H0/In,Fo/05-15/HOM-SAHÉL Expire en Mai 2020	Insecticide/Fongicide autorisé en traitement de semences contre les insectes et les maladies du sol du cotonnier





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151	INDOXAN	III	SAVANA	indoxacarb (50 g/l)	0834-A0/In/05-15/APV-SAHEL	Insecticide foliaire autorisé pour lutter contre les chenilles ravageuses du cotonnier
					Expire en Mai 2018	
152	INSECTICIDE DOUBLE ACTION ORO	III	QUIMICAS ORO	tétramétrine (2,0 g/Kg)/ perméthrine (2,5 g/kg) / D-fénothrine (0,1 g/Kg)	0594-A1/In/06-13/APV-SAHEL	Insecticide autorisé en usage domestique contre les insectes volants et rampants
					Expire en Juin 2016	
153	INSECTOR T	III	SCPA SIVEX INTERNATIONAL (SSI)	imidacloprid (350 g/kg) / thirame (100 g/kg)	0616-A1/In,Fo/11-14/APV-SAHEL	Insecticide / fongicide autorisé pour la protection des semences, du stockage à la germination
					Expire en Novembre 2017	
154	IPROSATE 41% SL	U	STÉ BOUTAPA SARL	glyphosate (410 g/l)	0672-A0/He/11-13/APV-SAHEL	Herbicide systémique non sélectif à large spectre d'action autorisé sur les mauvaises herbes, les graminées pérennes
					Expire en Novembre 2016	
155	JUMPER 75 WG	U	SCPA SIVEX INTERNATIONAL(SSII)	chlorothalonil (750 g/kg)	0768-A0/Fo/11-14/APV-SAHEL	Fongicide autorisé dans la lutte contre les maladies fongiques (alternariose, mildiou dû à <i>Phytophthora infestans</i> , septorise) en culture de tomate
					Expire en Novembre 2017	
156	KABAFLA 710 SE	III	RMG COTE D'IVOIRE	mésotrione (84 g/l) / métolachlore (626 g/l)	0816-A0/He/05-15/APV-SAHEL	Herbicide de prélevée ou post levée précoce autorisé pour lutter contre les plantes adventices annuelles du maïs.
					Expire en Mai 2018	
157	KALACH 360 SL	III	ARYSTA LIFESCENCE	glyphosate (360 g/l)	0219-H1/He/08-12/HOM-SAHEL	Herbicide systémique non sélectif autorisé contre les mauvaises herbes annuelles et pérennes avant plantation / semis de toutes cultures
					Expire en Août 2017	
158	KALACH EXTRA 70 SG	III	ARYSTA LIFESCENCE	glyphosate (700 g/kg)	0533-H0/He/06-12/HOM-SAHEL	Herbicide systémique foliaire non sélectif autorisé contre les plantes adventices annuelles et pérennes
					Expire en Juin 2017	
159	KART 500 SP	III	SCPA SIVEX INTERNATIONAL (SSI)	cartap (500 g/kg)	0585-A1/In/01-13/APV-SAHEL	Insecticide autorisé contre les insectes ravageurs du chou
					Expire en Janvier 2016	
160	KALTOX PAALGA	U	ARYSTA LIFESCENCE SAS	allethrine (0, 27%) / chlorpyrifos ethyl (0, 75%) / perméthrine (0,17%) / tetramétrine (0,20%)	0772-A0/In/11-13/APV-SAHEL	Insecticide autorisé en santé publique contre les insectes volants et les insectes rampants
					Expire en Novembre 2016	



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161	KILLER 480 SL	U	AF-CHEM SOFACO	glyphosate (480 g/l)	0752-A0/He/11-13/APV-SAHÉL Expire en Novembre 2016	Herbicide non sélectif pour le désherbage en post levée des adventices en pré-labour
162	KILLING MAT	II	K-O DISTRUBUTION	esbiothrin (0,20%)	0776-A0/In/11-14/APV-SAHÉL Expire en Novembre 2017	Insecticide utilisé en Sante Publique contre les moustiques
163	K-OPTIMAL	III	SCPA SIVEX INTERNATIONAL (SSI)	lambda-cyhalothrine (15 g/l) / acétamipride (20 g/l)	0586-A1/In/01-13/APV-SAHÉL Expire en Janvier 2016	Insecticide autorisé contre les insectes ravageurs du chou et du cotonnier
164	K-OTHRINE 250 WG	II	BAYER (PTY) LTD	deltaméthrine (250g/kg)	0590-H0/In/05-15/HOM-SAHÉL Expire en Mai 2020	Insecticide autorisé en santé publique contre les insectes volants et rampants
165	KOGLYPHO 360 SL	U	ETS AMADOU BAÏBA KOUMA	glyphosate (360 g/l)	0846-A0/He/05-15/APV-SAHÉL Expire en Mai 2018	Herbicide total non sélectif autorisé contre les mauvaises herbes, en culture du maïs
166	KOPHOS 500 EC	II	ETS AMADOU BAÏBA KOUMA	profenofos (500 g/l)	0690-A1/In,Ac/11-15/APV-SAHÉL Expire en Novembre 2018	Insecticide acaricide autorisé contre les chenilles phyllophages, carpophages, les piqueurs sucurs et les acariens du cotonnier.
167	KRISMAT 075 WG	III	SYNGENTA CROP PROTECTION AG	amétryne (73,15 g/l) / trifloxysulfuron (1,85 g/l)	0416-H0/He/06-12/HOM-SAHÉL Expire en Juin 2017	Herbicide autorisé en post levée contre les plantes adventices annuelles et pérennes de la canne à sucre
168	LAUDIS 630 SC	II	BAYER CROP SCIENCE AG	tembotrione (420 g/l) / isoxadifén-ethyl (210 g/l)	0824-A0/He/11-14/APV-SAHÉL Expire en Novembre 2017	Herbicide de post -levée de la culture du maïs autorisé pour le contrôle des dicotylédones et graminées annuelles
169	LAGON 575 SC MERLIN COMBI 575 SC	III	BAYER CROPS SCIENCE AG	aclonifène (500 g/l) / isoxaflutole (75 g/l)	0753-A0/He/05-14/APV-SAHÉL Expire Mai 2017	Herbicide de post semis pré levée autorisé contre les mauvaises herbes du maïs
170	LAMANET 46 EC	II	DTE	lambda-cyhalothrine (30 g/l) / acétamipride (16 g/l)	0564-A1/In/11-13/APV-SAHÉL Expire en Novembre 2016	Insecticide autorisé contre les insectes phyllophages et carpophages du cotonnier
171	LAMBACAL P 636 EC	II	ARYSTA LIFESCIENCE	lambda cyhalothrine (36 g/l) / profenofos (600 g/l)	0599-H0/In/05-15/HOM-SAHÉL Expire en Mai 2020	Insecticide autorisé contre les chenilles phyllophages carpophages et les insectes piqueurs sucurs du cotonnier





