



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  
Washington, D.C., 20433  
U.S.A  
Fax: +1 (202) 522-3240/5  
Email: [afbsec@adaptation-fund.org](mailto:afbsec@adaptation-fund.org)

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## **ABBREVIATIONS AND ACCRONYMS**

ADD	Association for the Development of Dionewar
AF	Adaptation Fund
ANA	National Agency for Aquaculture
ANACIM	National Civil Aviation and Meteorology Agency
ANSD	National Agency of Demography and Statistics
CADL	Local Development Support Center
CEGEP	General and Vocational College
CLPA	Local Artisanal Fisheries Committee
COGER	Management Committees of the Natural Resources
COMNACC	National Committee for Climate Change
CONAF	National Council for Functional Literacy
CSE	Centre de Suivi Ecologique
DADL	Direction de l'Appui au Développement Local
DEEC	Direction of the Environment and Classified Establishments
DNA	Designated National Authority
ENDA	Environment and Development Organization
FAO	Food and Agriculture Organization of the United Nations
FELOGIE	Federation of Local GIE
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIE	Economic Interest Groupings
GPF	Women's Promotion Groups
IPCC	Intergovernmental Panel on Climate Change
IRD	French Research Institute for Development
MEDD	Ministry of the Environment and Sustainable Development
MEP	Monitoring & Evaluation Plan
MERAS	Monitoring and Evaluation, Reporting and Analysis System

NAPA	National Adaptation Plan of Action
NGO	Non-Governmental Organization
NIE	National Implementation Entity
NSC	National Steering Committee
PAEL	Local Environmental Action Plan
PAP	Priority Action Programme
PAPIL	Support to Local Small-scale Irrigation Project
PISA	Program for International Student Assessment
PLAE	Local Plan of Action for the Environment
PLD	Local Development Plan
PMU	Project Management Unit
PSE	Strategic Plan for Senegal's Emergence
AWB	Annual Workplan and Budget
RBDS	Reserve of the Biosphere Delta of Saloum
SDLAO	Master Plan for the West African Coastline
SNDES	National Strategy for Economic and Social Development
SNEEG	National Strategy for Gender Equality
TURF	Territorial User-Rights Fisheries
ECOWAS	Economic Community of West African States (ECOWAS)
IUCN	International Union for Conservation of Nature
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change



## ADAPTATION FUND

# PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

## PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	REGULAR PROGRAMME
Country/ies:	SENEGAL
Title of Project/Programme:	Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar)
Type of Implementing Entity:	NIE
Implementing Entity:	Centre de Suivi Ecologique (CSE)
Executing Entity/ies:	Comité National pour l'Alphabétisation et la Formation (CONAF), Agence Nationale pour l'Aquaculture (ANA)
Amount of Financing Requested:	1,351,000 (in U.S Dollars Equivalent)

### I.1. Project Background and Context

#### I.1.1. Summary of problem the project aims to solve

Under the combined effects of climate change and human activities, the Saloum estuary's mangrove swamp has disappeared at an estimated 38.3 %. This degradation has led to significant ecological and economic losses, one of the main consequences being the opening of a breaches along the Sangomar Arrow (a sand spit), which threatens the existence of several human settlements. The village of Dionewar counts among those most affected.

Recent studies<sup>1</sup> conducted along the coast and on the Saloum estuary indicate that the recent climatic variations in Senegal (from 1971 until 2010) have had multiple effects on the mangrove ecosystems in particular. The lack of rainfall is among the main drivers, and indeed the succession of dry years has pushed back the tidal limits, allowing the salinity front to move further upstream. This is how extreme cases of hypersalinity have happened in the Saloum estuary. While salinity plays an important role in the metabolic

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<sup>1</sup> ECOWAS, IUCN, 2010: Programme de lutte contre l'érosion côtière de l'ECOWAS. "Etude régionale pour le suivi du trait de côte et l'élaboration d'un schéma directeur du littoral de l'Afrique de l'Ouest; Schéma directeur, prescriptions générales".

Dieye et al, 2013 : « Dynamique de la mangrove de l'estuaire du Saloum (Sénégal) entre 1972 et 2010 », *Cybergeo : European Journal of Geography* [En ligne], Environnement, Nature, Paysage, document 629, mis en ligne le 09 janvier 2013, consulté le 19 décembre 2015. URL : <http://cybergeo.revues.org/25671> ; DOI : 10.4000/cybergeo.25671



efficiency of botanical species, it reduces the productivity of the mangrove in particular. These hydrological and ecological conditions help explain why mangroves in the Saloum estuary are so small, and also why its density, floral composition and productivity have been severely affected.

In addition to the climatic causes of the mangrove's degradation, there has also been extensive exploitation by communities. In particular, they have been harvesting the plants for oysters and using the mangroves themselves for firewood and timber.

The regression of the mangrove has directly weakened the sedimentary dynamics, which ensures the stability of the Sangomar Arrow. In 1987, the acceleration of marine coastal erosion caused a breach on the sand spit causing large ecological upheavals.

This project is therefore developed to address the threats posed by the above described dual effects of climate change and marine coastal erosion on the village of Dionewar. More specifically, this project seeks to answer:

- What are the economic and ecological consequences on the mangrove due to these climatic variations? This has had considerable effects on the productivity of the estuary's ecosystem on which the populations depend for their livelihood
- What are the risks related to coastal erosion (focusing on the breach opening of Sangomar) that threatens human settlements and the estuary ecosystems?;
- What has been the effect of recurrent flooding, resulting from extreme events such as storm surges and heavy rains? What affect has this had on loss of livelihoods and safety issues?;
- How can this project help fill the gaps where there is a deficit on climatic data, which are necessary to set good policies and strategies for local development? There is a rather weak local planning framework, characterized by low integration of climate change issues to local development strategies.

This is an adaptation project based on both ecosystem and community. Proposed activities focus on strengthening the resilience of the mangrove ecosystem, protecting infrastructures against flooding, and developing local regulatory conventions for protecting the ecosystems of the estuary in general and the mangrove in particular.

### **I.1.2. Background information**

The municipality of Dionewar is located in the country's western coastal zone. It is part of the district of Niodior, the department of Foundiougne and the region of Fatick. It further includes the villages of Dionewar, Falia and Niodior. Based on the projections (2008-2025) of the National Agency of Demography and Statistics (ANDS), the population of the village of Dionewar was 5,395 in 2015.

Dionewar is part of the archipelago of the Saloum Islands, a geographical area bounded by the sea inlets (called *bolong*) of Diombos and Saloum. This Niominka Island is historically called Gandoul. The archipelago consists of nineteen (19) inhabited villages and many other uninhabited ones (some of them are used for rice growing). They are mainly located in an environment characterized by a large mangrove ecosystem presence and surrounded by tidal reservoirs and bolongs.

The Saloum estuary (figure 1) is of particular interest due to its large rate of biodiversity. It is a big estuarine complex with a drainage basin of 29,720 km<sup>2</sup> (4,309 km<sup>2</sup> for the estuarine part), opening into the Atlantic Ocean by three main distributaries with an estuarine functioning: the Saloum to the north, the Bandiala to the south and the Diomboss in between<sup>2</sup>. The Saloum is relatively wide (1-2 km) and deep (13 to 25 m) between its mouth and the city of Foundiougne, but after this point and up until the city of Kaolack, it is narrow (<500m) with depths less than 8 m. The Diomboss has a main width of 4 km with depths running between 10 and 25 m.

This estuary isolates two large groups of islands: the Gandoul islands in the north, Betanti and Fathala in the south formed from beach ridges. The Saloum River is bordered by the Sangomar Arrow, a 15-18 km-long sand spit between Palmarin and its distal end.

One hundred and fourteen (114) species from fifty-two (52) families were identified in this estuary. The presence of manatee (*Trichechus senegalensis*) and dolphin (*Sousa teuszii*) in the Saloum and its “bolongs” shows the richness of the specific aquatic fauna of the river watershed<sup>2</sup>.

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<sup>2</sup> DIOP, I and al., 2002. Senegal national report. Phase 1: integrated problem analysis. GEF MSP Sub-Saharan Africa Project (GF/6010-0016): "Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa"



Figure 1: View of the Saloum estuary

### I.1.2.1. The coastal zones: a key area for socioeconomic development

Senegal has 700 km of coastline which concentrate 60% of the population (estimated at 12.5 million inhabitants in 2010) and hold most of the country's urban sites and economic activities. This part of Senegal also has a high population growth rate. Prospective components from the Master Plan for the West African Coastline (SDLAO<sup>3</sup> in French) show a sharp increase in the coastal population, mainly in urban areas, and indeed 85% of industries and services are located here. This concentration is increasing and the coastal area will continue to play a key role in the national development process over the next decades.

The coastal zone is home to fishing, a major and strategic economic sector for Senegal, contributing 2% to the national GDP and generating 600,000 jobs, both directly and indirectly. On average, fishing comprises nearly 32% of the country's total exports.

<sup>3</sup> Conducted in 2011 in collaboration between IUCN and the WAEMU

Hence, coastal areas are host to important fishery related installations, such as fishing docks.

Fishing is also the major activity for the Saloum Estuary inhabitants. The annual fish production is estimated at 10,000 tons (on average). In 2003, landings reached a record of 29,290 tons. However, a depletion of fish stocks compared to the performance recorded in the 1960s and 1970s has been noted, which is largely due to climate change and over-exploitation.

The location of the Dionewar Island in the Delta area offers huge potential for fishing, which is the population's primary activity. This is why the Serer ethnic group (who live on the island) are by tradition mainly fishermen and are commonly known as "Serer Niominka" or "*Serer with feet in the water*". Fishing is considered the main income-generating activity, unlike other parts of the country where agriculture leads the way.

Women are very active in the processing (drying, smoking, salting and fermentation) of fish products. On Dionewar Island, they are grouped into more than 18 groups with around 270 members. Indeed, the collection of *Arca sinelis* (a bivalve shellfish locally known as "*pâgne*") and its processing and marketing are exclusively carried out by women. There is a fish processing factory at Dionewar, but there is limited access to markets. The amounts collected continue to decline, as do the number of individuals involved in this work. This is on top of the annual July to September break when all work ceases. It is also worth noting that in 1996 and 2003, the Federation of GIE (Economic Interest Groupings) "FELOGIE" Dionewar received the Presidential Award for women's empowerment. Fish products from the island (both fresh and processed) are marketed in nearby urban centres or in Dakar (PNDL, 2011, in Communauté Rurale de Dionewar, 2011<sup>4</sup>).

In the past, populations in Dionewar used to grow several hectares of rice on the island and uninhabited islands. But in the 1970s, drought cycles, seawater intrusion and a lack of varieties fit for the new rainfall context, meant rice cultivation was abandoned. Nevertheless, with the return of rainy periods over the last years, and thanks to support from various initiatives, some producers have slowly resumed rice cultivation.

Exploitation of non-timber forest products is of great importance for the local economy and for food security. However, the plant cover has gone through significant damages due to the combined effects of overexploitation and climate change. Vegetation on the island mainly comprises of mangroves along the submersible areas and their surroundings, while on the island one may find a Sudanian-type vegetation with mainly: *Detarium senegalense*, *Parinari macrophylla*, *Tamarindus indica*, *Ceiba pentandra*, *Elaeis guineensis* and *Cocos nucifera*. The mangrove has suffered the silting impact from the breaking of the land strip and its disappearance has accelerated coastal erosion on this island and neighbouring ones. Indeed, mangrove roots play a physical role in stabilizing soils and serve as a transition zone (or surge swell) to protect the

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<sup>4</sup> Communauté Rurale de Dionewar, 2011. Plan Local de Développement 2011-2016

coast from waves, storms and typhoons. The mangroves' depletion further impacts on the wildlife that refuge here. Fish and crabs reproduce, mollusks grow, birds nest and predators come to hunt. Mangroves help fertilize the estuary, fostering the development of the phytoplankton — the first element in the food chain. They also provide the populations with seafood (*Murex sp*, *Anadara senilis*, *Crassostrea gasar*, *Thympanothonus sp*, *Cymbium sp*, etc.).

### **I.1.2.2. Environmental context**

The environmental context in Dionewar is characterized by natural resource degradation under the combined effects of climatic variations, coastal erosion and anthropic activities. This context will be analyzed by means of the Pressure-State-Response (PSR) model by presenting the state of natural resources, the pressures they undergo (both natural and anthropic) and the developed responses to help reduce or end these pressures.

#### *a) State of natural resources*

Vegetal resources: the spaces covered with vegetation represent 45% of its total surface. The vegetation consists essentially of three strata:

- Tree stratum composed of two (02) types of forest areas: one on the littoral, constituted by the mangrove; and one on dry-land made up of Soudano-Guinean essences.

The dry-land forest is located in the continental zone, after the mangrove curtain. Approximately 8.7% of this area is dedicated to agriculture and breeding. It consists of Soudano-Guinean essences, such as *Neocarya macrophylla*, *Detarium senegalensis*, *Borassus aethiopicum*, *Elaeis guineensis*, *Adansonia digitata*, *Cocos nucifera*, etc.

The shrubby stratum is essentially made up of *Daniella oliveri*, *Raffia sudanica*, *Dialium guineensis*.

The herbaceous stratum is seasonal and depends on the rainfall which normally falls between June and October. During this rainy period, the grass cover is well supplied and highly varied. This stratum is important for the municipality, because it constitutes key source of fodder for the cattle.

The mangrove is made of *Rhizophora racemosa*, *Rhizophora mangle*, and *Avicenia africana* species. This crucial ecosystem covers 17% of the municipality's area. It also serves as breeding and growing areas for certain species of both flora and fauna, which explain the population's awareness of its needed protection.

The diachronic analysis<sup>5</sup> of Landsat and SPOT satellite images (1972-1986, 1986-2001 and 2001-2010) shows that rainfall is the major driver of the mangrove dynamics in the Saloum estuary. It indicates that during the decade from 2001-2010, while the mangrove evolution remained weak (18.96%), there was nevertheless a decrease in its disappearance (4.36%) and an increase in its regeneration (23.31%). This general trend in the Saloum estuary however contrasts with observations made in the municipality of Dionewar, which is located directly in front of the Sangomar Arrow breach, which opened in 1987. Indeed, the salinity increase, resulting from this break, caused a progressive disappearance of the mangrove swamp to the right of the breach which is in direct contact with the sea. The breaking of this strip of land has led to deep changes in both hydrodynamics and sedimentology of the Saloum estuary and has resulted in high tides leading to a strong salinity gradient from downstream to upstream. Hence, the islands located in the Saloum Delta are facing seawater intrusion which, coupled with the decline of rainfalls, has led to land salinization. The mangrove tree may be a halophyte that thrives in salty conditions, but it has an ongoing need of freshwater to buffer the seawater (which has a salinity level of around 33,3g/l). In Dionewar, the increasing salinity gradient has resulted in significant losses of mangrove swamp, and in particular the *Rhizophora* species (*Rhizophora mangle*, *Rhizophora racemose*) which is known for its fragility and sensitivity to salinity variation. In the Saloum estuary's northern area, Faye and al. (2007) showed that the bushy (degraded state) indicated a low rate of stand regeneration due to a very high salinity level of the substrate (more than 50‰). This confirms Blasco's 1982 work, which said that the size of *Rhizophora* decreases with the increase of the salinity level. These losses are closely linked to the decline of fishery resources, because the mangrove ecosystem provides many diverse species of birds, mammals, Crustacea and fish. The tree is the foundation in a complex marine food chain and detrital food cycle. As mangrove leaves drop into tidal waters they are colonized within a few hours by marine bacteria that convert difficult to digest carbon compounds into nitrogen rich detritus material. The resulting pieces covered with microorganisms become food for the smallest animals, such as worms, shrimp, mollusks, mussels and oysters, among others. These detritus eaters are food for carnivores, including crabs and fish<sup>6</sup>.

Land resources: With only a small surface area (297 km<sup>2</sup>)<sup>7</sup> the municipality of Dionewar does not have enough land suited for agriculture. The majority of arable land is hardly affected by saltwater intrusions and by degradation due to an intensive monoculture and absence of fallow.