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172	LAMBACAL P 212 EC	II	ARYSTA LIFESCIENCE	lambda-cyhalothrine (12 g/l) / profénofos (200 g/l)	0421-H0/In/05-13/HOM-SAHEL	Insecticide autorisé contre les insectes phylophages et carpophages du cotonnier
					Expire en Mai 2018	
173	LAMBACAL P 648 EC	II	ARYSTA LIFESCIENCE	profénofos (600 g/l) / lambda-cyhalothrine (48 g/l)	0525-A0/In/05-13/APV-SAHEL	Insecticide autorisé contre les chenilles carpophages et phylophages du cotonnier
					Expire en Mai 2016	
174	LAMBALM 50 EC	II	ALM INTERNATIONAL	lambda-cyhalothrine (50g/l)	0787-A0/In/05-14/APV-SAHEL	Insecticide autorisé contre les insectes de la tomate et du haricot vert
					Expire Mai 2017	
175	LAMPRIDE 46 EC	II	SENCHEM	lambda-cyhalothrine (30 g/l) / acétamipride (16 g/l)	0500-H0/In/11-13/HOM-SAHEL	Insecticide autorisé contre les chenilles phylophages, carpophages et les insectes piqueurs sucres du cotonnier
					Expire en Novembre 2018	
176	LASER 480 SC	III	DOW AGROSCIENCES	spinosad (480 g/l)	0265-H1/In/01-15/HOM-SAHEL	Insecticide autorisé contre les chenilles phylophages, et carpophages du cotonnier
					Expire en Janvier 2020	
177	LASER 480 SC	III	DOW AGROSCIENCES	spinosad (480 g/l)	0265-H0-X1/In/11-14/HOM-SAHEL	Insecticide autorisé dans la lutte contre les insectes nuisibles du chou et contre <i>Helicoverpa armigera</i> sur tomate
					Expire en Novembre 2019	
178	LAUDIS 630 SC	III	BAYER CROPSCIENCE AG	tembotrione (420 g/l) / isoxadifen-ethyl (210 g/l)	0824-A0/He/11-14/APV-SAHEL	Herbicide de post levée autorisé pour le contrôle des dicotylédones et graminées annuelles en culture du maïs
					Expire en Novembre 2017	
179	L'EPERVIER NOIR	II	EDIF	D-transalléthrine (0,25%)	0778-A0/In/05-14/APV-SAHEL	Insecticide autorisé en santé publique contre les moustiques
					Expire Mai 2017	
180	LIFENET	III	BAYER (PTY) LTD	deltaméthrine (8,5 g/kg)	0708-A0/In/11-12/APV-SAHEL	Moustiquaire imprégnée contre les moustiques
					Expire en Novembre 2015	
181	LIBERATOR 500 SC	III	BAYER CROPSCIENCE AG	diflufenican (100g/l) / flufenacet (400g/l)	0850-A0/He/05-15/APV-SAHEL	Herbicide autorisé contre les adventices annuelles (graminées dicotylédones, cypéracées) du cotonnier
					Expire en Mai 2018	
182	LUMAX 537,5 SE	III	SYNGENTA CROP PROTECTION AG	mésotrione (37,5 g/l) / s-métolachlor (375 g/l) / terbuthylazine (125 g/l)	0526-A1-/He/06-13/APV-SAHEL	Herbicide autorisé en prélevée ou post-levée précoce contre les adventices du maïs
	PRIMAGOLD 537,5 SE				Expire en Juin 2016	



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183	LUMAX 537,5 SE	III	SYNGENTA CROP PROTECTION AG	mésotrione (37,5 g/l) / s-métolachlor (375 g/l) / terbuthylazine (125 g/l)	0526-A0-M1/He/05-14/APV-SAHEL	Herbicide autorisé à dose réduite (2 l/ha) en prélevée ou post-levée précoce contre les adventices du maïs
	Expire Mai 2017					
184	LUMAX 537,5 SE	III	SYNGENTA	mésotrione (37,5 g/l) / s-métolachlor (375 g/l) / terbuthylazine (125 g/l)	0526-A0-X1/He/11-14/APV-SAHEL	Herbicide en prélevée ou post levée précoce autorisé contre les adventices en culture de canne à sucre
	Expire en Novembre 2017					
185	LOCUSTOP	II	SAVANA	fenitrothion (400 g/l)	0807-A0/In/11-14/APV-SAHEL	Insecticide autorisé contre les criquets et les sauteriaux
					Expire en Novembre 2017	
186	MAIA 75 WG	III	ALM INTERNATIONAL	nicosulfuron (750 g/kg)	0646-A1/He/11-14/APV-SAHEL	Herbicide sélectif autorisé contre les graminées annuelles vivaces et dicotylédones en culture du maïs
					Expire en Novembre 2017	
187	MAÏA SUPER	III	ALM INTERNATIONAL	nicosulfuron (60 g/l)	0665-A1/He/06-15/APV-SAHEL	Herbicide sélectif autorisé contre les graminées annuelles, vivaces et dicotylédones du maïs
					Expire en Juin 2018	
188	MALIK 108 EC	III	SAVANA	haloxyfop-R-méthyl (108 g/l)	0501-H0/He/05-13/HOM-SAHEL	Herbicide autorisé contre les graminées en post levée du cotonnier
					Expire en Mai 2018	
189	MALO BINFAGA 720 SL	II	SAVANA	2,4-D (720 g/l)	0479-H0/He/11-12/HOM-SAHEL	Herbicide systémique autorisé en post levée contre les dicotylédones du riz
					Expire en Novembre 2017	
190	MAMBA 360 SL	III	DOW AGRO SCIENCES	glyphosate (360 g/l)	0385-H1/He/07-14/HOM-SAHEL	Herbicide systémique non sélectif autorisé contre les graminées et dicotylédones annuelles et pérennes
	DOMINATOR 360 SL				Expire Juillet 2019	
191	MAKI BLOCK	Ia	LIPHATECH SAS	bromadiolone (0,005 mg/kg)	0769-A0/Ro/05-14/APV-SAHEL	Rodenticide autorisé contre les rats et les souris
					Expire Mai 2017	
192	MARIGOLD	U	ARYSTA LIFESCENCE	thyme oil (5,52g/l) / tagetes oil (5,52 g/l)	0685-A1/In/06-15/APV-SAHEL	Insecticide biologique autorisé contre les mouches blanches de la tomate
					Expire en Juin 2018	





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193	METHOATE 40 EC	II	RIVALE	dimethoate (40 g/l)	0661-A0/In/11-13/APV-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les larves de <i>Helicoverpa armigera</i> et les mouches blanches des cultures maraichères
194	MONCEREN GT 390 FS	II	BAYER CROPS SCIENCE AG	pencycuron (50 g/l) / thirame (107 g/l) / imidacloprid (233 g/l)	0522-A1/In,Fo/06-15/APV-SAHEL Expire en Juin 2018	Insecticide / Fongicide autorisé en traitement des semences de coton delintées ou vêtues pour lutter contre les parasites des semences et du sol
195	MOVENTO PLUS	III	BAYER CROPS SCIENCE AG	imidaclopride (120 g/l) spirotetramat (120 g/l)	0754-A0/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide systémique autorisé contre les piqueurs suceurs du cotonnier
196	MOMTAZ 45 WS	III	SAVANA	imidaclopride (250 g/kg) / thirame (200 g/kg)	0559-H0/In,Fo/11-14/HOM-SAHEL Expire en Novembre 2019	Insecticide / fongicide autorisé en traitement de semences contre les insectes et les champignons pathogènes du sol
197	MORAN 30 DF	III	SCPA SIVEX INTERNATIONAL (SSI)	indoxacarbe (300 g/kg)	0640-A1/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide autorisé contre les chenilles phyllophages et carpophages du cotonnier
198	NAASEO	III	SOCIÉTÉ J.S. AGENCIES	dimefluthrine (0,03 %)	0820-A0/In/05-15/APV-SAHEL Expire en Mai 2018	Insecticide autorisé contre les moustiques en usage domestique
199	NATIVO 300 SC	III	BAYER CROPS SCIENCE AG	tébuconazole (200 g/l) trifloxystrobine (100 g/l)	0822-A0/Fo/11-14/APV-SAHEL Expire en Novembre 2017	Fongicide autorisé contre l'alternariose, la rouille, l'oïdium, la fusariose sur la tomate
200	NICODAF	III	ETS SDAGRI	nicosulfuron (40 g/l)	0800-A0/He/11-14/APV-SAHEL Expire en Novembre 2017	Herbicide autorisé contre les adventices du maïs
201	NICOMAIS 40 SC	III	SAVANA	nicosulfuron (40 g/l)	0491-H0/He/05-13/HOM-SAHEL Expire en Mai 2018	Herbicide autorisé contre les adventices en post-levée du maïs
202	NICONET 40 SC	IV	DTE Mali	nicosulfuron (40 g/l)	0707-A1/He/11-15/APV-SAHEL Expire en Novembre 2018	Herbicide systémique autorisé contre les adventices du maïs en post-levée
203	NOMAX 150 SC	III	BASF SE	alpha-cyperméthrine (75 g/l) / téflubenzuron (75 g/l)	0610-A1/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide autorisé contre les insectes phyllophages et carpophages du cotonnier
204	NOMOLT 150 SC	III	BASF SE	téflubenzuron (150 g/l)	0611-A1/In/11-13/APV-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les insectes phyllophages et carpophages du cotonnier





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205	NOVAC 116 SC	II	ADAMA MAKHTESHIM LTD.	novaluron (100 g/l) / acétamipride (16 g/l)	0602-A1/In,Ap/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide autorisé pour le contrôle des ravageurs du cotonnier
206	OLYSET CLASSIC	III	SUMITOMO CHEMICAL CO LTD	permethrin (20 g/kg)	0713-A0/In/11-12/APV-SAHEL Expire en Novembre 2015	Moustiquaire imprégnée contre les moustiques
207	OLYSET NET	III	SUMITOMO CHEMICAL CO LTD	permethrin (20 g/kg)	0712-A0/In/11-12/APV-SAHEL Expire en Novembre 2015	Moustiquaire imprégnée contre les moustiques
208	OLYSET PLUS	III	SUMITOMO CHEMICAL CO LTD	permethrin (20 g/kg)	0714-A0/In/11-12/APV-SAHEL Expire en Novembre 2015	Moustiquaire imprégnée contre les moustiques
209	OPTIMAL SUPER	III	SCPA SIVEX INTERNATIONAL (SSI)	indoxacarbe (25 g/l) / acétamipride (20 g/l)	0694-A0/In/11-12/APV-SAHEL Expire en Novembre 2015	Insecticide autorisé contre les principaux ravageurs des cultures cotonnières
210	ORTIVA 250 SC	III	SYNGENTA CROP PROTECTION AG	azoxystrobin (250 g /l)	0547-A1/Fo/11-14/APV-SAHEL Expire en Novembre 2017	Fongicide systémique autorisé contre les maladies des cultures maraichères.
211	ORTIVA TOP	III	SYNGENTA CROP PROTECTION AG	azoxystrobin (200 g/l) / difénoconazole (125 g/l)	0812-A0/Fo/11-14/APV-SAHEL Expire en Novembre 2017	Fongicide systémique autorisé contre les maladies cryptogamiques foliaires et du fruit de la tomate.
212	OXANET 250 EC	IV	DTE	oxadiazon (250 g/l)	0802-A0/He/11-14/APV-SAHEL Expire en Novembre 2017	Herbicide autorisé contre les adventices du riz
213	OXO	III	SAVANA	oxadiazon (205 g/l)	0575-A0-X1/He/05-15/APV-SAHEL Expire en Mai 2018	Herbicide autorisé en pré-levée contre les plantes adventices (dicotylées et graminées annuelles) de l'oignon
214	PACHA 25 EC	II	SAVANA	lambda-cyhalothrine (15 g/l) / acétamipride (10 g/l)	0549-A1/In/06-13/APV-SAHEL Expire en Juin 2016	Insecticide autorisé contre les chenilles, les mouches blanches et les pucerons des cultures maraichères
215	PENDAF 500 EC	III	ETS SDAGRI	pendimethaline (500 g/l)	0839-A0/He/05-15/APV-SAHEL Expire en Mai 2018	Herbicide autorisé pour lutter contre la plupart des graminées et dicotylédones en cultures de maïs



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216	PENDISTAR	III	SAVANA	pendimethaline (400 g/l)	0741-A0/He/05-13/APV-SAHEL	Herbicide de prélevée autorisé pour lutter contre les adventices monocotylédones et certaines dicotylédones en culture de coton
					Expire en Mai 2016	
217	PENDISTAR	III	SAVANA	pendimethaline (400 g/l)	0741-A0-X1/He/05-15/APV-SAHEL	Herbicide de prélevée autorisé pour lutter contre les adventices monocotylédones et certaines dicotylédones en culture du maïs
					Expire en Mai 2018	
218	PENCAL 500 EC	II	ARYSTA LIFESCIENCE	pendiméthaline (500 g/l)	0760-A0/He/11-13/APV-SAHEL	Herbicide autorisé contre les graminées, cypéracées et dicotylédones du cotonnier
	PARAGON 500 EC				Expire en Novembre 2016	
219	PENCAL 500 EC	II	ARYSTA LIFE SCIENCE	pendiméthaline (500 g/l)	0760-A0-X2/He/05-14/APV-SAHEL	Herbicide autorisé contre les graminées, cypéracées et dicotylédones de la canne à sucre
	PARAGON 500 EC				Expire Mai 2017	
220	PENCAL 500 EC	II	ARYSTA LIFE SCIENCE	pendiméthaline (500 g/l)	0760-A0-X1/He/05-14/APV-SAHEL	Herbicide autorisé contre les graminées, cypéracées et dicotylédones du maïs
	PARAGON 500 EC				Expire Mai 2017	
221	PENDITROP 500 EC	III	TROPICS SARL	pendimethaline (500 g/l)	0766-A0/He/05-14/APV-SAHEL	Herbicide sélectif autorisé contre les adventices
					Expire Mai 2017	
222	PERMANET 2.0	IV	VESTERGAARD FRANSDEN S.A.	deltaméthrine (1,4 – 1,8 g/kg)	0622-A0/In/05-13/APV-SAHEL	Moustiquaire imprégnée contre les moustiques
					Expire en Mai 2016	
223	PERMANET3.0	II	VESTERGAARD FRANSDEN S.A.	deltamethrine (4g /kg)	0623-A1/In/06-15/APV-SAHEL	Moustiquaire imprégnée d'insecticide, autorisé contre les moustiques vecteurs du paludisme
					Expire en Juin 2018	
224	PIC 480 SC	III	ALM INTERNATIONAL	métribuzine (480 g/l)	0788-A0/He/05-14/APV-SAHEL	Herbicide autorisé en pré-levée contre les adventices de la canne à sucre
					Expire Mai 2017	
225	PINNACLE 360 EC	II	FARM-AG INTERNATIONAL (PTY) LTD	propanil (360 g/l)	0633-A0/He/05-15/APV-SAHEL	Herbicide autorisé en traitement de poste levé contre les adventices du riz
					Expire en Mai 2018	
225	PIRIPRO 100 EC	III	SCPA SIVEX INTERNATIONAL (SSI)	pyriproxyphe (100 g/l)	0641-A0/In/05-13/APV-SAHEL	Insecticide larvicide et ovicide autorisé pour la protection des cultures cotonnières
					Expire en Mai 2016	





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227	PIX 5% SL	II	BASF SE	mepiquat chlorure (50 g/l)	0516-A0/Rc/11-13/APV-SAHÉL Expire en Novembre 2016	Régulateur de croissance autorisé pour la culture du cotonnier
228	POWER	III	SAVANA	diuron (800 g/kg)	0835-A0/He/05-15/APV-SAHÉL Expire en Mai 2018	Herbicide systémique de prélevée autorisé pour lutter contre l'ensemble des adventices du coton
229	PRODAS POWER	U	DOBYTRADE SARL	glyphosate (450 g/l)	0844-A0/He/05-15/APV-SAHÉL Expire en Mai 2018	Herbicide autorisé contre les adventices en culture de riz
230	PROFENET 500 EC	II	DTE	profénofos (500 g/l)	0554-A1/In/06-13/APV-SAHÉL Expire en Juin 2016	Insecticide autorisé contre les insectes phyllophages et carpophages du cotonnier
231	PROTECT DP	III	SAVANA	deltaméthrine (1 g/kg) / pirimiphos-méthyl (15 g/kg)	0765-A0/In/11-13/APV-SAHÉL Expire en Novembre 2016	Insecticide autorisé contre les ravageurs des denrées stockées
232	PYRIFORCE 480 EC	II	SCPASIVEX INTERNATIONAL (SSI)	chlorpyrifos éthyl (480 g/l)	0803-A0/In/11-14/APV-SAHÉL Expire en Novembre 2017	Insecticide autorisé contre la cochenille farineuse du manguier
233	PYRICAL 5 G	U	ARYSTA LIFESCIENCE	chlorpyrifos-éthyl (50 g/kg)	0652-A1/In/05-14/APV-SAHÉL Expire Mai 2017	Insecticide autorisé contre les insectes du sol
234	PYRICAL 5 DP	II	ARYSTA LIFESCIENCE	chlorpyrifos-éthyl (50 g/kg)	0454-H0/In/11-11/HOM-SAHÉL Expire en Novembre 2016	Insecticide autorisé contre les acridiens
235	PYRICAL 480 EC	II	ARYSTA LIFESCIENCE	chlorpyrifos-éthyl (480 g/l)	0651-A1/In/05-14/APV-SAHÉL Expire Mai 2017	Insecticide autorisé contre les chenilles d' <i>Helicoverpa</i> sur tomate
236	PYRICAL 480 EC	II	ARYSTA LIFESCIENCE	chlorpyrifos-éthyl (480 g/l)	0651-A0-X1/In/11-13/APV-SAHÉL Expire en Novembre 2016	Insecticide non systémique autorisé contre la cochenille farineuse du manguier ( <i>Rastrococcus invadens</i> )
237	PYRICAL 240 UL	II	ARYSTA LIFESCIENCE	chlorpyrifos-éthyl (240 g/l)	0453-H0/In/11-11/HOM-SAHÉL Expire en Novembre 2016	Insecticide autorisé contre les acridiens