In terms of soil resources, there are several types of soils in the area, including: "dior" soils (tropical ferruginous washed soils) which are favourable to agriculture and located

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5 EL Hadji Balla Dieye, Amadou Tahirou Diaw, Tidiane Sané et Ngor Ndour, « Dynamique de la mangrove de l'estuaire du Saloum (Sénégal) entre 1972 et 2010 », Cybergeo : European Journal of Geography [on line], Environnement, Nature, Paysage, document 629, mis en ligne le 09 janvier 2013, consulté le 12 janvier 2016. URL : <http://cybergeo.revues.org/25671> ; DOI : 10.4000/cybergeo.25671

<sup>6</sup> Mangrove.org: Ecological importance of mangrove

<sup>7</sup> Direction de la Prévision et de la Statistiques / Division des Enquêtes Démographiques et Sociales. Direction de l'Aménagement du Territoire (DAT)

in the centre and the north; “deck-dior” soils (ferruginous tropical few washed) located mainly in the eastern and northern parts of the island and which are highly adapted to market gardening, arboriculture and rain-fed agriculture; and halomorphic soils which are found next to bolongs, behind the tidal reservoir, but which are constantly washed away by the tidal flows. Halomorphic soils are not generally covered by vegetation because of their clay-like texture, their salinity and acidity, and their continuous expansion is a source of concern when it comes to agriculture.

Water resources: the hydrographical network consists mainly of the Atlantic Ocean, bordering the entire western part of the municipality and the Saloum River, feeding several bolongs and puddles. The main bolongs are the sea inlet (called bolong of Falia) which originates from the Saloum River before splitting into two (02) streams between the villages of Dionewar and Falia; and the sea inlet (called bolong of Diagne) which runs through the eastern part of the village of Niodior after originating from the mouth of the Saloum river.

There are eighteen (18) temporary pools, which allow for market gardening and livestock watering.

Hydrology aspects relate to the harnessing of subterranean waters stemming from the groundwater. The freshwater used by the municipality comes from the Continental Terminal Aquifer caught by the numerous wells of three (03) villages. The depth of the aquifer varies from 4 to 7 m. This water is used for multiple purposes.

Aside from wells, there is no drinkable water network for Dionewar and Niodior. Only the village of Falia has a water conveyance, resulting from the Mounde (Municipality of Djirnda) drilling.

There are numerous drinking water supply constraints, which can be briefly summarized as follows: brackish water; absence of functionally-equipped drillings; non-utilization of the maestrichtian water table; rapid drying up of wells; bad quality water; absence of rainwater collection system.

#### *b) Pressures on natural resources*

The pressures on natural resources have natural and anthropic origins.

The pressures of natural origins: relate to the effects of climatic variations and marine coastal erosion further to the natural opening of the breach on the Sangomar Arrow.

- Effects of climatic variations:

The global surface temperature has increased significantly, around 0.8°C, since the beginning of the 20<sup>th</sup> century<sup>8</sup>. The last decades have had an even more pronounced

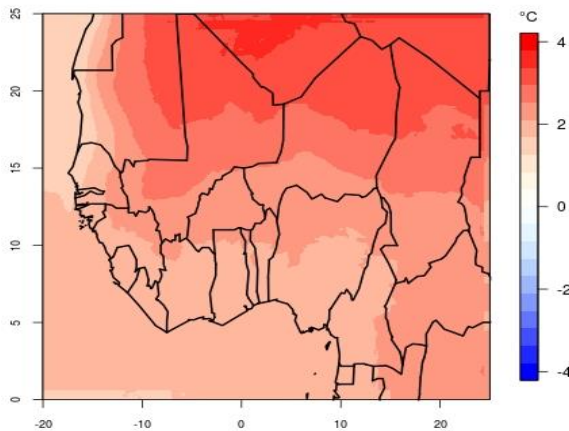
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<sup>8</sup> Kevin E. Trenberth, John T. Fasullo, 2007, IPCC, 2013. An apparent hiatus in global warming? Earth's future journal. December 2013

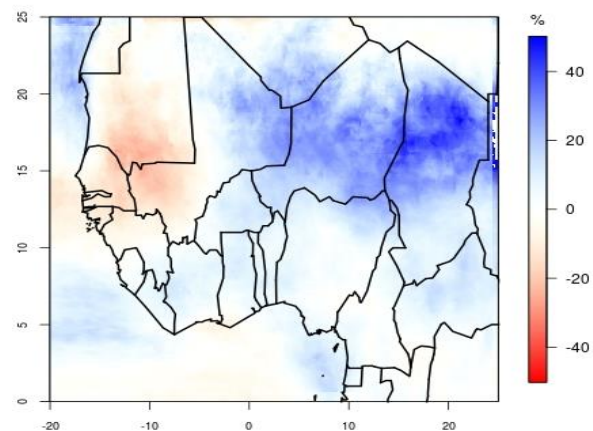
warming, as shown by observation analysis affecting development sectors such as agriculture.

Recent analysis on the African continent and in particular in the West African Sahel region has shown a significant upward trend in temperatures, particularly since the 2000s. Global warming, which has been observed since the middle of the century, is characterized by climatic extremes manifested by an increase of the number of hot nights and heat waves across the sub-region<sup>9</sup>.

The climate change projections based on 29 global models<sup>10</sup> indicate a significant increase, particularly from 1981 to 2010, of the surface temperatures across the sub-region. In the Sahelian regions, this surface temperature increase will exceed 2°C during the rainy season (June-September) over the mid-term (2040-2069) and weaken along the coastal regions (Figure 2). The projections on the precipitation (Figure 3) are translated by an increase estimated at around 30% along the eastern parts of the Sahelian region, from Mali, Niger and towards Chad. Whereas in the western regions the situation seems to be producing a deficit of around 20% in regards to the seasonal climatological average of 1981-2010 in Senegal, Mauritania, Guinea and the western part of Mali.



**Figure 2: Median of the difference of temperature °(C) of the air on the surface of the Earth on the season JJAS between reference period 1981-2010 and the future period 2040-2069, simulated by 29 global models by considering the extreme scenario RCP8.5 for the evolution of the radiative forcing on the mid-term (2040-2069). (Source: AGRHYMET)**



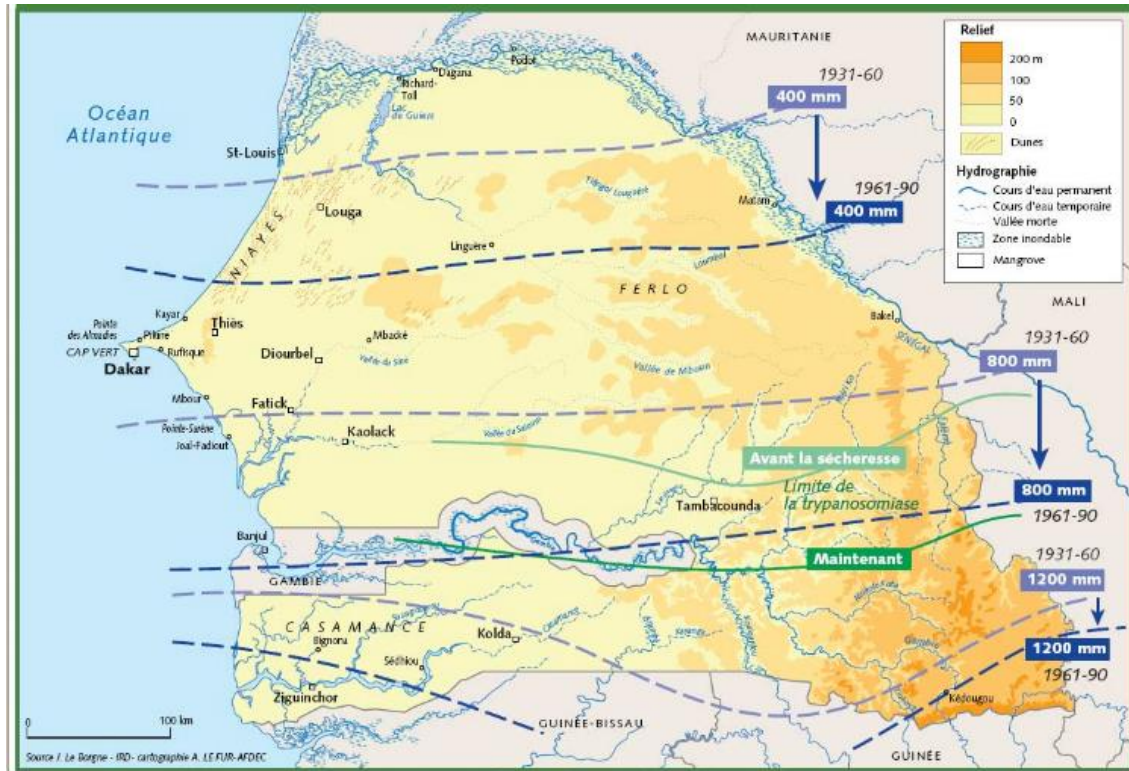
**Figure 3: Median of the rate of precipitation (%) on the season JJAS between reference period 1981-2010 and the future period 2040-2069, simulated by 29 global models by considering the extreme scenario RCP8.5 for the evolution of the radiative forcing on the mid-term (2040-2069). (Source: AGRHYMET)**

<sup>9</sup> Agali and al, 2013. Évolution des risques agroclimatiques associés aux tendances récentes du régime pluviométrique en Afrique de l'Ouest soudano-sahélienne. Science et changements planétaires / Sécheresse. 2013;24(4):282-293. doi:10.1684/sec.2013.0400

<sup>10</sup> Experience CMIP5 for the horizon 2041-2069 with regard to the most pessimistic scenario or RCP8.5



According to a World Bank-funded study in 2013, observations suggest climate change has had profound effects over the last 50 years, including a protracted dry period from 1968 to 1969. This climate deterioration manifested through erratic inter-annual rainfalls, but also decreases in rainfall volumes resulting in a significant shift of isohyets towards the south (Figure 4).



**Figure 4: Isohyets in the 1931-1960 and 1961-1990 periods**

Source : Institut de Recherche et Développement

(<http://www.cartographie.ird.fr/SenegalFIG/secheresse.html>)

With the reduction in the pluviometry observed since the 1970s, the Sahelian countries entered a period of drought resulting in considerable consequences for the vegetation in general and the mangrove in particular<sup>11</sup>. The supply of fresh water strongly decreased, drastically reducing the flow of rivers throwing into the Saloum estuary. The flow of the Nema Bah River, the tributary of Bandiala in the southeast of the estuary, decreased from  $0.29 \text{ m}^3 \cdot \text{s}^{-1}$  in 1976 to  $0.03 \text{ m}^3 \cdot \text{s}^{-1}$  or less in 1981<sup>12</sup>. This reduction in fresh water supply, combined with a strong evaporation and penetration of marine water, caused an increase in salinity.

<sup>11</sup> Marius C., 1995, « Effet de la sécheresse sur l'évolution des mangroves du Sénégal et de Gambie », Revue Sécheresse, No.1, vol. 6, 123-125.

<sup>12</sup> Diop E.S., 1986, « Estuaires holocènes tropicaux. Etude de géographie physique comparée des 'Rivières du Sud' du Saloum à la Méllacorée », Doctorat d'Etat, Strasbourg, Université Louis Pasteur, 498 p.

As a result, this rainfall variability has led to increased salinity with rates above 50‰ during the rainy season. This phenomenon persisted in the 1990s with surface water becoming hypersaline, especially in rivers upstream where the salinity levels exceed 150‰. This salinization influences the size of the fish at maturity<sup>13</sup>, their growth and movements<sup>14</sup>. Moreover, various studies<sup>15</sup> have associated mangrove degradation with the dynamics in rainfall variability, while this ecosystem plays a key role in the development of fishery resources.

In Senegal, the climate is Sahelian in the north and Sub-Guinean in the south, and is characterized by an alternating dry season, from November to May, and rainy season, from June to October. The average annual rainfall ranges from 300 mm in the semi-desert north to 1,200 mm in the south with inter-annual variations. The country suffers the adverse effects of climate change, which is felt more on its 700 Km long coastline and from the impact of the rising sea level with, as corollary, costal erosion, seawater intrusion in farmlands, salinization of water resources and destruction of infrastructures.

The main characteristic of the rainfall in the Saloum estuary remains its strong inter-annual variability with large deficits during the 1970s and 80s (Figure 5).

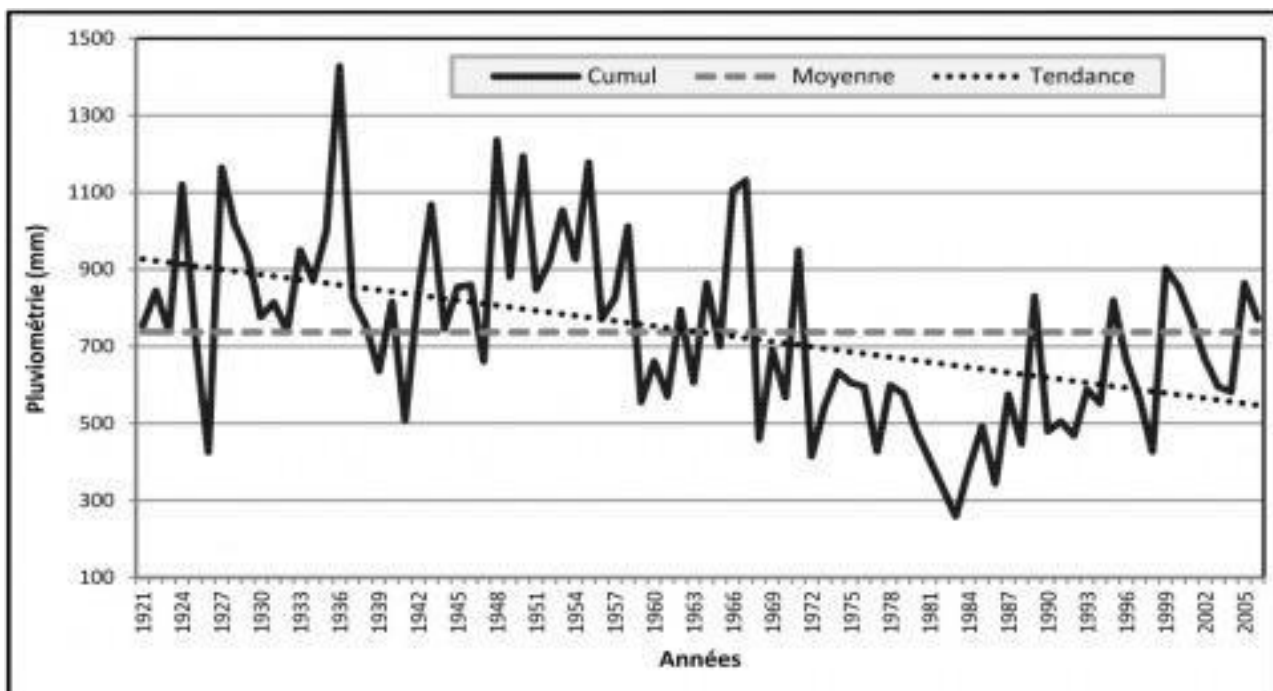


Figure 5: Annual rainfall deviation from the mean value at Foundiougne (1950-2003)

<sup>13</sup> Panfili and al. 2004a, 2004

<sup>14</sup> Diouf & Goudiaby 2006

<sup>15</sup> Diaw, 1990, 1999, 2000; Soumare 1992; IUCN 1998; Diop and al 2000; Moreau 2005; Dièye and al 2008; Andrieu and al 2008; Niang 2009

Future projections for around 2030 (2010-2039) and 2080 (2070-2099) (IPCC Data Center) forecast an increase in average annual temperature on the Senegalese coasts from 1.12 to 1.23°C. This will further increase by 2080 from 2.65 to 4°C in coastal areas.

As for rainfall, predicted variations in the northwest quarter of Senegal range from -4.5 to -19% by 2030 to -18% to -55% by 2080. For the same period, and from a more pessimistic climate scenario, rainfall on the Senegalese coastlines could drop almost two-fold.

Therefore, considering the country as a whole, there is reason for deep concern. It is expected many more years of severe drought are to come and a global sea level may rise to 20 cm by 2030 and 80 cm by 2080.

According to Senegal's second National Communication to the UNFCCC, although changes in precipitations suggest a general downward trend in most of the country, there are few indications on their variations, particularly in terms of extreme events. On the one hand, global warming could reduce rainfall levels, leading to increased droughts. And yet on the other hand, increasing the holding capacity of moisture in the atmosphere due to rising temperatures could result in rainfall events of much larger intensity than expected, which would make the region even more vulnerable to flooding.

At the Foundiougne station (studied here as the closest station to Dionewar), the rainiest years were during the 1950-1970 period; and the least rainy were in 1971, with a few years with normal to surplus pluviometry in 1989, 1995, 1999, 2000, 2001 and 2004.