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238	PYRICAL 480 UL	II	ARYSTA LIFESCIENCE	chlorpyrifos-éthyl (480 g/l)	0452-H0/In/11-11/HOM-SAHEL	Insecticide autorisé contre les acridiens
					Expire en Novembre 2016	
239	PYRIBAN 240 ULV	II	RIVALE	chlorpyrifos-éthyl (240 g/l)	0664-A0/In/11-12/APV-SAHEL	Insecticide autorisé contre les acridiens et les sautériaux
					Expire en Novembre 2015	
240	PYRIBAN 480 ULV	II	RIVALE	chlorpyrifos-éthyl (480 g/l)	0663-A0/In/11-12/APV-SAHEL	Insecticide autorisé contre les acridiens et les sautériaux
					Expire en Novembre 2015	
241	PYRIBAN 480 EC	II	RIVALE	chlorpyrifos-éthyl (480 g/l)	0662-A0/In/11-13/APV-SAHEL	Insecticide autorisé contre les larves de <i>Helicoverpa armigera</i> et les mouches blanches des cultures maraîchères
					Expire en Novembre 2016	
242	PYRINEXQUICK 424 EC	II	ADAMA MAKHTESHIM LTD.	deltaméthrine (24 g/l) / chlorpyrifos-éthyl (400 g/l)	0438-H0/In,Ac/11-13/HOM-SAHEL	Insecticide-Acaricide autorisé contre les chenilles phyllophages, carpophages et les acariens du cotonnier
					Expire en Novembre 2018	
243	PYRINEXQUICK 212 EC	II	ADAMA MAKHTESHIM LTD.	deltaméthrine (12 g/l) / chlorpyrifos-éthyl (200 g/l)	0437-H0/In,Ac/11-12/HOM-SAHEL	Insecticide / Acaricide autorisé contre les chenilles phyllophages, carpophages et les acariens du cotonnier
					Expire en Novembre 2017	
244	PYRIGA 240 UL	II	SAVANA	chlorpyrifos-éthyl (240 g/l)	0742-A0/In/05-13/APV-SAHEL	Insecticide autorisé pour la lutte anti acridienne (contre les criquets et les sautériaux)
					Expire en Mai 2016	
245	PYRIGA 480 UL	II	SAVANA	chlorpyrifos-éthyl (480 g/l)	0743-A0/In/05-13/APV-SAHEL	Insecticide autorisé pour la lutte anti acridienne (contre les criquets et les sautériaux)
					Expire en Mai 2016	
246	RAMBO INSECTICIDE PAPER	III	GONGONI CO LTD	transfluthrine (0,45 %)	0842-A0/In/05-15/APV-SAHEL	Insecticide utilisé en santé publique contre les moustiques
					Expire en Mai 2018	
247	RAMBO MOSTIQUO COIL	II	GONGONI CO LTD	D-aléthrine (0,2 %)	0841-A0/In/05-15/APV-SAHEL	Insecticide autorisé pour lutter contre les moustiques
					Expire en Mai 2018	
248	RAMBO NIS	II	GONGONI CO LTD	perméthrine (0 20%) / transfluthrine (0,20%)	0818-A0/In/11-14/APV-SAHEL	Insecticide à usage domestique autorisé contre les moustiques et cafards.
					Expire en Novembre 2017	





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249	RAMBO POWDER	II	GONGONI CO LTD	permethrin (0,60%)	0819-A0/In/11-14/APV-SAHEL	Insecticide a usage domestique autorisé contre les cafards et les fourmis
					Expire en Novembre 2017	
250	RAINBOW 25 OD	III	DOW AGROSCIENCES	penoxsulam (25 g/l)	0603-A1/He/06-13/APV-SAHEL	Herbicide autorisé en post-levée contre les adventices en riziculture irriguée et de bas-fonds
					Expire en Mai 2016	
251	RELDAN 40 EC	III	DOW AGROSCIENCES	chlorpyrifos-méthyl (400 g/l)	0381-H1/In/11-15/HOM-SAHEL	Insecticide autorisé contre les insectes des cultures vivrières et maraichères
					Expire en Novembre 2020	
252	RISTAR 250 EC	III	SCPA SIVEX INTERNATIONAL (SSI)	oxadiazon (250 g/l)	0733-A0/He/11-13/APV-SAHEL	Herbicide de pré-levée pour la lutte contre les adventices du riz (graminées annuelles, dicotylédones et cypéracées)
					Expire en Novembre 2016	
253	RIVAL 360 SL	III	SEMBIOS LLC	glyphosate (360 g/l)	0668-A0/He/11-12/APV-SAHEL	Herbicide total, non sélectif, pour le contrôle des adventices (graminées et dicotylédones) sur toutes cultures
					Expire en Novembre 2015	
254	RIVORMONE 720 SL	II	RIVALE	2,4-D (720 g/l)	0658-A0/He/11-12/APV-SAHEL	Herbicide systémique de post-levée autorisé contre les dicotylédones de riz
					Expire en Novembre 2015	
255	ROUNDUP BIOSEC 68 SG	III	MONSANTO	glyphosate (680 g/kg)	0261-H0/He/11-10/HOM-SAHEL	Herbicide systémique foliaire non sélectif autorisé contre les mauvaises herbes annuelles et pérennes avant semis de toutes cultures
					Expire en Novembre 2015	
256	ROUNDUP 360 K	III	MONSANTO	glyphosate (360 g/l)	0617-A1/He/05-14/APV-SAHEL	Herbicide autorisé en post-levée contre les mauvaises herbes annuelles et pérennes avant semis des cultures
					Expire Mai 2017	
257	ROUNDUP 450 TURBO K	III	MONSANTO	glyphosate (450 g/l)	0618-A1/He/05-14/APV-SAHEL	Herbicide autorisé en post-levée contre les mauvaises herbes annuelles et pérennes avant semis des cultures
					Expire Mai 2017	
258	ROUNDUP POWERMAX	III	MONSANTO	glyphosate (540 g/l)	0553-A1/He/11-14/APV-SAHEL	Herbicide systémique non sélectif autorisé contre les mauvaises herbes annuelles et pérennes avant plantation ou semis de toutes cultures.
					Expire en Novembre 2017	
259	RUBIS	III	SAVANA	bispyribac – sodium (100 g/l)	0795-A0/He/05-14/APV-SAHEL	Herbicide de post levée autorisé pour la culture de riz
					Expire Mai 2017	



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N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
260	SAVANEM	II	SAVANA	ethoprophos (200 g/l)	0764-A0/In,Ne/05-14/APV-SAHEL	Insecticide nématocide autorisé pour le traitement du sol
					Expire Mai 2017	
261	SEGAIBANA 40 SC	U	BARRY AGROCHEM	nicosulfuron (40 g/l)	0771-A0/He/05-14/APV-SAHEL	Herbicide autorisé contre les adventices graminées et dicotylédones du maïs
					Expire Mai 2017	
262	SAVAHALER WP	II	SCPA SIVEX INTERNATIONAL (SSI)	methomyl (250 g/kg)	0745-A0/In/05-13/APV-SAHEL	Insecticide autorisé pour la protection des cultures maraichères contre les attaques de noctuelles défoliatrices, insectes broyeurs et insectes piqueurs suceurs (œufs et larves)
					Expire en Mai 2016	
263	SAMORY	III	SCPA SIVEX INTERNATIONAL (SSI)	bensulfuron – méthyl (100 g/kg)	0514-H0/He/06-15/HOM-SAHEL	Herbicide autorisé contre les plantes adventices (graminées, dicotylées et cypéracées) du riz
					Expire en Juin 2020	
264	SELECT 120 EC	III	ARYSTA LIFESCENCE	cléthodime (120 g/l)	0444-H1/He/01-15/HOM-SAHEL	Herbicide sélectif autorisé en post-levée contre les graminées du cotonnier
					Expire en Janvier 2020	
265	SELECT 120 EC	III	ARYSTA LIFESCENCE	cléthodime (120 g/l)	0444-A0-X1/He/11-13/APV-SAHEL	Herbicide sélectif autorisé en post-levée contre les graminées en culture d'arachide
					Expire en Novembre 2016	
266	SELECT 120 EC	III	ARYSTA LIFESCENCE	cléthodime (120 g/l)	0444-A0-X2/Rc/11-13/APV-SAHEL	Régulateur de croissance pour la maturation de la canne en culture de canne à sucre
					Expire en Novembre 2016	
267	SELECT 120 EC	III	ARYSTA LIFE SCIENCE	cléthodime (120 g/l)	0444-A0-X3/He/05-14/APV-SAHEL	Herbicide sélectif autorisé en post-levée contre les graminées sur l'oignon
					Expire Mai 2017	
268	SNIPER	II	ARYSTA LIFE SCIENCE	pendiméthaline (300 g/l) / clomazone (150 g/l)	0796-A0/He/05-14/APV-SAHEL	Herbicide autorisé contre les adventices graminées, cypéracées et dicotylédones du cotonnier et du riz
					Expire Mai 2017	
269	SOFA	IV	AF CHEM-SOFACO	nicosulfuron (40 g/l)	0791-A0/He/05-15/APV-SAHEL	Herbicide autorisé contre les adventices du maïs
					Expire en Mai 2018	
270	SOLITO 320 EC	III	SYNGENTA CROP PROTECTION AG	pyribenzoxim (20 g/l) / prétilachlore (300 g/l)	0541-A1/He/01-13/APV-SAHEL	Herbicide autorisé contre les mauvaises herbes du riz
					Expire en Janvier 2016	





Liste globale des pesticides autorisés par le CSP Version de Mai 2015

N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
271	SOFIT 300 EC	III	SYNGENTA CROP PROTECTION AG	pretilachlore (300 g/l)	0540-A1/He/11-14/APV-SAHEL Expire en Novembre 2017	Herbicide sélectif autorisé contre les adventices du riz pluvial
272	SUN 2,4 AMINE 720 SL	II	WYNCA SUNSHINE	dichlorophenoxyacetate, dimethyl-amine (2,4D amine) (720 g/l)	0670-A0/He/11-13/APV-SAHEL Expire en Novembre 2016	Herbicide autorisé en post levée contre les adventices
273	SPINTOR POUVRE	U	DOW AGROSCIENCES	spinosad (1,25 g/kg)	0489-H0/In/05-15/HOM-SAHEL Expire en Mai 2020	Insecticide autorisé contre les insectes ravageurs des grains stockés pour la consommation humaine
274	STOMP 455 CS	III	BASF SE	pendiméthaline (455 g/l)	0591-A0-X2/He/05-14/APV-SAHEL Expire Mai 2017	Herbicide autorisé contre les adventices en pré-levée en culture de riz
275	STOMP 455 CS	III	BASF SE	pendiméthaline (455 g/l)	0591-A1/He/06-13/APV-SAHEL Expire en Juin 2016	Herbicide autorisé contre les adventices en pré-levée du maïs
276	STOMP 455 CS	III	BASF SE	pendiméthaline (455 g/l)	0591-A1-X1/He/11-14/APV-SAHEL Expire en Novembre 2017	Herbicide autorisé contre les adventices en pré -levée de la culture du cotonnier
277	SUCCE APPÂT 0,24 CB	III	DOW AGROSCIENCE	spinosad (0,24 g/l)	0527-H0/In/11-14/HOM-SAHEL Expire en Novembre 2019	Insecticide pour le contrôle des mouches de fruits sur le manguier
278	SUNEEM 1% EC	III	SENCHEM	azadirachtine (10 g/l)	0607-A1/In/01-13/APV-SAHEL Expire en Janvier 2016	Insecticide autorisé contre les insectes ravageurs du cotonnier
279	SUMISHIELD 50 WG	U	SUMITOMO CHEMICAL CO, LTD	clothianidin (50 %)	0826-A0/In/05-15/APV-SAHEL Expire en Mai 2018	Insecticide autorisé pour lutter contre les moustiques
280	SYSTHANE 240 EC	III	DOW AGRO SCIENCES	myclobutanil (240 g/l)	0449-H0/Fo/05-15/HOM-SAHEL Expire en Mai 2020	Fongicide autorisé contre les maladies de la tomate
281	SNIPER	II	ARYSTA LIFE SCIENCE	pendiméthaline (300 g/l) / clomazone (150 g/l)	0796-A0/He/05-14/APV-SAHEL Expire Mai 2017	Herbicide autorisé contre les adventices graminées, cypéracées et dicotylédones du cotonnier et du riz
					0669-A0/He/05-14/APV-SAHEL	Herbicide non sélectif autorisé pour la lutte contre les





Liste globale des pesticides autorisés par le CSP Version de Mai 2015

N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
282	SUNPHOSATE 360 SL	III	WYNCA SUNSHINE	glyphosate (360 g/l)	Expire Mai 2017	graminées annuelles et les dicotylédones
283	SUNHALOTHRIN 2,5% EC	III	WYNCA SUNSHINE	lambda-cyhalothrine (25 g/l)	0808-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide non systémique de contact autorisé pour lutter contre <i>Helicoverpa</i> , les pucerons et les mouches blanches en culture de tomate
284	SUNPYRIFOS 48% EC	III	WYNCA SUNSHINE	chlorpyrifos -éthyl (48 g/l)	0809-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide non systémique de contact autorisé pour lutter contre <i>Helicoverpa</i> , les pucerons et les mouches blanches en culture de tomate
285	SWEET DREAM TOP ONE	II	K-O DISTRUBUTION	esbiothrine (0,20%)	0774-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide autorisé en sante publique contre les moustiques
286	TAMEGA	II	SAVANA	deltamethrine (25 g/l)	0763-A0/In/11-13/APV-SAHEL Expire en Novembre 2016	Insecticide autorisé contre les larves de <i>Helicoverpa armigera</i> et sur les mouches blanches en culture de tomate et de poivron
287	TENOR 500 EC	II	SENCHEM	profenofos (500 g/l)	0325-H1/In/05-13/HOM-SAHEL Expire en Novembre 2018	Insecticide autorisé contre les chenilles phyllophages et carpophages du cotonnier
288	TEQI SUPER AE	II	TROPICS SARL	deltamethrine (0,0225 g/l) / esbiothrine (0,3 g/l) /	0821-A0/In/11-14/APV-SAHEL Expire en Novembre 2017	Insecticide anti moustique autorisé pour l'usage domestique
289	TERBULOR 500 EC	II	ADAMA AGAN LTD.	terbutryne (167 g/l) / métolachlore (333 g/l)	0790-A0/He/05-14/APV-SAHEL Expire Mai 2017	Herbicide de prélevée autorisé contre les adventices annuelles en culture du maïs
290	THUNDER 145 O-TEQ SOLOMON 145 O -TEQ	II	BAYER CROPS SCIENCE AG	imidacloprid (100 g/l) / beta-cyfluthrine (45 g/l)	0492-H0/In/11-13/HOM-SAHEL Expire en Novembre 2018	Insecticide contre les chenilles carpophages, phyllophages et les piqueurs suceurs du cotonnier
291	THUNDER 145 O-TEQ SOLOMON 145 O -TEQ	II	BAYER CROPS SCIENCE	imidaclopride (100 g/l) / beta-cyfluthrine (45 g/l)	0492-A0-X1/In/05-14/APV-SAHEL Expire Mai 2017	Insecticide systémique autorisé pour le contrôle des chenilles du complexe parasitaire de la tomate