In the Saloum estuary, salinity increases from downstream to upstream (120 per thousand salinity, measured upstream Saloum), which comes with certain peculiarities about the tide's penetration into the river. Indeed, there is a time and flow speed higher than those of the ebb<sup>16</sup>, and the amount of water flowing into the estuary is much larger than that coming out. This is partly due to the inertia caused by the adjacent areas of mangroves, salt flats and "bolongs". This very special hydrological functioning is essentially attributed to a low slope, particularly in the downstream part of the river, and the rainfall deficit recorded since the late 1960's leading to a virtual absence of freshwater flows during rainy season<sup>17</sup> and a concentration of salts by evaporation<sup>18</sup>.

Fish catches in the Saloum Delta shrank from 30,000 to 10,000 tons between 1970 and 1990, along with declining populations' livelihoods<sup>19</sup>.

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<sup>16</sup> Barousseau and al., 1985, 1986

<sup>17</sup> Dacosta, 1993

<sup>18</sup> MEPN, 2005

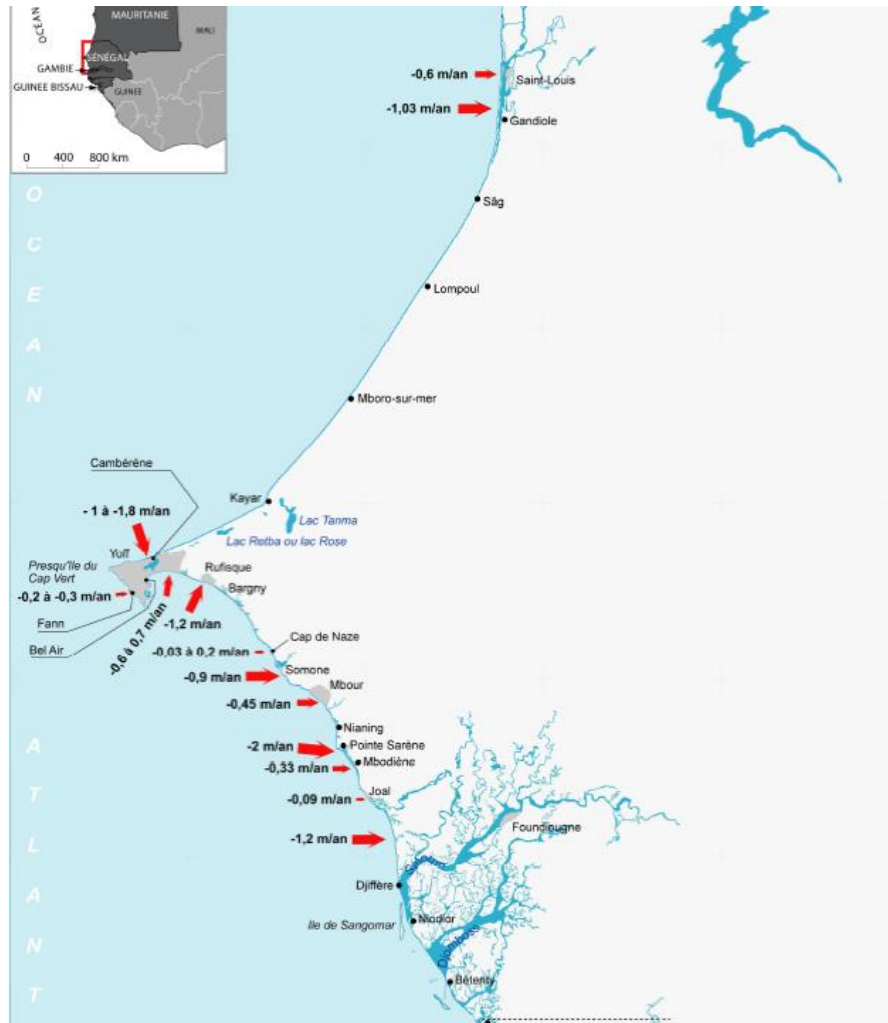
<sup>19</sup> Diouf, 1996, in Ndour and al., 2011

Predicted temperature increases, ranging from 1.4°C to 5.8°C by 2100 (IPCC, 2007) will have significant effects on fishing stocks in terms of distribution, composition and abundance. By 2030, there will likely be a major decrease in captures and the estimated market value of fishery products. As a result, accumulated losses could amount to as much as USD 136 million between 2020 and 2050, which represents 3.23% of the country's average GDP from 1981-2005.

This situation has created great distress among the population and especially the youth, among which many have sought desperate measures — turning to clandestine emigration in poor security conditions — often resulting in death. And finally, from a purely nutritional standpoint, the drop of fish and seafood consumption will automatically impact the amount of animal protein intake in people's diets.

- Coastal erosion:

Under the combined effect of all these changes, the Senegalese coastline shows widespread erosion (Figure 6). Parts most sensitive to this occurrence are the deltas and estuaries of the three major rivers, as the sediment supplies can barely compensate losses to erosion in these low zones. Since these areas are of great ecological importance, erosion can cause significant losses of biodiversity. Erosion rates generally do not exceed 2 m/year, but the beaches may recede by more than 10 m/year locally.



**Figure 6: Erosion of sandy coasts from the 1950s according to bibliographic data (source: I. FAYE)**

One of the most severe signs of these effects is the breaking of the Sangomar Arrow on 27 February 1987 in the wake of an extraordinary swell. This event occurred towards Lagoba (or Diohane), which is the most fragile part (80 to 110 m wide).

The natural functioning of this arrow is an extension to the south in favour of littoral drifts that dump part of its sediments there, appearing as successive hooks partly from shoals bordering the tip of the arrow. From 1927 to 1987, it was reported to have increased by 4 km. Hooks identify small lagoons, which are filled gradually and inhabited by mangrove or marsh vegetation. Based on bathymetric, photographic and satellite topographic substrates, the evolution of the Sangomar Arrow distal end was restored between 1907 and 1987<sup>20</sup>. It is primarily characterized by a period of decline northward between 1907 and 1927, with 88 m annually, and by a nearly continuous southward extension from

<sup>20</sup> Diaw and al, 1991 and Diaw, 1997

1927, with 31 m annually and values higher than 100 m annually (between 1946 and 1969). Meanwhile, the end experienced strong thickening between 1954 and 1969.

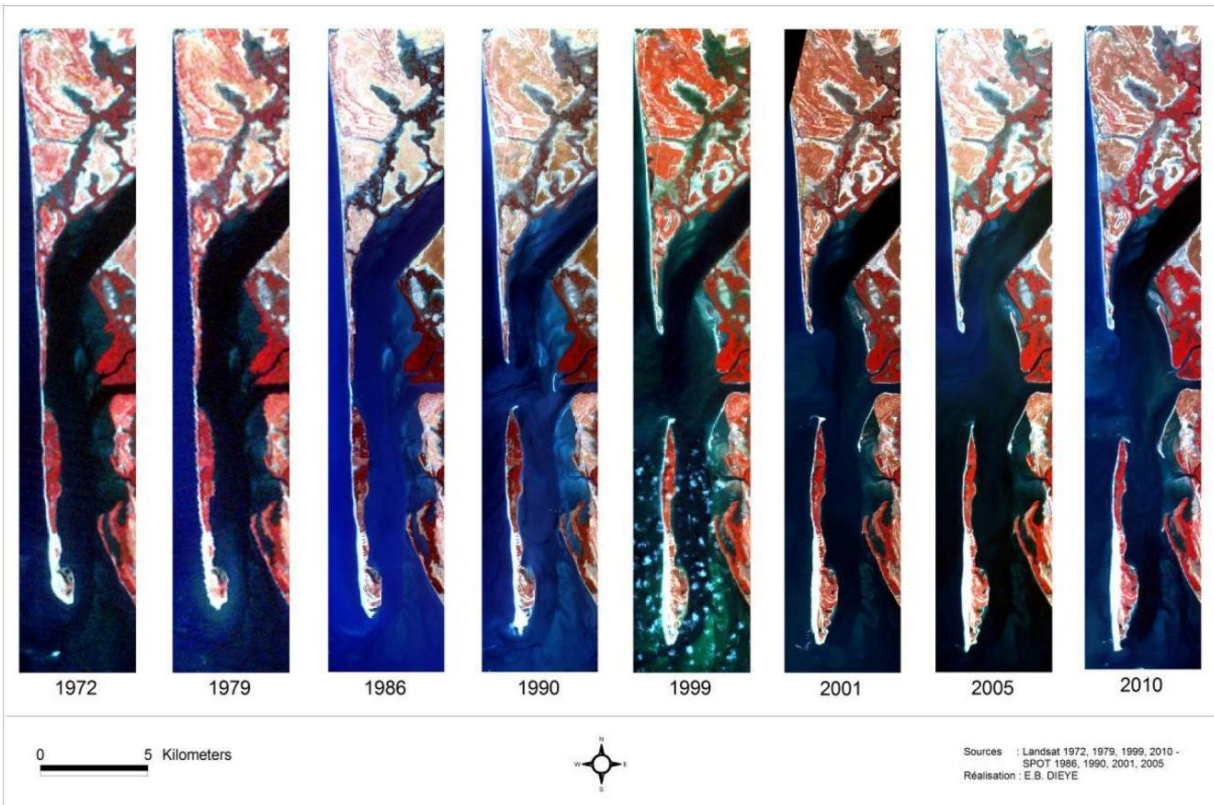
There is also a sharp slowdown in the expansion rates to the south, which varied from 22 to 35 m annually between 1969 and 1981. The 1981-1984 period was characterized by stability of the Arrow. Then from 1984 until 1987, extension resumed southward at a rate of 175 m annually. It should also be noted that the hooks seemed to appear only from 1958 onward. Between 1986 and 1987, two small hooks, surrounding a lagoon, formed successively at the Arrow's tip.

According to Diaw (1997, 2003) and Thomas and Diaw (1997) the breakdown of this Arrow could be explained by a range of sedimentological, geomorphological and hydro-climatological factors each one non-exclusive to the other: temporary absence of "upstream" sedimentary power by reduction of products from northern areas of the Petite Côte; strong tightening and fragility of the Arrow at a place called Lagoba; improvement of the rainfall situation contributing to the ebb flushing effect and slowing fattening changes; preferential erosion of the inside of the Arrow against the configuration of the river bed and the existence of inter-hooks corridors; modifying pre-littoral shoals at Lagoba which can be seen on the SPOT *ante* and *post breakdown* satellite images, waves of high amplitude (2.5 to 3.5 m) combined with high water tides (levels of 1.71 m in Dakar and 1.95 m in Banjul).

With the Arrow breakdown in 1987, a new evolution was marked by erosion of the northern edge of the breach and the external shore, while the end of the new Sangomar Island continues to advance southward at average annual rate of 229 m (Figure 7) with the development of two hooks<sup>21</sup>. Based on these observations, several authors believe that sedimentary transits by longshore drift are thought to be estimated between 160,000 and 180,000 cubic meters annually<sup>12</sup>.

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<sup>21</sup> Diaw, 1997



**Figure 7: Dynamic of the Sangomar Arrow between 1972 and 2010 (Thomas and Diaw, 1997)**

This event feeds into the formation and evolution process of the Saloum Delta and comes with (Diaw, 1997):

- an intense erosion of the northern edge of the Arrow with rates up to 128 m annually (down to 640 m between 1987 and 1992);
- a continuity and even acceleration of the southward extension of the distal end of the new Sangomar Island at an annual rate of 198 to 264 m between 1987 and 1991. One year after the breakdown, the gap measured 1 km wide, 10 years later, it reached 4 km.

This breaking occurred just opposite Dionewar Island, leading to profound changes in the estuary hydrodynamics and sedimentation. With this breach, the Atlantic Ocean runs into the Saloum River at the island bringing about deep changes in both the estuary's hydrodynamics and sedimentology.

These phenomena compound the depletion of fish stocks, coastal erosion and degradation of the vegetation on the island due to human pressure and drought cycles that prevailed from the early 70s into the mid-2000s. In Dionewar, the impacts are felt particularly in the mangrove which, since the breach was opened, has been hit by silting, fostering its depletion, thus compounding erosion and flooding. Mangrove ecosystems provide refuge and are reproduction zone (spawning areas) for fish and seafood.



**Figure 8: Overview of coastal erosion in Dionewar (CSE, January 2015)**

All these changes have heavily affected the island's socioeconomic situation, because most economic activities are driven towards the use of resources from the sea (fish, shrimps, shellfish, etc.).

Flooding associated with storm surges is another impact of climate change, which, in conjunction with sea-level rise, places more people and socioeconomic infrastructures (mainly fishing docks and hotels) at risk in the coastal zones.

The pressures of anthropogenic origins are linked to the overexploitation of natural resources, the demographic pressure and the pollution by household waste.

The numerous services of the mangrove ecosystems allow a multitude of economic and social activities, related to the vital needs of the populations. Among those, are fishing, harvesting of oysters and using mangrove wood for the processing of fishery products and for manufacturing work or house building.

This pressure on the mangrove ecosystem is all the more disturbing as it is happening in conjunction with a growing population. In 1988, the general population and housing census estimated the population of the Municipality of Dionewar was 8,437 inhabitants, while the 2011 and 2015 projections of the population (2008-2015), given by the Statistics and Demography National Agency (ANDS), are 12,988 inhabitants and 14,525



inhabitants respectfully — a doubling over 25 years.

The growing needs in resources therefore also threaten the ecological balance of these zones and the well-being of the populations. This situation further contributes to a worsening degradation process in the littoral (Ndour, 2005).

Illegal logging of the green mangrove wood also remains an important issue in some villages, particularly in Dionewar and Niodior. This phenomenon, which feeds and maintains sales network of mangrove wood, is the main anthropogenic aggression of the mangrove today.

### *c) Responses*

In order to stop and reverse the degradation trend of natural resources, several strategies are developed and implemented by the communities, which act either on their own, or supported by the government or development partners. Among these strategies, the most remarkable are the following:

Fighting erosion: the marine erosion causes the destruction of the vegetation cover and the mangrove ecosystem's loss of biodiversity. It also results in the reduction of the cultivable land area and the destruction of the physical resources (wells, houses). The silting phenomenon slows down the mobility of dugouts and stresses the navigation risks.

In face of these threats, the populations have developed several strategies. Some are effective and long-lasting, such as the reforestation of filaos (*Casuarina sp.*) intended for the fixation of the beaches or the fish farming which assures the availability of quality products. It is also the case for the relocation of infrastructures destroyed by the erosion and bypassing of the bar - the only solution to avoid sandbanks in the sea.

If the occupation of new lands allows these populations to continue the agricultural activity, it will nevertheless need large financial investment because most of the individuals have themselves low incomes. However, as land reserves are available on the uninhabited islands, the envisaged alternative solution is to set up a collective field to share investments (water, transport, food, etc.). The conditions favourable to this project are the existence of an associative dynamics, including a women's group (GPF) who had the initial idea. This will bridge the insufficiency of the farm inputs, and assure an efficient implementation of that initiative.

To avoid navigation risks, the practice of de-silting the channels with shovels has proven neither effective nor long-lasting. The viable strategy would be the dredging of the channels which asks for hefty means, and thus government intervention. However, it is also delayed in becoming a reality, because of insufficient lobbying on behalf of local authorities.

### Strategies to combat flooding:

The flooding hazard can be seen in two different forms: river flooding and flood run-off. These floods are caused by weather, although of different nature: river flooding caused by cumulative rainfall during the rainy season and urban flooding caused by short heavy rains. In coastal areas, the sea level can be an aggravating factor.



**Figure 9: Dike protecting against rising sea water built by populations in Colbassy (CSE, January 2015)**

Damaged houses are rehabilitated through social mobilization, and waterborne diseases (malaria and the diarrhea) are addressed by means of vector-control actions. However, local populations are struggling to find an appropriate solution to the disruptions to the school year due to the use of premises as shelter for affected populations. Floods hinder economic activities and entail loss of incomes. Seasonal exodus for the youth and money transfer from expatriated natives often constitute the only recourses.

In case of extreme weather events, the dikes built to prevent flooding are destroyed or damaged, often requiring restoration actions. The best solution would be to raise the height of these dikes, which are mainly built by local populations. The workforce and the required material (sand and shells) are locally available. However, the lack of logistic means (trucks and tractors) and financial resources make it difficult to carry out an appropriate rehabilitation.

### Strategies to deal with rainfall deficit:

The rainfall deficit entails loss of productions and causes the lowering of the water table. To stock up with water, communities are obliged to dig deeper existing wells or to open new ones altogether. These strategies are effective, but not long lasting. The problem could be settled by the water conveyance, but this strategy also requires heavy investments.