Liste globale des pesticides autorisés par le CSP Version de Mai 2015

N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
292	TIHAN 175 O-TEQ	III	BAYER CROPS SCIENCE AG	flubendiamide (100 g/l) / spirotetramate (75 g/l)	0552-H0/In/11-14/HOM-SAHEL	Insecticide autorisé contre les ravageurs du cotonnier
	Expire en Novembre 2019					
293	TIHAN 175 O-TEQ	III	BAYER CROPS SCIENCE	spirotetramate (75 g/l) / flubendiamide (100 g/l)	0552-A0-X1/In/05-14/APV-SAHEL	Insecticide systémique autorisé pour le contrôle des chenilles et les insectes piqueurs suceurs de la tomate
	Expire Mai 2017					
294	TIMAYE	II	SCPA SIVEX INTERNATIONAL (SSI)	deltaméthrine (0,6 g/kg)	0680-A1/In/06-15/APV-SAHEL	Appât insecticide autorisé contre les mouches de la mangue du genre Bactrocera
	Expire en Juin 2018					
295	TITAN 25 EC	II	ARYSTA LIFE SCIENCE	acétamipride (25 g/l)	0605-A1/In/05-14/APV-SAHEL	Insecticide autorisé contre les insectes piqueurs-suceurs des cultures maraichères
	Expire Mai 2017					
296	TOPSTAR 400 SC	III	BAYER CROPS SCIENCES AG	oxadiargyl (400 g/l)	0332-H1/He/08-12/HOM-SAHEL	Herbicide autorisé contre les adventices du riz pluvial et riz irrigué et repiqué
	RAFT 400 SC				Expire en Août 2017	
297	TOUCHDOWN FORTE 500 SL	III	SYNGENTA CROP PROTECTION AG	glyphosate (500 g/l)	0469-H0/He/11-12/HOM-SAHEL	Herbicide systémique non sélectif contre les mauvaises herbes annuelles et pérennes avant plantation ou semis
	Expire en Novembre 2017					
298	TOPEXTRA 720 SL	II	TOPEX AGRO ELEVAGE DÉVELOPPEMENT	2,4 D sel d'amine (720g/l)	0701-A0/He/11-13/APV-SAHEL	Herbicide sélectif autorisé en post- levée contre les adventices du riz
	Expire en Novembre 2016					
299	TRICLON 480 EC	II	ARYSTA LIFESCIENCE	triclopyr (480g/l)	0642-A1/He/06-15/APV- SAHEL	Herbicide sélectif systémique autorisé contre les mauvaises herbes des cultures
	Expire en Juin 2018					
300	VELUM PRIME 400 SC	III	BAYER CROPS SCIENCE AG	fluopyram (400 g/l)	0849-A0/Ne/05-15/APV-SAHEL	Nématicide liquide autorisé contre les nématodes ( <i>Méloidogyne sp. Pratylenchus sp...</i> ) en culture de tomate
	Expire en Mai 2018					
301	VERTIMEC 18 EC	II	SYNGENTA CROP PROTECTION AG	abamectine (18 g/l)	0545-A1/In,Ac/11-14/APV-SAHEL	Insecticide / Acaricide autorisé contre les nuisibles des cultures fruitières et légumières
	Expire en Novembre 2017					





Liste globale des pesticides autorisés par le CSP Version de Mai 2015

N°	Spécialité commerciale	Classe OMS	Firme	Matière(s) active(s)	Numéro et date d'expiration	Domaines d'utilisation
302	VERTOX PELLETS	III	PELGAR INTERNATIONAL	brodifacoum (0,005 % w/w)	0691-A1/Ro/06-15/APV-SAHEL	Rodenticide autorisé en appât contre les souris et les rats
					Expire en Juin 2018	
303	VIPER 46 EC	II	ARYSTA LIFESCIENCE	indoxacarbe (30 g/l) / acétamipride (16 g/l)	0648-A1/In/05-14/APV-SAHEL	Insecticide autorisé contre les lépidoptères et autres insectes piqueurs-suceurs de la tomate
					Expire Mai 2017	
304	VYTAL 310 SL	Ib	ARYSTA LIFESCIENCE	oxamyl (310 g/l)	0738-A0/Ne/11-13/APV-SAHEL	Nématicide autorisé en culture de canne à sucre
					Expire en Novembre 2016	
305	WAVETIDE	III	CIF1 -SARL	meperfluthrine (0,08%)	0746-A0/In/05-14/APV-SAHEL	Insecticide autorisé en Santé Publique contre les moustiques
					Expire Mai 2017	
306	ZALANG 20 UL	II	SAVANA	lambda-cyhalothrine (20 g/l)	0744-A0/In/05-13/APV-SAHEL	Insecticide autorisé pour la lutte anti acridienne (contre les criquets et les sauteriaux)
					Expire en Mai 2016	
307	ZEROFLY LIVESTOCK FENCE	III	VESTERGAARD FRANSEN S.A.	deltamethrine (4 g/kg)	0689-A1/In/06-15/APV-SAHEL	Insecticide autorisé contre les mouches en traitement de grillages des enclos
					Expire en Juin 2018	
308	ZERO VECTOR	III	VESTERGAARD FRANSEN S.A.	deltamethrine (4,4 g/kg)	0703-A1/In/06-15/APV-SAHEL	Insecticide autorisé contre les moustiques en traitement de linge utilisés en revêtement des murs des habitations
					Expire en Juin 2018	
309	ZEROFLY STORAGE BAG	III	VESTERGAARD FRANSEN S.A.	deltamethrine (3 g/l)	0715-A0/In/11-14/APV-SAHEL	Insecticide en conservation de grains et graines non infestés (préalablement désinfectés)
					Expire en Novembre 2017	
310	2. K.D SUPER 720SL	III	RMG COTE D'IVOIRE	2.4-D sel d'amine (720 g/l)	0815-A0/He/05-15/APV-SAHEL	Herbicide sélectif de post-levée efficace contre les dicotylédones annuelles et pérennes en culture de riz pluvial et irrigué
					Expire en Mai 2018	



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**Annexe 6 : Liste de consultation publique**

Annexe 6.1: Liste des bénéficiaires potentiels lors de la consultation publique



Localité: Village MAYIPURO

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
01	Aliu Djau I	Chefe de tabanca Professor	6081897	M	Aliu Djau
02	Bacar Djabula	Serralheiro	955746786	M	Bacar
03	Aliu Djau II	agricultor	955985304	M	Aliu
04	Mama Samba Camde'	Padeiro	955174357	M	Não sabe
05	Amadu Djau	agricultor	955514052	M	Amadu
06	Mamadu Djalo'	agricultor	955263060	M	Mamadu
07	Mussa' Camde'	agricultor	9-	M	MUSSA
08	Alfa' Umaro Djalo'	agricultor	956096493	M	ALFA
09	Saco Balde'	agricultor	955287945	M	SACO
10	Maima Camara	agricultor	955258008	M	Maima
11	Suleimane Djau	agricultor	956100578	M	não sabe
12	Alfa' Djalo'	agricultor	955873610	M	Alfa'
13	Umaro Camde'	agricultor	955997566	M	UMARO
14	Samba Camara	agricultor	955487729	M	Samba
15	Saido Balde'	agricultor	956011509	M	não sabe
16	Mama Balde'	Agricultora	955170825	F	não sabe
17	Sinem Djalo'	Domestica	966354373	F	SINEM
18	Adama Balde'	Domestica	-	F	não sabe
19	Djulli Balde'	Domestica	956100581	F	não sabe
20	Mariama Embalo'	Domestica	-	F	não sabe
21	Fatumata Balde'	Domestica	955991098	F	Fatumata
22	Maimuna Embalo'	Domestica	955277179	F	não sabe
23	Djabo Camara	Domestica	-	F	não sabe
24	Aua Djalo'	Domestica	-	F	não sabe
25	Bambé Djabula	Domestica	-	F	não sabe

20-11-11



# Village MAMPURO

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Groupement ..... de .....