The rainfall deficit further results in land salinization, forcing communities to abandon their fields and move to new cultivable lands. This is effective, but not sustainable, especially in a context of limited land availability. Salinization due to the rainfall deficit also causes a loss of biodiversity. The strategy developed by communities consists in mangrove and rangelands reforestation, which is an effective and sustainable solution. The building of an anti-salt dike is a priority to properly address the salinization issue. The material (sand, shell, wood), the workforce and the know-how are all locally available, but the heavy equipment and the financing are not.

To address the issue of quality drinking water (salinization), the populations also dig shallow wells (4m) to access the fresh water lens. This may be effective over the short term, but it is not long-lasting.

Strategies to address poor natural resource management: the most remarkable initiative in this regard is the establishment of a biological rest period, which is strictly observed. Every year, for three months, the community suspends all fishing and shell extraction activities. This allows the species to reproduce and grow. These joint local initiatives have proven fruitful, because according to the population they note a considerable increase and diversity of fishery resources as a result. In addition, over the last ten (10) years, the populations undertook a vast mangrove reforestation campaign, leading to the reforestation of five (05) hectares. Management committees of the Natural Resources (COGER) have also been established in every village to follow these experiences and replicate them.

The municipality of Dionewar has developed a Communal Development Plan (PCD), as well as a Local Action Plan for the Environment and Natural Resources (PLAE), which is a sectorial plan. The latter is an instrument of strategic orientation and planning that comes to improve the visibility of a sector that matters. Natural resources in the region are rather seriously threatened today on this island.

### **I.1.3. Issues identified**

The Senegalese coastline is morphologically fragile and suffers from the effects of an almost anarchic occupation, combined with coastal erosion. This situation entails a degradation process and the destruction of hotels and housing, loss of productions (agriculture and fishing), reduction or loss of beaches, as well as disturbances to mangrove ecosystems and natural habitats.

More specifically, the vulnerability assessment has highlighted the following three (03) major issues:

Issue 1: Reduction of the ecosystems' ecological functions and socioeconomic services

Due to the combined effects of climatic variations, coastal erosion and anthropic pressures, the ecosystems of the estuary (including the mangrove) are losing their ecological functions (natural habitat of birds and fishes, protection against the floods, etc.) and show a reduction in their productivity.

To address this problem, a number of activities were proposed under the **component 1** of the project “**Enhancing resilience for productive ecosystems in Dionewar Island**”

Issue 2: Human settlements and infrastructures threatened by coastal erosion.

Many houses and numerous community infrastructures (schools, fish processing areas, dikes, etc.) are exposed to recurring floods, which cause enormous material damages to the populations and seriously affect the local economy.

To address this problem, a number of activities were proposed under the **component 2** of the project “**Protection against flooding, coastal erosion and salinization in Dionewar**”

Issue 3: Poor knowledge of adaptation strategies for an island environment

Although Senegal has a long coast, experiences of adaptation in coastal and island zones are still not yet well documented.

There is also a low availability of data and specific climatic knowledge in the area for the promotion of a legal and regulatory environment that supports the resilience of the estuary's productive ecosystems.

The deficit of climatic data specific to Dionewar is striking. There is no meteorological station in the locality and the climatic events are neither well documented nor disseminated. In addition, this climatic data deficit reduces the reach and relevance of the diagnoses that underpin all the strategies of local development.

To address this problem, some activities are proposed under the **component 3** of the project “**Strategic planning and knowledge management**”.

#### **I.1.4. Selection of the project intervention area**

The reasons for selecting these areas of intervention are essentially due, for the following considerations: a) the severity of these combined hazards in the Saloum Islands; b) the heavy disruptions caused by these hazards on the lives of thousands of

populations, especially women; c) the significant impacts of these disruptions on the natural habitats and the biodiversity.

The project will therefore intervene on the Island of Dionewar and its satellite islands (Figure 10), which host major economic activities for the local populations.

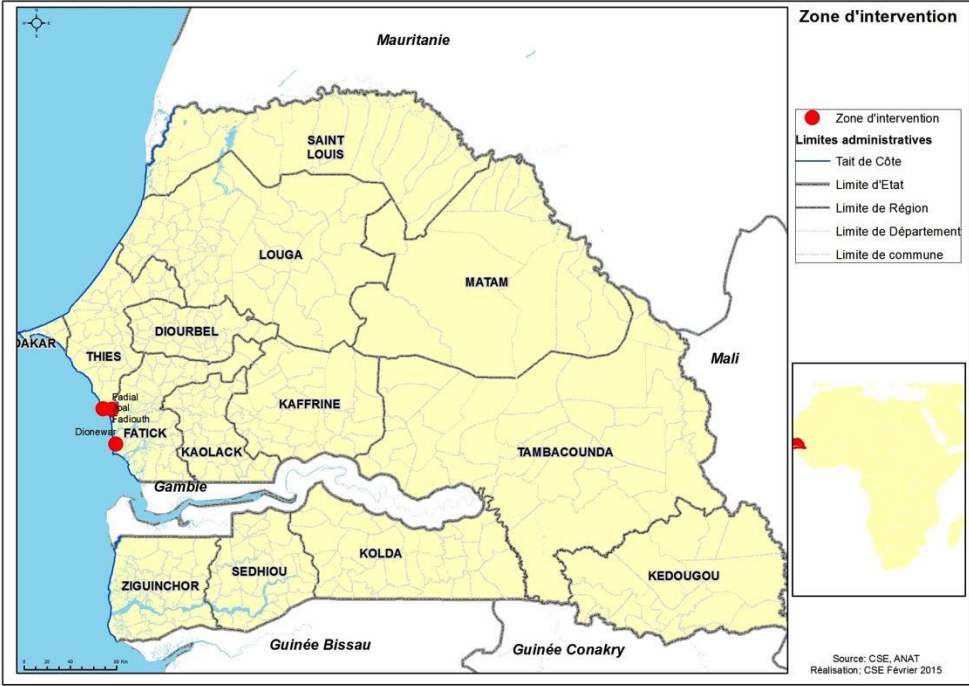
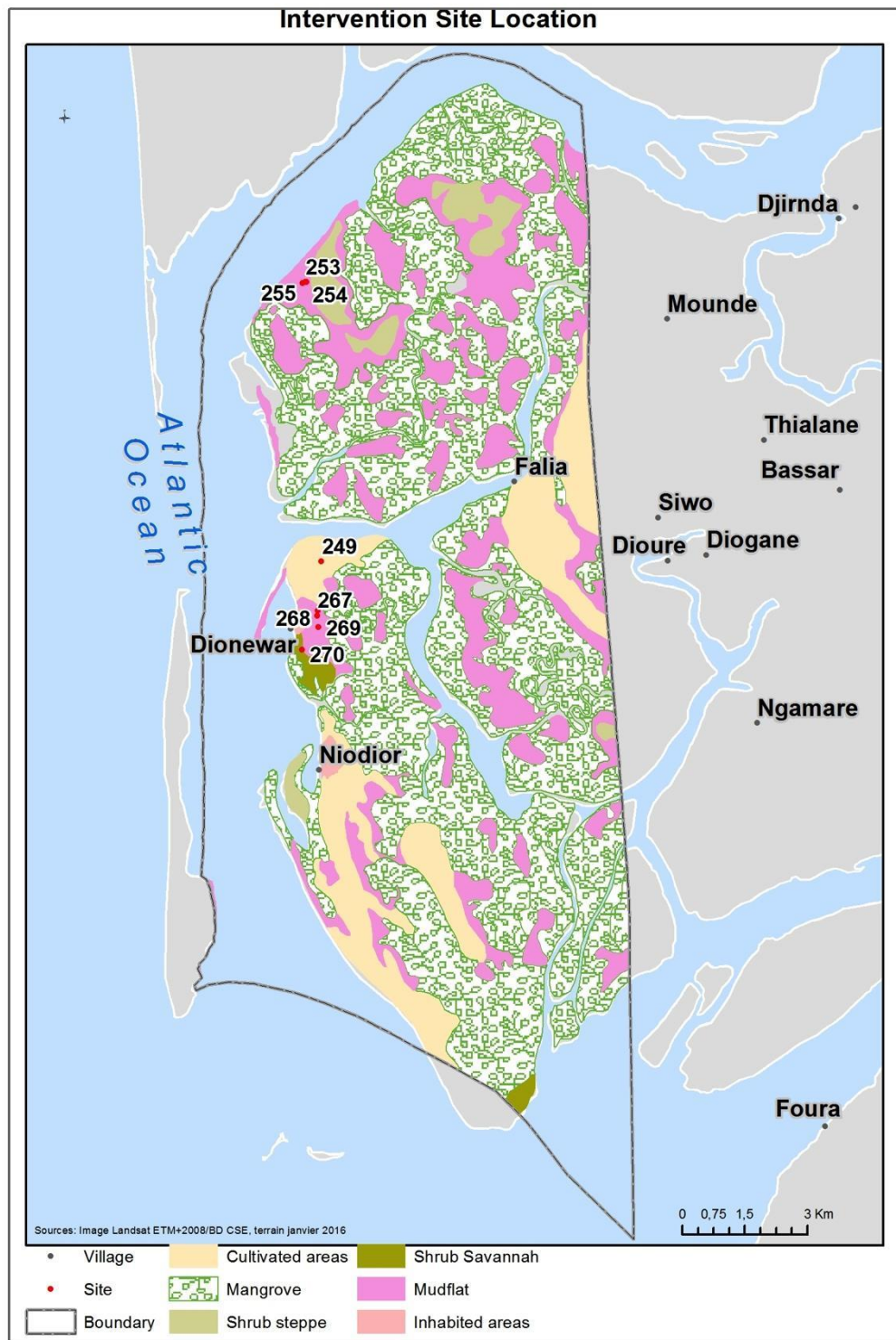


Figure 10: Location of the intervention areas

The location of planned realizations is shown in the next figure.



**Figure 11: Location of planned realizations**

- 249: Oil palm and coconut palm trees area
- 253 : Djimsane anti-salt dike

254 :	Rice field
255 :	Mudflat at Djimsane
266:	Fish processing unit
267-	
269 :	Ndiar dike
270:	Ndioundiouré dike

Each location has been chosen based on logical reasoning:

- The dikes were already built through previous interventions with the aim to protect houses and other socioeconomic infrastructures from flooding. Therefore, their location is mainly based on the position of these infrastructures with relation to the threat of flooding. With a view to enhance the functionality of these structures, this project has undertaken a feasibility study to confirm the appropriateness of their location, taking into account the opinion of the population.
- The location of the fish and oyster farming sites is also based on: the opinions of the recipients who were involved in prospections; technical considerations such as the physicochemical characteristics (pH, salinity, temperature, turbidity, etc.); the water depth (more than 2 m); the presence of mangrove swamp and the availability of spats in order to allow oyster farming; and the safety and accessibility of the sites.
- The reforestation of mangrove is an ecosystem restoration action and it takes place in areas where the natural mangrove stands are degraded. Additional selection criteria include soil texture, wind speed, water currents... Priority is given to sites which, once replanted, will contribute to the control of flooding by reducing the strength of waters that flow towards the dikes.
- Reforestation actions consist mainly in restoring degraded stands. Targeted species (coconut tree and oil palm tree) contribute significantly to the livelihoods of local communities. The choice of the sites is then determined by the level of degradation of natural stands, but also taking into account the potential to protect the village from heavy winds, the need to avoid encroachment into farmers' fields or human settlements, soils characteristics and climatic factors, and the absence of any land disputes.
- Rice fields to be protected and developed are pre-existing ones. On Dionewar island, the only areas for rice cultivation are located in Djimsane.
- As regards the weather station, it was agreed with the ANACIM that right after the approval of the project, prospections will be made with the view to identify the better location, taking into account the WMO standards: shelters must be installed at a distance of at least twice the height of the obstacles (ideally 4 times), in a sector the sunniest possible, avoiding being too close to a wall, and at a height of at least 1.5m above a grassy soil.

## I.2. Project Objectives

### Overall project objective

The project's overall objective is to reduce the vulnerability of populations in Dionewar to flooding. The resilience of natural habitats and populations will be enhanced through the implementation of protective measures, revival of the main productive sectors and promotion of local adaptation strategies to cope with the adverse effects of climate change.

### Specific objectives

The project's specific objectives are to:

- ✓ SO1: Improve the resilience of the productive sectors such as fishing, oyster-farming and forestry to natural hazards.
- ✓ SO2: Reduce the vulnerability of populations and natural habitats to hazards through the establishment of structures to better regulate flooding and fight against land salinization.
- ✓ SO3: Enhance Communal Development Planning through integration of climate change, setting up local conventions and documenting lessons learned.

## I.3. Project Components and Financing

Table 1: Project's components and budget

Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Enhancing resilience of main ecosystems on Dionewar island	<p>1.1. Alternative fish and oyster farming production system developed for 18 women associations, including the setup of 30 growing cages, 200 spat collectors and 1000 growout bags (USD 88,082 CR2).</p> <p>1.2. At least 6 ha of trees planted (enrichment planting primarily with coconut and oil palms) and 5 ha of mangrove rehabilitated in Dionewar and its satellite islands to</p>	<p><u>Outcome 1:</u> Improved resilience of the main ecosystems on Dionewar Island and sustainable livelihoods of populations.</p>	301,098



Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
	<p>revitalize the main productive sectors (USD 151,983).</p> <p>1.3. At least 18 economic interest women's groups and natural resource management committees trained to improve their technical performance (USD 42,483).</p> <p>1.4. Management plans for fish and oyster farms management developed (USD 18,550).</p>		
2. Protection against flooding and salinization in Dionewar	<p>2.1. Protect, rehabilitate and extend the two (02) dikes against flooding over 2 km area (USD 627,550).</p> <p>2.2. Build ridges around rice plots on a satellite Island (USD 95,027).</p> <p>2.3. Develop a maintenance plan, involving key stakeholders (USD 21,000).</p>	<p><u>Outcome 2:</u> Reduced population vulnerability and improved socioeconomics infrastructures in Dionewar in relation to climate hazards through the construction or rehabilitation of protection infrastructures.</p>	743,577
3. Strategic planning and knowledge management	<p>3.1. The Communal Development Plan (PCD) is reviewed in order to integrate adaptation to climate changes options &amp; cost benefits (USD 21,000).</p> <p>3.2. Rules governing the exploitation of timber and non-timber forest products and the biological rest updated</p>	<p><u>Outcome 3:</u> Strengthened capacity of local institutions to mainstream climate change in Communal Development Planning, sustainable natural resources management strategies and to document and disseminate lessons learned.</p>	82,196

Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
	<p>and formalized through a Local Convention (USD 15,646).</p> <p>3.3. Project's lessons learned are documented and shared (USD 16,150).</p> <p>3.4. One (01) meteorological station is installed in Dionewar (USD 29,400).</p>		
4. Project Execution cost			118,290
5. Total Project Cost			1,245,161
6. Project Cycle Management Fee charged by the Implementing Entity (CSE)			105,839
<b>Amount of Financing Requested</b>			<b>1,351,000</b>

#### I.4. Projected Calendar

Table 2: Project Calendar

Milestones	Expected Dates
Start of Project Implementation	July 2016
Mid-term Review (if planned)	January 2018
Project Closing	July 2019
Terminal Evaluation	January 2020

## PART II: PROJECT / PROGRAMME JUSTIFICATION

### A. Description of project components

Climate change/variability is impeding development efforts on Dionewar Island. The populations are making their earnings mainly from fishing activities, agriculture and forestry. Since the breaking of the Sangomar Arrow, contact has been established between the sea and the river. This has increased salinity and resulted in the degradation of the mangroves, a key to fishing activity but also one that plays an important role in the control of flooding. The increase of salinity has been exacerbated by rainfall decreases in the seventies and the eighties. Extreme climate events like heavy rains, combined with rising sea-levels have resulted in more frequent and more unpredictable floods that threaten populations' security and goods. The fisheries sector is facing fish stock scarcity linked to changing climatic conditions, but also to overfishing. This situation forces fishermen to go farther out to sea to fish, which also places more demands on the time and fuel invested.

The project “***Reducing vulnerability and increasing resilience of coastal communities in Dionewar***” aims to be a response to the economic hardships and environmental challenges faced by populations due to a high exposure to natural hazards. It will be implemented through: (1) investments for the development of aquaculture, the revival of fishing and processing of fishery products and replenishment of vegetation; (2) the establishment of protection infrastructures for Dionewar to face flooding; (3) the development of planning and local regulations activities associated with a knowledge management system that ensures equitable and sustainable use of productive assets.

The three components work in perfect synergy to achieve the project's general objective.

Component 1 aims to enhance the resilience of the main productive sectors on Dionewar Island through the development of fish and oyster farming, the replenishment of the vegetation cover and capacity-building activities. It includes a set of measures to strengthen value-chains for improved market access through better quality products, marketing development and greater efficiency in the use of natural resources. To cope with the rarefaction of fishery resources, due to climate change and over-exploitation, quality improvement is one of the alternatives offered for maintaining or increasing incomes. Moreover, markets that guarantee fair and remunerative prices for seafood are those requiring stringent quality and safety standards. Therefore, the introduction of new production, processing and conservation techniques will help generate added value for local productions, resulting in increased incomes and food security for the whole community. Planned activities will ultimately help increase the influence of local producers in the various links of the value chain: production, processing, marketing. Component 1 is closely linked with Components 2 and 3.

Through Component 2, the resources of the project ***“Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar)”*** will be used to protect production areas, housing, processing and conservation facilities against water and salinity. Protection through dike rehabilitation will help mitigate one of the village’s major concerns, which is flooding. It involves heightening existing dikes and installing flood control infrastructures. This component also includes the building of ridges around the rice plots at Djimsane and providing rice producers with agricultural equipment. The sustainability of the ridges will be secured through vetiver plantation on top of it.

Through Component 2, a management and maintenance plan will be developed for each infrastructure and a management committee will be established to ensure sustainability. Component 2 will ensure strict compliance with the requirements of the Environmental Code, especially regarding environmental and social impact assessments (ESIA) and the development of an environmental and social management plan (ESMP). It will help secure investments made in Component 1 and generate lessons learned that will feed into Component 3.

Component 3 seeks to enhance Communal Development Planning and natural resource management, and document lessons learned. It will foster the integration of climate change in the Communal Development Plan and promote a local regulatory framework to rationalize the use of natural resources. Component 3 also includes the installation of a meteorological station in the locality to improve weather forecasts for local producers and to better inform local development strategies. Finally, it will draw from lessons learnt from all project activities for documentation and sharing at local, national and international levels.

The project strategy is to take an integrated approach linking up the 3 components.

## **Component 1: Enhancing resilience for productive sectors on Dionewar Island**

### ***Activity 1.1: Development of fish and oyster farms***

This activity aims to boost the fisheries sector, which is faced with a scarcity of fish stocks prompting populations to go further out to sea to get worthwhile catches (especially given the amount of time and fuel spent). The project resources will be used to set up 30 fish growing cages. The project will also install 200 spat collectors to develop oyster farming in the mangrove areas. A suspension culture system will also be put in place, above the seabed, with 1000 growing bags that will collect larvae that have reached a fairly large size. Only indigenous species will be used and there will be no introduction of exotic species. The project will also purchase production equipment (ropes, fishing nets, boots, life-jackets...).

The growing cages will have a capacity of 10m<sup>3</sup> each and be composed of: a galvanized tube frame, four containers as waterline and a net pouch with a volume of 10m<sup>3</sup> (2.5m x 2.5m x 1.60m). The chosen species will be a local one (Tilapia) and will not be stocked from the wild, but developed in a hatchery by the National Aquaculture

Agency (ANA). ANA will provide the fish fries. These cages will enable production of around 21,375 kg of fish per year. The kilogramme of fish in the market costs around USD 2.6. This activity can therefore bring in around USD 55,575 per year.

This activity will be built on aquaculture experiments now underway in the Saloum Delta. The collection and growth of shells, which are the latest activity, are tested in Missirah, Sandicoloy and Betenty with the support of PISA, FAO, ENDA and IRD, as well as WAAME-CIDEAL and ANA.

The oldest experiment remains oyster farming with the GIE (an economic interest grouping) in Joal and Sokone that produce, transport and market fresh oysters to Dakar. The oyster farms implemented will produce around 21,560 kg of mature oysters per year with a price of USD 3 per kg. The oyster farms will bring almost USD 64,680 per year.

This activity is targeted mainly at local women's association (GIE) and assets provided will be community-based. The project will foster the adoption of an agreement between the GIE, the local government unit and the executing agency. This agreement will set up a saving mechanism (fees) from revenues generated by the oyster and fish production activity. The financial resources made available will extend to the establishment of spat collectors and to the renewal of equipment, when required.

The beneficiaries already have a good organizational framework in place and ample experience in sharing such equipment. They already have the appropriate mechanisms and rules for managing and sharing the production and outcomes of the assets provided by the project.

Activities include:

- Construction and installation of 30 fish growing cages
- Making and installation of 200 spat collectors
- Putting in place a suspension culture system with 1000 growing bags
- Purchasing production equipment
- Setting up a saving mechanism (fees)
- Implementing specific environmental and social managements actions: oversight of management of waste measures and application of environmental clauses; monitoring of physicochemical and bacteriological parameters and selection of beneficiaries

***Activity 1.2: At least 6 ha of trees planted (enrichment planting, particularly with coconut and oil palms) and 5 ha of mangrove rehabilitated in Dionewar and its satellite islands to revitalize the main productive sectors***

Through activity 1.2, the project resources will be used to increase the density of the stands of coconut and oil palm trees that have long been important sources of income for Dionewar's populations. The enrichment planting will target at least 6 ha (especially coconut and oil palms) and 5 ha of mangrove will be rehabilitated. The population will

contribute in terms of human investment.

The main activities include:

- Setup of a tree nursery in close collaboration with the Forestry Service;
- Mobilization sessions to organize populations around tree planting activities;
- Planting of trees;
- Setup of committees tasked with the plantations' surveillance. These committees will be composed of existing committee for natural resources management members, who will be reinforced if required.

**Activity 1.3: At least 18 economic interest women's groupings and natural resources management committees trained to improve their technical performance**

Activity 1.3 will make it possible to train women oyster farmers and processors on new techniques for better recovery of products. About 270 women will be trained. New production techniques will ensure better quality products and more competitiveness, meaning access to new market and more remunerative prices.

Partnership will be developed with ANA, who has a national mandate to support the development of aquaculture nationwide. They will provide technical support in the selection of performing species, quality of fish larva, biological monitoring and trainings.

For oyster farming, women will be trained in garland-making techniques for capturing spat, transfer of juveniles in pouches for the growth and quality monitoring during their growth period.

For fish farming, they will be trained on the fish feeding and water quality maintenance techniques.

Capacity-building activities will also include linking producer organizations with traders and processors to ensure consistent supply and quality standards, training women groups on entrepreneurship, marketing of products, managing value chains, and accessing financing and credit. Participation of women groups to regional/international commercial fairs will be part of this capacity development activity.

Sustainable management of shellfish other than oysters (*Crassostrea gasar*) will also be taken into account in this component and it concerns the arch (*Anadara senilis*), "yet" (*Cymbium sp.*) and "touffa" (*Murex sp.*). Oyster and shellfish parks will be created around the village to help isolate juveniles until maturity. These parks will operate according to a plan that enables the species to renew.

Activity 1.3 is also designed to build committee capacities for those entrusted with natural resources surveillance and particularly women transformers on the value of non-timber forest products (*Detarium senegalensis*, *Parinari macrophylla*, *Cocos nucifera* and mango tree). This will help strengthen the achievements already made with the establishment of a natural resource management committee.

The main activities include:

- Identification of trainees, taking into account gender considerations
- Preparation of training materials
- Elaboration of a training programme
- Organization of training sessions, including exchange visits in neighboring areas in the Saloum islands where similar programmes took place in the past
- Implementing specific oversight on environmental and social management actions: integration of gender principles during the setting up of committees, application of environmental clauses - waste and water management - during training sessions, etc.

#### ***Activity 1.4: A management plan is developed for the fish and oyster farms***

Intensive fish farming requires constant maintenance and watchfulness. If the management is poor or the funding inadequate, things can go wrong: toxic runoff, introduction of diseased species into populations, food and waste excess affecting population densities and stressed fish stocks. This activity is designed to allow the recipients to benefit from the advantages resulting from the oyster farms without jeopardizing objectives for sustainable and environmental safeguards. In partnership with ANA and target communities, a management plan will be developed and implemented.

### **Component 2: Protection against flooding and salinization in Dionewar**

#### ***Activity 2.1: Rehabilitation and extension of dikes to protect against flooding***

Activity 2.1 seeks the rehabilitation of two dikes and their extension over 2 km to ensure better protection for housing, infrastructures and agricultural lands. With this activity, the project resources will help reduce the vulnerability of Dionewar against rising waters, especially during the rainy season with the start of high tides and storms. Activity 2.1 will be implemented in close collaboration with researchers who focus on coastal management, civil engineers, local extensions, the local government unit and the communities themselves.

The main activities will consist of:

- Social mobilization actions to ensure a fruitful involvement of the population through human investment sessions
- Heightening of dikes where it seems necessary
- Extension of dikes
- Implementation of specific environmental and social management actions: implementation of mitigation measures (anti-contamination plan, waste management, etc.); oversight and monitoring activity (respect of labor rights, etc.).

#### ***Activity 2.2: Development of ridges around rice plots in Djimsane Island***

Through activity 2.2, the project resources will be used to protect rice plots against seawater intrusion. It will help boost rice cultivation in the area, thus enhancing the sustainable livelihoods.

The operating costs will be handled by the project in the first year of operation. A depreciation schedule will be elaborated through consultations with producers in order to amortize the equipment and to recover the operation cost related expenses. Money recovered will flow back into the Fund for Integrated Development of the Islands.

The main activities will be to:

- Prepare a “cadastral map” for rice-growing areas;
- Organize of social mobilization actions in order to ensure the involvement of the population;
- Purchase of equipment (ploughing, weeding, harrowing, harvesting, husking and bagging);
- Organize consultations with producers in order to design the appropriate arrangements to be put in place for the amortization of the equipment;
- realize the ridges
- setup a management committee for equipment and inputs
- Implement specific environmental and social management actions: implementation of mitigation measures (pest and pesticide management plan...), oversight activity (gender aspects into the committees, integration of environmental clauses, etc.); monitoring activity (physicochemical parameters, etc.)

### ***Activity 2.3: A maintenance plan of coastal infrastructures developed, including key stakeholders***

This activity is geared towards creating the conditions for the maintenance, over time, of coastal infrastructures developed by the project. Its execution will include a partnership with the Rural Engineering Directorate, the Directorate of Environment and the Directorate of Civil Defense.

The main activities will be:

- Preparing a maintenance guide for each category of infrastructure;
- Setting up and training a management committee, including the Local Government Unit, the extensions, the main community-based organizations (including women) and the Sub-Prefect;
- Organizing a report back session to present the guide’s outlines to members of the management committee.

## **Component 3: Strategic planning and knowledge management**



***Activity 3.1: The Communal Development Plan (PCD) is reviewed / updated in order to integrate climate change adaptation options & costs benefits.***

Dionewar Communal Development Plan (PCD) will be reviewed and updated to include risks and opportunities associated with long-term climate change and to make community investments more resilient. This revision will also allow incorporation of sustainable fisheries management measures. The different steps for this phase will include: (i) coordination of decision makers and the service provider team selected to revisit the local planning instrument; (ii) sharing tools for mainstreaming climate changes issues; (iii) climate changes vulnerability assessment and costs benefits of adaption options; (iv) revision and adoption of updated plan; (v) identify funding mechanisms for adaptation measures; and (vi) dissemination of revised Communal Development Plans.

***Activity 3.2: Preparation of a Local Convention to better regulate the use of forest products and the biological rest***

Activity 3.2 will allow updating and formalizing of existing rules on the use of forest products (timber and non-timber) and biological rest. To this end, a Local Convention will be prepared in order to promote environmentally appropriate, socially responsible and economically viable use of forests and fisheries resources.

Particular attention will be paid to social groups whose livelihoods may be affected by the application of such local regulations. On Dionewar Island, young people and women are the most involved in the use of forest products and fishing in areas targeted for the biological rest. Women usually collect from forest areas firewood and above all forest fruits that they consume or sell. These products help improve food security and the income they generate contribute immensely to the livelihoods of households (clothing, health and schooling expenditures, etc.). Furthermore, women and unemployed young people are involved in fishing and this activity also strengthens food security and provides them an income. These two social groups will then be given particular attention when implementing this activity, with regard to access and equity considerations. This will be done through the Implementation of environmental and social management actions: oversight and monitoring activities (effective application of alternatives measures proposed to these groups, e.g. inclusion in management committees, development of alternative income generation activities like apiculture, etc.).

The most relevant negotiating tools will be used in this regard. In particular, participatory mapping of resources will be an important part of this activity, with separate mapping by women and men, followed by each group reporting its findings and decisions in a plenary meeting for joint decision making. During these sessions, efforts will be made towards tackling the causes of the unsustainable practices.

In order to facilitate the enforcement of the new rules, the project will seek the commitments of communities, more specifically through engaging with those who rely mainly on activities that could be targeted by these new rules. The Municipality of Dionewar has already expressed its commitment to accompany the sustainability of the project in the surveillance of each implemented activity. Community leaders, elders and administrative authorities will be involved to help foster acceptance of new rules. In

addition, those who could be affected in terms of economic survival would be given priority in the development of alternative livelihoods, for example through the setting up of surveillance committees. As members of these committees, they may be supported by the project in developing beekeeping activities.

### ***Activity 3.3: Project's lessons learned documented and shared***

Through Activity 3.3, collaborative planning approaches developed will enable multiple stakeholders to share knowledge, develop awareness, improve learning and improve replication.

Activity 3.3 is designed to regularly collect and document lessons learned at each stage of the implementation and integrate these into planning processes and future activities. Through this activity, at least three general reports on lessons learnt will be produced — one every year which is shared regionally and nationally. The information packet will be translated into the appropriate formats and languages to allow dissemination through the community radios or television channels in the national languages. Particular emphasis will be put on strategies that led to improved adaptive capacities and considering gender specificities.

### ***Activity 3.4: Installation of a meteorological station at Dionewar***

A standard weather station will be installed in Dionewar in association with ANACIM<sup>22</sup> to collect climatic data on wind speed, temperature, pluviometry and hygrometry.

Development efforts in the municipality of Dionewar heavily depend on the primary sector, the different components of which (farming, breeding, fishing) are strongly exposed to climatic hazards. The installation of a weather station will thus allow providing producers with accurate and timely information, allowing them to better plan their activities with the view to reduce the negative impacts of climatic hazards. In addition, such data will help better inform the planning of local development which also relies largely on natural assets for a sustainable local development...

Furthermore, as on many islands, transportation to Dionewar is made only by sea, as well to import goods and basic commodities as for exporting local productions. This crossing of the sea exposes people and goods to hazards and recurring accidents, resulting in loss of goods and compromising the livelihoods of local communities. This is exacerbated by the lack of reliable climate information, primarily due to the absence of weather stations in the area of Dionewar. The nearest stations are located in Joal and Dioffior (25 kms from Dionewar) which are both too far away and may have different weather conditions altogether<sup>23</sup>. In fact, low tide crossing is impossible and many canoes find themselves grounded. The implementation of a weather station in the

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<sup>22</sup> Agence Nationale de l'Aviation Civile et de la Météorologie (*National Agency for Civil Aviation and Meteorology*)

<sup>23</sup> For an adequate rainfall data collection the perfect distance between meteorological stations is 5 km

municipality will allow Dionewar and neighboring islands to have accurate and timely climate information and allow producers and boatmen to have more specific knowledge of the weather conditions that affect their activities.

ANACIM<sup>24</sup> has developed, through its involvement in climate related project<sup>25</sup>, a strategy and an approach in order to make climate information accessible to local communities. This includes setting up local monitoring committees, training and sensitization of grassroots actors, using appropriate communication channels such as community radio... A similar strategy will be used with the same partner (ANACIM), building synergies with communication actions under Activity 3.3, organizational actions planned under Activity 1.2 and training and sensitization actions under Activities 1.3 and 3.2.

The type of station was chosen based on guidance from ANACIM and the station will be integrated to the network of this Agency, allowing it to expand its operation capacity. ANACIM will ensure the monitoring and the maintenance of the station beyond the project lifetime.

Activity 3.4 includes: i) buying a standard automatic meteorological station, ii) laying out the site where the station will be installed, iii) installing the station, iv) securing the station, and v) assuring the maintenance and the monitoring of the station.

## **B. Project economic, social and environmental benefits**

The project will generate economic, social and environmental benefits. It will bring and promote a set of innovations to help improve the livelihoods of the most vulnerable communities through the strengthening of sustainable production means, the use of revolving funds and the improvement of value chains (production, distribution and access to alternative markets). This will facilitate beneficiaries' climate resilience by providing options.