Liste complète des membres du groupement

N°	NOM ET PRENOMS	POSTE	CONTACT	SEXE	SIGNATURE
26	Ramatulai Sabali	Domestica	-	F	não sabe
27	Fatumata Camara	Domestica	955549226	F	Fatumata
28	Adama Djai	Domestica	-	F	não sabe
29	Uri Djai	Domestica	-	F	não sabe
30	Fatumata Balde	Domestica	-	F	não sabe
31	Jenabo Djai	Domestica	-	F	não sabe
32	Mariama Djai	Domestica	-	F	não sabe
33	Jenabo Djai	Domestica	955586065	F	não sabe
34	Aua Balde	Domestica	-	F	não sabe
35	Aminata Balde	Domestica	95539699	F	não sabe
36	Talara Djai	Domestica	-	F	não sabe
37	Fatumata Djai	Domestica	-	F	não sabe
38	Sona Djai	Domestica	955270173	F	20
39	Jenabo Balde	Domestica	955193326	F	não sabe
40	Aminata Fumbalo	Domestica	-	F	não sabe
41	Adja Djai	Domestica	955297993	F	não sabe
42	Adji Sisse	Domestica	955256444	F	Aji
43	Bareato Bari	Domestica	-	F	não sabe
44	Abi Djai	Domestica	955848387	F	não sabe
45	Fama Djai	Domestica	-	F	não sabe
46	Fatumata Cande	Domestica	-	F	não sabe
47	Cadidjato Camara	Domestica	-	F	não sabe
48	Aua Cande	Domestica	-	F	não sabe
49	Aua Balde	Domestica	-	F	não sabe
50	Tuncam Nhabali	Domestica	-	F	não sabe



village

PAMPORO

3

Groupement .....de .....

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	Cadidjaro Djai'	Domestica	-	F	não sabe
55	Seumae 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'	agricultor	955767051	M	Seco Djai'
68	Umaro Djai'	agricultor	955930360	M	Umaro
69	Adulai Djai'	agricultor	955293950	M	Aduloi
70	Braima Djai'	agricultor	-	M	Braima
71	Sene Embalo'	Animador	966626052 955329694	M	Embalo'
72	Mangla Nantchie	Perito Projek	966685376 955209928	M	Nantchie
73	Mariama Djamanca	Agricultora	5182564	F	Mariama
74	DJABARE Komma	Global Lead	422891438378	M	Djabare
75	Tcheruo Djalo	Agricultor	955335607	M	Tcheruo



(1)

Localité ..... Copa Mangue .....Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
01	Adama Cande'	Agricultora	-	f	não sabe
02	Cumba Ajalo'	Agricultora	955913669	F	não sabe
03	Sumãe Balde'	Agricultora	955599112	f	SUMABI
04	Sadjo Kebe'	Agricultora	966211131	f	não sabe
05	Binta Balde'	Agricultora	-	f	Bual
06	Uri Buaro'	Agricultora	966139044	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 Jaci'	Agricultora	9	f	JENABO
11	Jabuel So'	Agricultora	-	f	não sabe
12	Faru Cande'	Agricultora	955913456	f	não sabe
13	Yariama Embalo'	Agricultora	955998430	f	não sabe
14	Lamarana Balde'	Agricultora	955913459	f	LAMARANA
15	Aminara Embalo'	Agricultora	955913402	f	não sabe
16	Farumara Djamanca	Agricultora	966562580	f	não sabe
17	Dedja Balde'	Agricultora	-	f	não sabe
18	Djabo Embalo'	Agricultora	955913478	f	
19	Hamadjam Camara	Agricultora	-	f	não sabe
20	Aua So'	Agricultora	9	f	não sabe
21	Fatumata Balde'	Agricultora	966382748	f	não sabe
22	Binta Embalo'	Agricultora	-	f	não sabe
23	Beia Embalo'	Agricultora	-	f	não sabe
24	Sadjo Balde'	Agricultora	955183997	f	não sabe
25	Aua Cande'	Agricultora	966868820	f	não sabe



Localité ..... Copa Mangue; section du Pinata

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
26	Mumine Djai	Agricultora	99234662	F	mumini
27	Maria So'	Agricultora	966104118	F	MARIAGO
28	Adama Djai	Agricultora	955913607	f	não sabe
29	Aua Balde'	Agricultora	966354843	f	não sabe
30	Cumba Djai	Agricultora	969692801	f	não sabe
31	Cadidjau Balde'	Agricultora	9691150461	F	Cadidjau Fotuba
32	Farumara Balde'	Agricultora	-	f	
33	Bambe' Balde'	Agricultora	969287408	f	não sabe
34	Ansara Djai'	Agricultora	-	f	não sabe
35	Issuf Djai	Agricultor	969268630	M	Issuf
36	Jaiia Embalo'	Agricultor	955260905	M	IAIAEMBALO
37	Adulai Balde'	Alfabetizador	966898726	M	Adulai 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	Tulai So'	Agricultora	966377713	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'	Agricultora	955913348	f	não sabe



(8)

Localité ..... Copa Mangue, Seclen de Pirada .....

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
51	Farumara So'	Agricultors	-	F	não sabe
52	Gjenabo Djalo'	Agricultors	-	F	não sabe
53	Idjato Balde'	Agricultors	-	F	não sabe
54	Yando Gendo So'	Agricultors	966659295	F	não sabe
55	Salimato Djalo'	Agricultors	-	F	não sabe
56	Aua Kebe'	Agricultors	-	F	não sabe
57	Ansaro So'	Agricultors	-	F	não sabe
58	Nhima Balde'	Agricultors	955446506	F	não sabe
59	Djari Balde'	Agricultors	-	F	não sabe
60	Binta So'	Agricultors	966372947	F	não sabe
61	Tenem So'	Agricultors	<del>9</del>	F	não sabe
62	Bai Bari	Agricultors	-	F	não sabe
63	Mariama Balde'	Agricultors	955898867	F	não sabe
64	Aminara Balde'	Agricultors	-	F	não sabe
65	Djarai Djalo'	Agricultors	-	F	não sabe
66	Binta Sawane'	Agricultors	-	F	não sabe
67	Ansaro Kebe'	Agricultors	-	F	não sabe
68	Mariato Kebe'	Agricultors	-	F	não sabe
69	Cumba Gagigo'	Agricultors	966139015	F	não sabe
70	Mariama So'	Agricultors	-	F	não sabe
71	Bubacar So'	Agricultor	966392578	M	não sabe
72	Yama Saliu So'	Agricultor	966787337	M	Ilkama Saliu
73	Yussa Balde'	Chefe de Tabanca	955913326	M	não sabe
74	Braima Kumbalo'	Agricultor	955331189	M	Braima
75	Yama Samba Kebe'	Agricultor/artesão	966536363	M	Mouss Samba
76	Braima So'	Agricultor	966275368	M	não sabe
77	Cumba So'	Agricultor	966230829	M	não sabe
78	Uri Quebe'	Agricultor	966912183	M	não sabe
79	Maundi Kebe'	Agricultor	-	M	não sabe
80	Assi So'	Agricultor	966414971	F	não sabe



Localité ..... Madina Djalo Cunda - Gabai .....

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
01	Cumba Camara	Lavrador	966314625	F	
02	Aine Seide	Lavrador		F	
03	Maimuna Djalo	Lavrador		F	
04	Lamarana Danso	Lavrador	966101722	F	Lamarana
05	Issumane Djalo	Criador/comercia	966217575	M	
06	Iaia Djalo	Lavrador	966225826	M	Iaia
07	Mamadjan Samé	Comerciante	966154806	M	Mamadjan Samé
08	Amadu Djalo	Lavrador		M	
09	Mufaro Danso	Mecanico	966797187	M	
10	Mamadou Adi Djalo	Lavrador	966841386	M	Mamadou A. Djalo
11	Babagalle Djalo	Lavrador	6799408	M	Babagal
12	Fula Djalo	Lavrador	-	M	
13	Mamadou Ibi Djalo	Lavrador	966309867	M	M. Ibi
14	Bubacar Djalo	Lavrador	966490215	M	
15	Tcherno Djalo	Lavrador	966428871	M	
16	Bubacar Djalo	Criador/Agriador	6795496	M	
17	Amadu Djalo	Lavrador	966326199	M	
18	Iaia Djalo	Lavrador	966327967	M	
19	Ibrahima Djalo	Lavrador	6656468	M	
20	Adouai Djalo	Lavrador	6641142	M	
21	Ibrahima Djalo	Lavrador	6368625	M	
22	Djenaba Djalo	Lavrador		F	
23	Assanto Djalo	Lavrador		F	
24	Ismaha Na Patches	Animador	455360170	M	Ismaha Na Patches
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	966393192	femi.	Safiato <i>Go M</i>
3	Sirfm Nanzul	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.	x Satam Sidi
8	Djium Sanha	— " —	—	femi.	x Djium Sanha
9	Djenabi Mané	— " —	—	femi.	x Djenabi MANÉ
10	Djuci Danfa	— " —	—	femi.	x Djuci Danfa
11	Sali Biai	— " —	—	femi	N Sabe
12	Aramata Biai	— " —	966869890	femi.	x Aramata Biai
13	Mariama Sonco	— " —	—	femi.	N Sabe
14	Mariama Nanzul	— " —	—	femi	N Sabe
15	Djilam Fati	— " —	—	femi.	N Sabe
16	Safiato Dabo	— " —	—	femi	N Sabe
17	Salimato Balde	— " —	—	femi	N Sabe
18	Djenabi 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.	x Lassana conte
24	Bacar Bieci	— " —	—	MAS.	x Bacar Bieci
25	Madi Biai	— " —	—	MAS	x Madi Biai







Localité Sintcham Môle sector de Xitole

Liste de présence

N°	NOM ET PRENOMS	PROFESSION	CONTACT	SEXE	SIGNATURE
1	Mama Samba Bari	Chef de Tabanca	955487847	Mas.	Mama
2	Bakar Seide	Agricultor	—	Mas.	N Sabe
3	Nhalim Balde'	Agricultora	955488624	Femi	N Sabe
4	Mariama Balde'	— " —	955907446	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	— " —	—	Femin	Zania Gomes
18	Samba Sera'	Carpinteiro	955766165	Mas.	Samba Sera'
19	Aruna Bari	Agricultor	—	Mas.	Aruna Bari
20	Iabo Candé'	Affaiate	966715587	Mas.	Iabo Candé'
21	Jenabó Sera	Agricultora	—	Femi	N Sabe
22	Cerca Bari	Agricultor	969228476	Mas.	CERCA BARI
23	Mariama Balde'	Agricultora	—	Femin	Mariama
24	Umo Culubali	Agricultora	—	Femin	umo Culubali
25	Lallana Mane'	Técnico de Estatística	955589333	Mas.	Lallana
26	Mangla Nantehia	Parito Project	955209928	M	Mangla
27	DSABARE Komna	Global Lead	2289145598	M	DSABARE





Nom x Prenom	Fonction/Poste	Nom de Groupe	Embauché	Signature	Sexe
Nhams Couaris'	Secrétaire	Mla waki	-	Nhamsa samara	F
Wahmane Balé'	Membre	Mla feli	-	<del>Bel</del>	F
Couats Als -	"	"	966087371	Beloua	F
Nhams Douane	"	Mla waki	-	Nhams	F
Couane Balé'	"	"	-	Blues	F
Alieats Apé'	"	"	-	Alieats	F
Schuits Sals	"	"	-	Schuit	F
Amiats Balé'	"	"	-	Amiats	F
Nhams Couats	"	"	-	Nhams	F
Fetants Balé'	"	"	966937860	Fetants	F
Fetants Balé'	"	"	966400471	Fetants	F
Baléas Balé'	"	Mla feli	-	Baléas	F
Nhams Yee'	"	Mla waki	-	Nhams	F
Yeele' Balé'	"	"	-	Yeele'	F
Famin Douane	Chargé de tâches	"	-	Famin	M
1959 Balé'	"	"	966746930	Jawa Balé'	M
Alie Sals	"	"	-	Alie	M
Boubaud Alé'	"	"	-	Boubaud	M
Saules Couats'	"	"	966117598	Saules	M
Saco Balé'	"	"	-	Saco	M
Yee' Balé'	"	"	966322783	Yee'	M
Yee' Balé'	"	"	966618500/955891889	Yee'	M

Annex 6.2: List of the meeting with technical services involves in project at Gabù



# Reunion avec les services techniques et ONG à Gabon

Noms et Prénoms	Titre	Contact	Signature
1- Mamadi Bo Djoko	Gouverneur Gabon	966661576	
2- Mangla Nantchia	Expert en Agriculture	966685376	
3- Mama du Ali <sup>CP</sup> Diallo	Protec Civil	95533210	
4- Isneba Na Batches	Animatrice	955360170	
5- Laurindo Lassana Doreme	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. - <small>Centre de qualification et valorisation des ressources.</small>	966603319	
9- Nicolas de Filk	dep. Reg. d'énergie	955450654	
10- Saïco Umara 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 6.3: List of the meeting with technical services involves in project at Bafatà



# Reunion avec les autorités et services techniques

## OS BAFATA

N°	NOM ET PRENOMS	FONCTION	CONTACT	E-MAIL	SIGNATURE
01	Aheli Soubri	Coord. Mares/Bafata	966978095 955947635	ahusoubri@gmail	Aheli
02	Berha Nambunde'	Direct. Reg. Ag. Bafata	966890425 955132313	-	B. Nambunde'
03	Midana Iota	S. Pecuária	966647398	-	M. Iota
04	Manuel Mares	Rec. Fisheries	966836878	-	M. Mares
05	Bubacor Balor'	R.R.F. foma	966700428	-	B. Balor'
06	Bruna Seiche Bai'	Facilitador de recursos	955488755	-	B. Seiche Bai'
07	Alexandre A. Manso	Projeção Civil	955375319	-	A. Manso
08	Ladana Mané	Técnicos Estatísticos	955589333	-	L. Mané
09	Fodé Mares'	Supervisão Pecuária	955264392	-	F. Mares'
10	Mangla Nantchia	Reitor Projeto	955209928 966885376	nantchiamangla @yahoo.com.br	M. Nantchia
11	DJABARE' Komna	Global Lead	+22891433970	benj-cw@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 966554545  
 Administrador Sector de Pirada

14 Abito Balde'

Annex 6.4: List of the meeting with UNDP in Bissau



# Réunion avec le PNUD à Bissau

<u>Noms &amp; Prénoms</u>	<u>Poste / spécialité</u>	<u>Institution</u>	<u>Adresse</u>	<u>Signature</u>
1. Viriato Correia	Dir. G / Proj. coord.	SEA	Cassamauluse gmail	
2. André Saer	ANIP UNDP	UNDP	Dabala	claudio.sara@unp.org
3. DJABARE Kamma	Spécialiste Développement Durable	Global lead	benjamin@gnmail.com	
4. MARTIN OBER MAER	INTERNATIONAL CONSULTANT	UNEP	MARTIN@PPE.VFFJ.SP	

Annex 6.5: Comunautory forest control of Madina Djalocunda



Comité de lutte contre les feux de savane  
de NAMPORO

(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
	Faimuna 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 6.6: List of the meeting with fire control comity of Mampuro