Social groups who can benefit from this project include:

- ***Fishermen and women oyster farmers and processors***: young men form the bulk of the workforce in fishing, oyster and Cymbium collection activities. They are grouped in the CLPA (Local Artisanal Fisheries Committee). The village of Dionewar has a fleet of 89 canoes, 12 of which have an average three-member crew (36 men) engaged in the oyster farming. They sell fresh fish products to women who are in charge of processing. Considering the technical innovations and training proposed, the project will involve (at the start) about one hundred men, including 75 young people.

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<sup>24</sup> National Civil Aviation and Meteorology Agency

<sup>25</sup> Climate Smart agriculture (Province of Kaffrine)

- **Women** are organized under the Federation of Local GIE (FELOGIE) which counts 510 members from around 25 groups who run a mutual savings and credit fund. Among these 510 women, 408 (80%) sell cockles (“pagne” in wolof) and the remaining 102 members (20%) are oyster farmers who also manage the processing unit. Apart from women members of the FELOGIE, others (over a hundred) are engaged in the sale of cockles. New production techniques introduced by the project will enable all these actors to increase the productivity of their activities, to maintain their income and to become more resilient to climate change. Building their capacity can also help improve the quality of their productions by increasing their value.
- **Women rice farmers**: the protection of rice plots from salinity will help boost production, reinforce food security and improve their incomes.

Project’s beneficiaries also include:

- **Community-based organizations**: the training (delivered by the project) will improve natural resource-management on the island while generating more income from the exploitation of non-timber forest products;
- **The State and local government units**: these two actors are the first ones to be called upon by populations whenever they face flooding or other hazards. Securing people and their goods through the protection structures will therefore reduce the level of stress, enabling them to dedicate their resources to other sectors.

The trees planted will help reduce wind erosion and increase populations’ income in the medium term. In addition to helping regulate flooding, the mangrove offers other opportunities in the socio-economic plan allowing the diversification of income (ecotourism, oyster production, seafood production, mangrove honey production, etc.).

**Table 3: Project’s benefits**

Benefit type	Baseline	At project completion
Social benefits	<ul style="list-style-type: none"> <li>- Rural exodus due to isolation, scarcity of fish stocks and lack of income-generating activities</li> <li>- Poor response capacities</li> <li>- Lack of mechanisms for disseminating proven strategies to adapt to risks</li> <li>- High exposure to hazards</li> </ul>	<ul style="list-style-type: none"> <li>- Aquaculture development</li> <li>- New capacities acquired by populations on coastal protection and aquaculture</li> <li>- Improved food security</li> <li>- Leverage on lessons learnt on coastal management and adaptation to climate change</li> <li>- Decline in rural exodus</li> </ul>

Benefit type	Baseline	At project completion
Economic benefits	<ul style="list-style-type: none"> <li>- Housing and infrastructures threatened</li> <li>- Low cost-effectiveness of investments in the main productive sectors</li> <li>- Continuous decline in populations' revenue</li> </ul>	<ul style="list-style-type: none"> <li>- Improved revenue particularly of women,</li> <li>- Revival of the economic activity</li> <li>- Securing investments</li> </ul>
Environmental benefits	<ul style="list-style-type: none"> <li>- Degradation of the mangrove</li> <li>- Degradation of the vegetation</li> <li>- Land salinization</li> </ul>	<ul style="list-style-type: none"> <li>- Replanting the vegetation</li> <li>- Protection of rice fields against salinity</li> </ul>

**Table 4: Project's economic benefits**

Activity	Benefit (\$USD)						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<i><b>Fish and oyster farming</b></i>	0	387,164	387,164	774,327	774,327	774,327	1,161,491
<i><b>Reforestation (mangrove, coconut and palm oil trees)</b></i>	0	0	0	0	8,990	8,990	17,980
<i><b>Dikes</b></i>	0	1,699	1,699	1,699	228,650	228,650	245,638
<i><b>Rice-growing</b></i>	0	27,605	27,605	55,209	82,814	82,814	110,418

Equitable access to assets financed by the project is a core principle of this project. All members of the women's grouping will benefit from these assets. The assets will not be allocated on an individual basis, but they will be shared and used in rotation. All of the women will be trained on feeding and maintenance techniques. Backed by the technical staff from ANA, they will undertake feeding and maintenance tasks in turns. When they harvest and market the products, part of the revenues will be used to purchase fish feed and another part will go to the grouping fund. This fund could be used through the grouping's central purchasing in order to extend the shop or to provide loans to its members (revolving fund).

### **C. Cost-effectiveness of the proposed project**

For the design of this project, cost-effectiveness is embedded into the Adaptation Full Cost Approach. This approach makes a distinction between costs directly related to the country's economic development (investment for business as usual), and those relating

to the implementation of concrete adaptation measures. While the investment allows the Government of Senegal to improve socioeconomic conditions in the area, AF funds are focused on financing adaptation-related activities. The project will focus on the combination of adaptation options based on communities and ecosystems to better address the specific priorities of local populations. The emphasis is laid on new coastal protection measures that are cheap and more environmentally friendly.

The approach used helps avoid duplication, and, moreover, due to a joint use of means for cost-shared staff payment, it allows significant reduction in project management and coordination costs. There are currently several initiatives, with among other objectives, the improved resilience and improvement of sustainable livelihoods and populations in these areas. They are driven by technical services with human resources whose experience and expertise will be a definite asset for the project. This also implicates, for example, shellfish collection and growth techniques already experienced in Missirah, Sandicolu Betenty and with the help of the FAO, PISA Programme, ENDA, IRD and ANA. These achievements will be enhanced to fully use the project resources. Oyster GIEs in Joal and Sokone produce, transport and sell fresh oysters in Dakar (Almadies), in addition to orders placed by hotels in the Saloum islands and the Petite Côte. Export opportunities to Africa, Asia and Europe exist, but oyster production remains very low to meet demand. In regards to fish farming, there are still no fish farms in Dionewar, however there has been a success story in Senghor Valley in Sokone where the population showed great interest in fish farming because of their concern over declining fish stocks. The majority of these families depend on fishery resources.

Local stakeholders also benefit from the support of several Non-Governmental Organizations (NGOs) and other multilateral organizations and cooperation agencies across various areas. The project "Women's Entrepreneurship and adaptation" launched by the COLLEGIA Groupe, CEGEP de la Gaspésie des Iles (Quebec-Canada) supported the women from Dionewar village in fish processing by providing the processing unit, which is also serving for storage and office space. They have also organized training in accounting, financial management and organizational development. This project will consolidate these gains by allowing women processors to master new production techniques that will generate added value. In addition, this project will build protective infrastructure, which in turn will be used to secure the facilities established under the COLLEGIA project.

In regards to the project's realizations, several options have been examined through feasibility studies and public consultations, allowing identifying the most appropriate ones for protecting the population against hazards and strengthening their livelihoods.

As regards the rehabilitation of dikes, three options have been considered, including an earthen dike, a work with recessed gabions, or a dike made up of reinforced concrete plates with a spillway. This latter was found to be the best solution for the three sites of Ndiar, Ndioundiouré and Ecole 2, considering the difficulties to apply other systems. Plates can be made at the local level without using a gear, in addition to the basic material (i.e. sand) that may be found on site or near the village. Carriage of other materials, such as cement, iron, etc., can be done by pirogue without much difficulty. The details of each option can be found in the feasibility study. Through interviews with beneficiaries, the choice meets their aspirations to have operational, solid, easy to maintain works that can be built using local materials and involving the populations in the implementation of the works.

With regard to tree planting, one option could be to close the forest area (called “mise en defens” in French) with the aim to allow reforestation through natural regeneration. This option would take a long time and even difficult to implement, given the state of degradation and the level of anthropisation. The second option was tree replanting combined with the setup of management committees, the development of local conventions and the implementation of awareness raising activities. This option was chosen because it is technically simple, socially acceptable and has a potential to generate incomes and food in within a shorter timeframe.

In respect of the development of fish farming, the no-project scenario is characterized by the decline of fisheries resources, the number of constraints affecting the fishery sector and the decrease of revenues. With the project’s intervention, two options have been analyzed by the ANA. The first one, based on the installation of fish ponds, has many advantages, but also serious drawbacks of which its high investment cost and a more complex technology when the breeding density increases and requires artificial feeding. The second option, based on floating cages has also some disadvantages, but low implementation costs, a faster growth of fish due to better water quality, a higher fish production and it is easy to move or relocate. This option 2 has therefore been chosen.

When it comes to oyster farming, the no-project scenario is characterized by low productive techniques which in turn, contribute to the degradation of the mangrove stands because most oyster farmers cut the mangrove roots and branches. With the project intervention, the technique considered has been already used for several years in similar conditions (in Fatick and Ziguinchor) with significant results. It will allow generating approximately USD 65,000 for an initial investment estimated at USD 21,000.

As for the installation of a weather station, the no-project option would result in a lack of reliable and timely climate data that is needed by producers for their activities and by decision makers for planning purposes. With the project resources, these constraints will be addressed, allow to better informing decision making at all level of local development.

The populations of Dionewar will contribute to the realization and the maintenance of infrastructures under activities 2.1, 2.2 and 2.3 in terms of human investment (labor force). This will optimize the project's financial resources.

CSE's administrative and financial management procedures, especially those related to procurement, contribute to cost-effectiveness. Goods and services procurements should be made on a competitive basis between service providers.

#### **D. Project consistency with national or sub-national sustainable development strategies**

The project concerns are consistent with the Communal Development Plan (PCD) and the Local Plan of Action for the Environment (PLAE) in the commune of Dionewar. These plans are based on the increased revenues with the introduction of technical innovations, the management of fisheries and development of fishery products. These plans also underscore the achievements for the protection and preservation of the village with focus on the mangrove. One of the priority actions of the PLAE of Dionewar relates to the construction and rehabilitation of dikes fighting against coastal erosion and its consequences. The PCD of Dionewar also prioritized the capacity-building of the population on dike construction techniques to address coastal erosion and saline water intrusion. In the Priority Action Programme (PAP) of this PCD, actions considered for the Axis "Environment, Natural Resources Management and Living Environment" include the realization of dikes against coastal erosion, salinity and tree planting (including fruit-trees).

The project objectives are also in line with the strategic objectives of the 2013-2017 National Strategy for Economic and Social Development (SNDES in French) in terms of employment promotion and integrated development of the rural economy. With respect to the second component, the project will help diversify the production, reduce the vulnerability of agricultural activities and improve production and productivity of fisheries which are addressed in the SNDES (2013-2017). Through Component 1, the project is consistent with the objectives of Policy Statement of the Fisheries and Aquaculture (LPS-PA) Sectors, which aim (among other) to improve the development of inland fisheries and aquaculture.



The implementation of protective measures will contribute to the Priority Axis n°2 (“Human Capital, Social Protection and Sustainable Development”) of the Strategic Plan for Senegal’s Emergence (PSE). The PSE, which is currently the main development strategic framework, emphasized the improvement of living environments through flood control inter alia, but also on the prevention and management of risks and disasters, mainly in coastal zones. The revival of the main productive sectors and the promotion of local adaptation strategies will contribute to the Priority Axis 1 (“Structural Transformation of the Economy and Growth”) of the PSE, and more specifically to the programme on “agriculture, livestock farming, fish and seafood products and agrifood”: targeted actions through a programme aim to implement integrated approaches to develop value chains and sector structuring. Aquaculture is one of the six priority areas and 27 flagship projects that can help to drive Senegal towards economic and social emergence.

The project takes into account the objectives of the “2013-2017 Five-year Agricultural Programme” (PAQ in French), which aims to ensure food security and improve rural living conditions by creating conditions that compel rural populations to stay. The PAQ is structured around five major pillars including “the issue of farmlands”, which this project is looking to protect and preserve.

The project reflects the priorities defined in the National Adaptation Plan of Action (NAPA) to Climate Change which considers that the main environmental concerns (flooding, coastal erosion, water and soil salinization, mangrove degradation and variations of fish stocks) affecting Senegal’s coasts, which are directly related to climate factors. The NAPA thus includes a priority programme (Programme 3: “Protection of the littoral”) dedicated to coastal protection, reforestation, the construction of protective structures and training/information among the adaptation options selected.

Activities under this project will contribute to the overall objectives No 1 (maintain existing natural and archaeological heritage and restore degraded areas) and especially No. 3 (promote eco-development activities for populations in the RBDS) of the Integrated Management Plan of the Saloum Delta Biosphere Reserve. Expected results of this management plan include: "strengthening conservation and management measures of the RBDS areas", "mitigating natural factors of environmental degradation (drought, salinity)", "strengthening organizational and mobilization capacities of village communities and local institutions" and "improving the living conditions of local populations through the implementation of income-generating projects".

The project intervention area is located within the marine protected area of Sangomar which is also part of the Central core of the RBDS. The management plan of this Sangomar MPA has identified following priority actions:

- the rehabilitation of at least two protection dikes;
- the reforestation of mangrove and other species;
- the implementation of oyster farms (at least two per year);
- the organization of awareness campaign for each socio-professional category;
- technical, material, organizational and financial capacity building activities for local actors;
- the implementation of fish farms.

Hence, almost all of the project's activities contribute to the implementation of this Management Plan.

## **E. Project alignment with relevant national technical standards**

The project activities are in compliance with the spirit of the Coastal Act, particularly 'the maintenance of environmental balances, fight against coastal erosion, preserving site integrity, sea landscapes and heritage'. Component 2 will be implemented in the spirit of the text.

The project also ensures adherence with the provisions of the Environmental Code, especially Chapter V where Section L48 stipulates that "any development project or activity likely to harm the environment as well as policies, plans, programmes, regional and sectoral studies should be subject to an environmental review" that is why the environmental and social impact studies will be an important part of component 2.

The project will also comply with requirements of the National Strategy for Gender Equality (SNEEG 2005-2015) which aims: "(i) to build an institutional, sociocultural, legal and economic environment enabling the achievement of gender equality in Senegal; (ii) and effective gender mainstreaming in development interventions across the sectors. All project components will comply with these principles in their implementation.

The project will observe the provisions of the Fisheries Code, especially regulations on quality control of fish products. The production and processing of fish products are regulated by the Fisheries Code, Title 5 of which regulates the quality of fish products from installation and operation of fish processing units, to exportation and quality control of fish products. However, there is no regulatory text regarding quality and safety standards. Fish product exporters and the Fishery Department use, as reference, the European Commission regulatory framework in this regard to fill the gaps of the national legislation since nearly 60% of the fish products are exported to Europe. These include 93-48 Guidelines on the safety and quality standards of the food industry and the 178-2002 Regulation on the concept of traceability.

These texts set production techniques, conservation, packaging, storage, import of fish products produced in Senegal. The Guidelines require a health certificate certifying that the products:

- 1) were caught and handled on board in accordance with established rules of hygiene;
- 2) were landed, handled and (where appropriate) packaged, prepared, processed, frozen, thawed and stored hygienically. In regards to fish products, they must have been slaughtered under appropriate hygienic conditions. The products must not be soiled with earth, slime or feces;
- 3) have undergone a health check;
- 4) are packaged, marked, stored and transported during all stages of production, storage and transportation;
- 5) do not come from toxic species or contain biotoxins;
- 6) respect the organoleptic, parasitological, chemical (check the presence of heavy metals and organohalogen substances) and microbiological criteria.

Packaging must be carried out in conditions of hygiene, to avoid product contamination. Regarding the storage and transport conditions, fish products, thawed or cooked should be maintained at the temperature of melting ice. Processed products must be kept at the temperatures specified by the manufacturer or, if required, established under the procedure regulated in the Directive.

Component 1 under the project seeks, among other things, to help women processors comply with the standard defined under this Code and these Directives.

The installation of a weather station has to be done according to regulatory measures and directives from the World Meteorological Organization (WMO). In regards to the standards of coverage, the horizontal resolution required according to the standards of the WMO ranges from 10, 50 to 100 km based on the meteorological data to be collected. The installation of the station under this project (Component 3, Activity 3.4) respects these standards and even contributes to reduce the deficit of cover in the zone, because there is no meteorological station in the entire island.

## **F. Describe if there is duplication of project / programme with other funding sources, if any**

The project will strive to avoid potential duplication with other funding sources for similar activities. The design of the project activities is based on complementarity and additionally with existing projects and programmes under development. This will be the case namely with the PAPIL (Support to Local Small scale Irrigation project) operating

in the Saloum Islands mainly in the neighbouring islands of Djirnda and Niodior for the construction of protection dikes and mangrove reforestation. This project will cover the Dionewar Island that was not covered by the PAPIL project.

The table below shows the initiatives that took place in Dionewar in past years.

**Table 5: Recent initiatives in Dionewar**

Sectors/Activities	Main partners
Natural resource conservation activities (reforestation, wood village, development of local convention for the sustainable management of natural resources, distribution of improved stoves)	WAAME, EVE, WULA NAFA, PRECEMA, PERACOD
Literacy	WAAME, UICN/FEM
Youth group support	EFA
Support for the certification of fishery products and the enhancement of seafood value	EFA, ADF
Construction and central purchasing unit	ADF, AFD
Sanitation: construction of latrines, provision of donkeys and carts for garbage collection, donation of incinerator)	WAAME, UICN/FEM, PNDL, ADAFYUNGAR
Support for the promotion of income generating activities (henhouse construction, processing units, oyster farming, market gardening, recycling seafood, revolving credit)	AFDS, EFA, PNDL, PAPEC, ENDA/GRAF, UICN/FEM
Support for the fisheries sector (wharf construction, endowment of life jackets, motorized pirogues)	PNDL, ENDA/GRAF, EVE, ADAFYUNGAR, UICN/FEM
Fight against floods and tides (construction of protective dikes)	AFD
Health (Construction and equipping dental office , salt iodization, nutrition)	PNDL, CHILDFUND
Education (Construction / rehabilitation of classrooms)	Beau bois, Mérignak, PNDL
Local Development : ((Support for the development of PLH of the CR))	PRODDEL, PNDL
Access to drinking water (well drilling)	AFDS, UICN/FEM
Agriculture (Development of anti-salt dikes for rice growing)	UICN/FEM
Capacity building in the areas of PFNL, processing, fishery	EVE, PERACOD, ADF,

Sectors/Activities	Main partners
products, administrative and financial management, etc.)...	ENDA/GRAF, EFA, UICN/FEM

IUCN/GEF and PNDL appear to be the most active partners on Dionewar islands over the past years, with a wide range of activities: rice growing, mangrove regeneration, sanitation, income generating activities, capacity building, fisheries, health, local development. AFD, EFA, WAAME and EVE have also shown a significant presence on the island, with a particular focus on capacity building, sanitation and development of income generating activities.

Initiated by the COLLEGIA Group, CEGEP de la Gaspésie des Iles (Quebec-Canada), the “Women Entrepreneurship and Adaptation” project has been instrumental for fighting against poverty in communities affected by climate change. It was funded (CAD 3,5 million) mainly by the Canadian International development Agency (CIDA) It supported women in the villages of Dionewar, Falia and Niodior in processing fish products by providing them facilities for processing, storage and offices. Completed in 2015, its main achievements include:

- the development of fishery products processing and drying areas;
- the building of warehouses;
- the building of an office and a meeting room;
- the provision of small equipment for fishery products processing;
- training on fishery products processing techniques;
- a training on entrepreneurship and administrative and financial management;
- the development of an action plan towards the development of ecotourism;
- the creation of women’s’ cooperatives.

The project “Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar)” will build on these achievements, mainly with regard to oyster processing and marketing, mangrove replanting and entrepreneurship. It will also consolidate these gains by helping women processors to control new processing and conservation techniques that will generate added value.

The project design has also been informed by The GEF and World Bank project “Integrated Marine and Coastal Resource Management” which aimed at promoting a sustainable management of coastal and marine resources through:

- an ecosystem approach to conservation;
- involving local communities and resource users, including building on local knowledge;

- strengthening local and national institutional capacity to address environmental issues;
- strengthening inter-institutional, and multiple stakeholder forums;
- and strengthening regional networks for conservation and sustainable use of marine biodiversity.

On a smaller scale, lessons drawn from this project have served especially in designing the components 1 and 3. The territorial user rights fisheries (TURF) agreements approach has been explored for the design of Activity 1.4 (Fish and oyster farms management plan developed).

The French Development Agency (AFD) has been the main donor for a first rehabilitation of the dikes in order to protect the populations against flooding. The project “Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar)” will consolidate further this action, in response to a pressing need of the population of Dionewar. Indeed, a junction between the sea and the inlets might result in the disappearance of the village.

## **G. Description of the learning and knowledge management component to capture and disseminate lessons learned**

It is important to document and share the lessons learnt from positive experiences resulting from the achievement of the project objectives or the negative ones resulting from these failures. This information is a huge potential to bring crucial knowledge to the design and implementation of strategies enhancing resilience to climate change. To make sure that throughout the project steps, lessons are documented and shared; documentation of lessons learnt will be included in the monitoring-evaluation process. Such approach helps ensure that the project can be reviewed at each stage and the lessons learnt and best practices can be valued in planning the next steps. It also helps record knowledge and enters them into a common reservoir where they can be shared with other stakeholders of the Senegalese coastline and the sub-region.

The process will comprise four major steps:

1. Make an inventory of knowledge: the project managers and the Monitoring-Evaluation Team will collect information through structured or non-structured approaches (interviews and observations) by filling out “lessons learnt” cards.
2. Check and summary: the project managers check the accuracy and applicability of knowledge gained in relation with the Monitoring-Evaluation officer. The reports are then forwarded to the project coordinator who will ask experts to determine whether a lesson is specific to a particular component of the project, the entire project or the projects in general.
3. Reporting: the project coordinator will then produce a general report on the lessons learnt for the period under review.

4. Dissemination: the coordinator distributes the report internally (to the steering committee, the project managers and members of the project team) and externally (on the project website and other electronic forums). By the end of the project, a lessons-learning document will be prepared and published.

The project will work with other projects and programmes to disseminate the information with cost-effectiveness.

The achievements planned under the project, mainly with the introduction of technical innovations in the fishing sector through the involvement of the National Aquaculture Agency (ANA) and the replenishment of local essences could then be capitalized and shared with other islands in the Saloum Estuary. This experience can be extended in villages located in Lower Casamance, which have a similar landscape and are also faced with deteriorating living conditions resulting from the depletion of fish stocks, poor environment with aggression of the mangrove and farmland salinization.

Component 3 of the project is designed to document and share all lessons learnt as well as the adaptation strategies identified.

The knowledge management process will be linked to the Monitoring and Evaluation process in order to allow lessons learned to constantly feed into the planning strategy.

## **H. Description of consultative process**

The project itself results from a forum organized on Dionewar Island in May 2009, focusing on its economic and social development and the constraints and adverse effects posed by climate change. This forum gathered the natives of the island, residents and those coming from other cities of Senegal, and even Gambia. This forum was the place to carry out a diagnosis and analysis of key sectors (health, water supply, economic activities, education, environment, sport and culture) and to come up with solutions. An important outcome of this forum has been an action plan, including major issues and possible remedial activities. These activities were later prioritized by the Association for the Development of Dionewar (ADD), leading to a bank of projects. Combining the “environmental management” and the “social” components, the ADD developed this project idea.

The selection of the project idea was also made through a consultative process at national level. In consultation with the Designated Authority and the National Committee for Climate change (COMNACC), it was agreed to issue an open call for proposals at national level in order to identify the second proposal to submit from Senegal to the Adaptation Fund. The rationale for such decision was to ensure fairness, transparency and competitiveness. An evaluation committee was then set up, co-chaired by the designated authority and the Chair of the COMNACC. This committee included

representatives from various sectors: agriculture, environment, livestock, fisheries, universities, etc. This process led to the selection of this project idea submitted by CONAF-ADD (National Committee for Literacy and Training and Association for the Development of Dionewar) on behalf of communities in Dionewar.

After this selection, many working sessions were organized with the project initiators to further discuss the issues, objectives, outcomes, etc.

Several consultations were also organized at different stages, at various levels and with other categories of stakeholders: project sponsors, local elected representatives, women oyster farmers and processors, women rice farmers, fishermen, the civil society, technical services, communities, customary and religious authorities, etc. These consultations have ensured that their concerns and opinions about the project are captured and taken into account in the design of activities.

In the framework of the environmental and social impact assessment, consultation sessions were also organized with beneficiaries, administrative and local authorities and other stakeholders, in the villages of Dionewar, in the arrondissement of Niodior, but also in the Department of Foundiougne and the Region of Fatick. Thus, several meetings with beneficiaries were organized, while administrative officials (prefect), municipal councilors and devolved state services were consulted through meetings restricted to officials. The community of Dionewar has also been met as part of a forum, which brought together all social classes of the island including the project proponents. These consultations have been extended to other projects and programs whose scopes of work cover the issues addressed in the project “Reducing vulnerability and increasing resilience of coastal communities in the Saloum islands (Dionewar)”. (List of persons and institutions met in annex).

Key points raised during these consultations include:

- the vulnerability of the village to climate change: Dionewar is under threat of a junction between the inlets and the sea because of its location. The village is faced with regular floods, sea encroachment and coastal erosion. The means to tackle such hazards are out of populations’ reach. Hence, local authorities see the project a godsend, mainly in its objective to rehabilitate the dikes. This is an urgent need for the whole community;
- the importance of non-wooded forest products (fruits) for the local economy: the exploitation of the *Detarium senegalensis* provide significant income for the village (up to USD 6,000 per year). *These resources allowed restoring the mosque of Dionewar with up to USD 20,000* according to one of the COGER



members. *Therefore, the reforestation of coconut and oil palm trees is welcome, because currently dead trees are not replaced.*

- the dynamism of the FELOGIE female members (pointed out by the Sub-Prefect), particularly those engaged in the processing of fishery products. Women are very active in the processing of fishery products and the project will enable them to better adapt to climate change, according to the head of the fisheries Department of Foundiougne;
- Women are a good lever for this project: most of the activities planned through the project are covered by FELOGIE: the processing of fishery products and forest fruits, the reforestation of casuarinas and coconut trees in 2003 and mangrove planting almost every year in August, the farming of oyster even if their first experience was not successful.
- the decline in marine fisheries capture confirmed by the head of regional and departmental fishing services met. Fish farming and aquaculture activities planned by the project are in line with the fishing policy developed at national level to reduce the pressure on resources and to restore marine ecosystems. The potential for aquaculture in Dionewar is quite important;
- Rice cultivation helps improve people's income and allows reconversion and diversification of local activities, because oyster farming is becoming more and more challenging. 40 years ago, the village was self-sufficient in rice. However, rice fields are abandoned due to increasing of salinity and decreasing rainfall. In 2015, FELOGIE piloted a project funded by the GEF (Global Environment Facility) to revitalize rice cultivation on Djimsane Island with the construction of an anti-salt dike.

The main recommendations made by the different stakeholders can be summarized as follow:

- the need for a strong involvement of community and the authorities (local and administrative) at all stages;
- the importance of having a steering committee for the monitoring and maintenance of the realizations, in order to ensure their sustainability;
- Their wish to see the *Detarium senegalensis* included in the species to be used for reforestation;
- The need to have access ramps built for canoes if the dike at the village entrance is rehabilitated (ocean side);
- The importance to think about the development of alternative source of energy or promote energy efficiency (e.g. improved stoves) in order to reduce the pressure on mangrove stands. The Municipality has a population of about 15,000 inhabitants with approximately 700 households that only use mangrove wood as firewood, representing thus a strong pressure on mangroves;

- Build synergies with the Directorate of Marine Protected areas, as part of the Sangomar marine protected area (MPA) also includes Dionewar. The newly created MPA of Sangomar has developed a management and action plan which activities are in line with those planned under this project. In this context, the establishment of a partnership with the MPA of Sangomar is necessary to share resources and strategies, particularly with respect to dike rehabilitation, reforestation, agroforestry development, development of income-generating activities, etc.;
- Involve municipal councilors and community-based organizations (CBOs) in the training and technical capacity building component;
- Establish a participatory monitoring and evaluation mechanism to ensure the project sustainability;
- The importance of monitoring reforested sites. With JAD (Active Youth of Dionewar) association, “several reforestation actions of casuarinas, coconut trees and eucalyptus have been carried out, but the problem is that there has been no follow-up, thus most of the plants are dead”;
- The need to develop reception sites in Djimsane to actually boost rice cultivation on this island. “Before, when rice cultivation was performed in Djimsane, there were huts available there and people returned to Dionewar only once a week for a day on average. They used to stay there the whole season (about 90 days);
- The need to make available freshwater issue in Djimsane, as there is no well.

All the information that came through these discussions has been carefully noted and the numerous questions answered. It has been explained that the project has a limited budget and could not offer a solution to all the needs expressed.



**Figure 12: Meeting with the project's proponents**



**Figure 13: Meeting with representatives of the women's groups**

Later on, field missions were organized to firstly identify aquaculture potentials in the Dionewar village and then explore the sites expected to host the aquaculture

infrastructures. This also allowed to better investigating the relevancy of protection measures considered in the project. Some of these missions included two civil engineers and a resource-person who has a breadth of experience in coastal management. The technical design and cost-related aspects of these measures were discussed extensively.

The outcomes of such meetings and visits were captured in the design and planning of the project activities. For instance, the initial option for tree planting (Activity 1.2) was to do this in forest areas using species such as coconut trees, palm trees, etc. For rehabilitating dikes (Activity 2.1), to help address flooding, the populations suggested an extension of one (of two dikes) to ensure optimum efficiency. Discussions on this topic took place between the populations and experts (civil engineers), which resulted in an understanding that to make this extension feasible (within the planned budget), the populations will provide the workforce, while the project provides the input and technical backing. The populations also suggested raising the height of the dikes and to include spillways, allowing for better control of the flow of rainwater and seawater. All these concerns have been taken into account, leading to revising the initial budget planned for this activity.

This was successful in securing strong support from these stakeholders, as exemplified by a letter to from the Mayor of Dionewar clearly expressing willingness to participate in the proposed activities.

## **I. Justification for funding requested, focusing on the full cost of adaptation reasoning.**

The budget of 1,351,000 US requested from the Adaptation Fund with this project (Adaptation Alternative) is to finance concrete adaptation activities, in response to the vulnerability of the productive ecosystems, the communities and infrastructures in the municipality of Dionewar. It is both a conjectural and structural approach, because aside from solving current problems, which arise with severity, the adaptation options will be mainstreamed into the planning document of Dionewar.

While the protection of Senegal's coast is considered a priority by the current strategies of fight against climate change (Baseline scenario), it has received relatively little financial backing. What is happening in Dionewar weighs heavily on the sustainability and safety of people's livelihoods, and is a major concern for both local and national authorities.

The cost effective use of resources solicited through the project's various components will help reduce constraints and obstacles and build assets to make main productive ecosystems resilient to climate and natural risks.

Direct benefits generated for beneficiaries include an effective reduction of flood losses for 451 households, an increase in incomes for more than 500 persons (most of whom are women), an increase of the resilience and productivity of 6 ha of dry land ecosystem, 5 ha of mangrove, and an increase of awareness of local decision-makers on climate issues.

Ultimately, the Adaptation Fund resources will generate significant benefits at different levels and for various actors, thereby justifying investments made.

### **Baseline (Without project)**

Under the baseline scenario, the fight against climate change's adverse effects in Senegal is essentially made through the programmatic framework of the NAPA in which a number of priority projects are defined. For Senegal, an estimated<sup>26</sup> 700 km of coast (with a total cost USD 1,596 million) were deemed in need of protection. These costs were revalued at USD 3,623 million, which is 1.72 % of the GDP's annual cost. Finally, this study estimated 20,600 ha of coastal ecosystems were at risk of becoming salty swamps; 104,100 ha of intertidal zones and 364,300 ha of mangrove swamps. In this scenario, the protection of the coast is certainly a national priority, but due to scarce financial resources, the interventions of the Government of Senegal are limited. Most of these interventions take the form of emergency measures and consist mainly of physical barriers allowing to protecting important human establishments and infrastructures. However, this protection approach integrates "no adaptation" options, which means that in most zones productivity of the surrounding marine and coastalecosystems keep declining.

Under the same baseline scenario, specifically in the Saloum estuary, Senegal's Government assures the fight against coastal erosion through the management plan of the Delta of the Saloum Biosphere Reserve (RBDS in French acronym). The reach of the interventions in this framework is also strongly limited by the low financial resources, the main part of which is firstly directed to the preservation of the biodiversity. The questions of adaptation to climatic changes and variabilities are marginally addressed.

More specifically at the level of the municipality of Dionewar, the Communal Development Plan (PCD in French acronym) and the Local Environmental Action Plan (PLAE in French acronym) are respectively reference frameworks for the socioeconomic development and for the sustainable management of natural resources. In none of these strategic planning documents, the question of adaptation to climate change is considered. The social and economic development activities, as well as those of the environment's sustainable management are typically the ones proposed. This explains why the municipality's populations have difficulties understanding the

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<sup>26</sup> Banque Mondiale, 2005. *Gestion des risques en milieu rural au Sénégal : revue multisectorielle des initiatives en matière de réduction de la vulnérabilité*, 2005.

underlying causes of climatic variations, even though they are directly affected. Most of the time, this leads to populations seeking to adopt solutions with a limited reach.

The baseline specific scenarios of the three components of the project are pulled from the preceding analysis:

### **Component 1: Enhancing resilience for productive ecosystems in Dionewar Island**

Populations in the Saloum Islands derive most of their sustainable livelihoods from fishing, agriculture and exploitation of forest products. With the rising sea level and the deterioration of weather conditions (rainfall and temperatures), these populations are vulnerable to several hazards, such as farmland salinization and mangrove regression due to silting and salinity.

Populations have taken many initiatives to cope with these disruptions, namely the construction of rudimentary protection dike, the establishment of natural resource management committees, etc. The Senegalese State has also assisted populations several times during serious flooding that caused the breakdown of the protection dikes.

Among the initiatives implemented in the project area, we can include the financing of a fish processing unit and forest products processing unit given to the GIE. These initiatives allowed the community of Dionewar to design quality products that meet food, health and safety standards. In the development of income-generating activities, a lot of projects carried out mangrove restoration and allowed restoration of natural mangrove ecosystems, such as shellfish and other fish products.

All these interventions, however, had mixed success and were limited in time for lack of financial resources and, particularly, technical resources needed to meet the challenges.

Mangrove reforestation requires a strategic choice of suitable species that are easy to transplant, but it also requires knowledge on the techniques for transport, storage and transplanting seedlings. The most suitable choice for transplanting is also a key element to increase the rate of success of reforestation activities. In terms of aquaculture, weaknesses in the organization and regulation of the operation compromise the resource sustainability.

### **Component 2: Protection against flooding, coastal erosion and salinization in Dionewar**

In Dionewar, populations are at high risk of frequent flooding during heavy rainfalls. These floods pose a constant threat to houses and socioeconomic infrastructures. The damage they cause weigh heavily on the already scarce financial resources of populations. In addition, in many parts the island is facing an advancing sea that is gradually encroaching onto the vegetation and farmland located on the shore, damaging the socioeconomic infrastructures and hindering mobility. Populations are powerless in

face of this situation, which requires large financial and technical resources. Financing initiatives conducted by organizations such as Social Development Fund Agency (in French acronym: AFDS), the French Facility for Global Environment (FFEM in French) and the National Program for Local Development (PNDL) have helped fight the recurrent floods in the village during the rainy season — events that cause considerable damage and threaten the village’s very existence. These initiatives have contributed to the erection of protective dikes.

### **Component 3: Strategic Planning and knowledge management**

None of the Communal Development Plans (PCD) in Dionewar includes strategies, activities and/or options that tackle future climate change. As it appears, when preparing these plans, the council did not have the information nor the tools needed to integrate climate change concerns. Therefore, support for mainstreaming climate change within PDC is needed.

Furthermore, communities are well-organized through existing community groups, but there no local convention exists for the regulation of natural resources use. There is no specific climate data on Dionewar available.

Finally, the interventions of various stakeholders to address the adverse effects of climate change generate useful knowledge, but these are rarely documented or shared. In addition, these interventions rarely provide for sustainability measures. Very often, lessons learnt from the implementation of these interventions are lost at project completion.

#### **Adaptation alternative (With project)**

Under the adaptation alternative scenario proposed with this project, solutions to reduce the vulnerability of the municipality of Dionewar will be implemented. It is about protective measures of the human establishments and about building infrastructures against the floods and the salinization of lands, including measures to strengthen the resilience of the estuary’s ecosystems and measures to strengthen the resilience of the community at the systemic level (mainstreaming of the adaptation in the PDL and the PLAE), at the organizational level (adoption of local convention) and at the individual level (training of the members of the GPF on alternative modes of production). It is about concrete measures of adaptation; on ecosystem basis and on community basis.

Ecosystem-based adaptation measures are about strengthening the resilience of the main estuary’s ecosystems to improve their ecological function and their capacity to supply services to the populations that depend on it. As such, reforestation of the mangrove with salt tolerant species is envisaged, as well as planting tree species in terrestrial forests.

Community-based adaptation aims to strengthen the adaptation capacities of the populations (in particular the women who are most vulnerable) so they can face the

negative effects of climate change by adopting alternative modes of production that maintain the production potential of the island's ecosystems. Thus, fish growing cages and cages for oyster farming will be implemented and women will be trained on how to exploit them. These activities will increase food availability and the population's incomes. This increase in financial capacity will enhance their ability to face climate change effects, as it will heavily and positively impact on the community's living conditions, including that of women.

Project resources will also help improve food security for approximately 5,600 persons through the support of alternative modes of production of rice, fish and seafood productions. These alternative modes of production aim at decreasing anthropic pressure on mangroves ecosystems, while contributing to an increase in seafood products. The planting of coconut and oil palm trees will contribute to diversifying and developing local productions which, in turn, will generate incomes for hundreds of people and reduce expenditures on food products.

Both the central and local governments will also draw concrete benefits from the project's investments, as the construction and rehabilitation of protection facilities will limit spending for emergencies, including flooding and tidal waves. This will allow not only securing government investments for equipment, but also mobilizing more resources for other priority sectors.

More specifically, adaptation alternatives to be implemented through the project components are as follows:

### **Component 1: Enhancing resilience for productive ecosystems in Dionewar Island**

The 'adaptation alternative' to be implemented through this project under Component 1 builds capacity 'on the ground', at the local level, to establish effective approaches and techniques which increase the resilience of vulnerable communities, and of value chains to climate change and climate variability. Component 1 is designed to enhance the resilience of key productive sectors on the Dionewar Island. It builds the capacity of local organizations to support real 'on the ground' impact in order to demonstrate the social and environmental benefits of climate change resilience in a range of local productions systems. Activities build on and partner with a number of important existing initiatives to support the 'additionality' of climate change adaptation in key value chains.

The project resources earmarked for this component (**USD 301,098**) will be used through the revitalization of fish and oyster farming activities, the replenishment of the vegetation, stakeholders' capacity building and product development. It is intended to supplement the former projects, which implemented population support and assistance

to provide them with a better living. Indeed, people have a fish processing unit and forest products processing unit operated by women, but they are often faced with two issues: firstly, the availability of fresh fish; and secondly, access to markets for selling processed products. The introduction of new production, processing and storage techniques will help generate added value for local productions. The project also seeks to organize beneficiaries around sustainable farming through local regulation and protection of vulnerable areas, as well as improved recovery. In addition to training the beneficiaries on innovative processing techniques and compliance with international standards in the food sector, the project will also set up income-generating activities, such as fish and oyster farming. Such activities fall in perfect cohesion with existing processing activities. They will allow fresh products to be obtained near processing units and meet necessary health and hygiene standards.

In the same context, the mangrove reforestation will revitalize the ecosystem. Reforestation of coconut and palm oil trees will also develop the sale of products from these species. Populations will acquire strong knowledge on the various techniques of selection, transport, storage and seedling transplantation, but also learn how to select sites for reforestation. Ultimately, the activities implemented under component 1 will make it possible to improve the sustainable livelihoods of communities and restore natural capital on the island. They will allow higher production of better quality goods and reduce pressure on resources currently used in collection situations.

## **Component 2: Protection against flooding, coastal erosion and salinization in Dionewar**

The project resources for component 2 (**USD 743,577**) will contribute to protecting, socioeconomic infrastructures (high-school, health centre, infrastructure and housing), the vegetation cover and croplands against water and salinity.

The dike built with funding from AFDS was realized in 2005 for an average lifespan of 10 years. Today the dike is in an advanced state of deterioration that exposes people to frequent breaks in the structure. The rehabilitation and extension of dikes by the project will provide security and a better living environment for the Dionewar population. The satellite island of Djimsane was an island where rice growing was once practiced, but due to saltwater intrusion this activity had been abandoned for over two decades. In 2014, the FFEM financed the construction of an earthen anti-salt dike to allow recovery on a part of the land - which the project will complete by developing ridges to facilitate cultivation and prevent water intrusion, and also provide equipment to farmers to boost rice-growing.



The living conditions of populations will be improved and sustainable livelihoods enhanced. People will be trained and involved in the construction of works. They will also be organized to perform simple maintenance tasks.

### **Component 3: Strategic planning and knowledge management**

With resources (**USD 82,196**) mobilized for component 3, the project will provide support for equitable and sustainable use of the project's access and sustainable use of natural resources. The Communal Development Plan will be updated to integrate climate changes options and cost benefits, and the local convention on the sustainable use of natural resources will be established. Lessons learned will also be shared to enable replication.

### **J. Sustainability of the project outcomes at the project design**

The first element to ensure the sustainability of the project's results was in the selection of the project idea itself. This was made through an open and competitive call for projects launched by the CSE. The present project was selected because it answers the population's urgent needs and assures the portorage of the project through a federation of community-based organizations (under which CONAF assures leadership). The first aspect to consider when it comes to sustainability is to ensure the project addresses needs that are expressed by the community.

In the same vein, the implementation of a local project management unit (PMU), based in Dionewar and led by natives of the community, is a sign of appropriation. This will help assure the sustainability of the project beyond its planned three year duration.

Additionally, during the process of negotiating a local convention for the sustainable management of natural resources, it is planned to strengthen the management of various existing financial community mechanisms. Several protection dikes were already built or reconstructed with funds from these mechanisms.

It is also worth noting that the municipality of Dionewar committed, for its next budget, to specifically allocate money to maintain and to protect dikes built by the project.

Moreover, various specific conventions that will be signed between the CSE and certain decentralized (CADL<sup>27</sup>) or specialized (ANA, ANACIM) government structures, aim at assuring technical support of the government to the project, which (as a last resort) assures the project's sustainability.

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<sup>27</sup> Local Development Support Center

Furthermore, the project's M&E system includes the development, at an early stage, of a sustainability/exit plan. This will be the main strategy to ensure the sustainability of the project's achievements.

Generally, the project will take an adaptation approach based on sustainable livelihoods by building the basis of human, natural, physical and financial assets. The human capital will be enhanced with improved access to knowledge and practical know-how. Component 1 includes capacity-building activities for recipients.

The Federation of Women's Promotion Groups (GPF) has a lot of experience in organization and management of common equipment, acquired through the intervention of various partners. They will be the main beneficiaries of activities implemented under Component 1 and will be responsible for sustaining the gains and profit sharing. Members of the GPF will be trained for optimal resource management. For equipment maintenance, an amount is paid in a bank account after each sale. Establishment of such mechanisms will be facilitated by women's experience through the management of mutual savings and a credit fund they created. In the past, these women developed their own community projects, such as building a school for the village or the introduction of a loan scheme to members who repay at a very low interest rate. In this way, they are gradually able to increase their capital.

Through their involvement in Component 2 activities, the population will also gain new capabilities for the maintenance of the realizations and, potentially, their extension.

While the natural capital is developed through adaptation measures based on ecosystems, such as reforestations, the physical capital is strengthened through coastal protection. All these capitals will contribute to enhance the financial asset of fishermen and women transformers contributing to improve the adaptive capacities both in households and the community. The combined effects of the three components will ensure the sustainability of outcomes in the long run.

## **K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.**

To avoid or reduce potentially negative impacts of the project activities, the potential risks have been identified and analyzed, in line the AF's Environmental and Social Policy as well as CSE's environmental and social policy.

### ***Risk analysis based on AF and CSE's requirements***

### *Compliance with the Law*

- Law N° 2001-01 of 15 January 2001 (Environment Code): to comply with this text with regard to environmental and social safeguarding, an ESIA has been undertaken
- Law n° 2013-10 of December 28, 2013 laying down the Local Government Code: when implementing activities relating to biological rest or local Convention, the deliberation of the municipal council will be requested, as well as the approval of the Sub-Prefect
- Law No. 97-17 of December 1st 1997 on Labor Code: Local steering committee and the CSE will ensure that the service providers abide by the relevant provisions of the Labor Code, namely Articles L145 and L146 (Titre X, Chapitre III) on child labor and Article 172 on individual protection measures (Titre XI).

CSE and the PMU will ensure that relevant local authorities (sub-prefect, municipality) be informed in written prior to the launch of all activities.

### *Access and equity*

Activities planned under the project are of community interest. As such, an effective participation of all actors and a fair access to the assets and benefits are important for a successful implementation.

To avoid conflicts related to the access to the project's assets and benefits (rice plots and related equipment, fish and oyster farms, natural resources management), the use of rice growing lands and equipment, the choice of beneficiaries of capacity building sessions and the selection of the members of the management committees will be done in a participatory way and in collaboration with local and traditional authorities.

### *Marginalized and vulnerable groups*

Culturally, Dionewar is a village well known for its social cohesion. All the activities in the village are regulated and organized by local committees, based on well observed traditional rules. This social setting helps prevent any kind of exclusion or marginalization. Therefore, there is no vulnerable or marginalized group in the sense of the definition given by the Principle 3 of the Adaptation Fund's Environmental and social Policy.

### *Human rights*

Senegal is not among countries cited in any Human Rights Council Special Procedures. Therefore, there is no relevant human rights issue to consider.

### *Gender Equality and Women's Empowerment*

Senegal has ratified several treaties and Conventions with regard to Gender. This includes the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) in 1985, the CEDAW optional protocol in 2000, and the protocol to the African Charter on Human and Peoples' Rights (ACHPR) in 2004.

At national level several mechanisms promoting women have been established: the parity law adopted on May 14, 2010; two national action plans for Women developed respectively in 1982 and 1997; the National Strategy for Gender Equality and Equity (SNEEG) which is an operational tool to mainstream Gender in policies and programs.

Thus, the Government of Senegal expresses a clear vision on issues related to gender equality and equity outlined as follows: "*Making Senegal an emerging country, without discrimination, where men and women will have equal chances to participate in its development and enjoy the benefits of its growth*".

On Dionewar islands, this vision is already reflected through the reality at local level: women are well known for their leadership in productive activities and local development initiatives. In the view to furthering this vision and this reality, women are involved in all project components. Several activities such as the collection of arches and oyster or processing of fish products are especially dedicated to them while they will get a quota to plant trees, such as oil palms or the *Detarium senegalensis*. In some components, such as processing of fish products, they will benefit from capacity building in dedicated techniques.

However, there is a risk that women may not be well represented in decision-making bodies (management committees, local steering committee, etc.). This is due mainly to traditional rules under which it can appear as disrespectful for women to take the floor before men in public audience. Therefore, women will be given a quota in all decision-making bodies. Furthermore, specific consultations will be organized with women for all decision making processes where they might be embarrassed to talk before men.

The environmental monitoring of the project will ensure compliance with these provisions.

### *Core labor rights*

Modalities for the project implementation eliminate constraint in its implementation. The populations freely organized consultations among themselves in order to identify the project idea as relevant for their economic and social development. For the same reason, they voluntarily decided to contribute to the project in terms of workforce. However, there are risks of accidents and mismanagement of working conditions. The CSE and the PMU will ensure that the company will provide all relevant protection equipment and will conduct awareness campaigns about these risks, including through the incorporation of such measure in the technical specifications.

As regards child labor, it may happen that teenagers over 15 years get involved in the community efforts during holidays for the less harmful activities (collection of dead wood pieces for example). However, their participation is not based on an employment as defined in the Senegal's Labor Code (Tire X, Chapitre III, Article L145 and L146). CSE and the PMU will ensure that children will not be hired for the project's activities and this measure will be included in the convention with executing entities and service providers. Moreover, payments to workers who will be employed will be made in strict compliance with the current national standards (Labor Code, Titre IX, Chapitre II, Section 1, Articles L114 to L117).

#### *Indigenous people*

The population of the Dionewar islands consists mainly of the same ethnic group (Serer Niominka) and two well-established social rules are respect and equity. Therefore, there is no risk related to indigenous people for this project.

#### *Involuntary Resettlement*

The project activities do not require any resettlement of people or goods. Indeed, the rehabilitation of the dikes will help protect houses and equipment against floods, allowing avoiding any displacement or relocation. Other activities (rice growing, reforestation, aquaculture, etc.) are planned in sites free of any occupation.

As regards the setup of local conventions (including the biological rest), livelihoods activities will be subject to temporary suspension at particular time of the year. Populations (young people and women) relying on such activities will face a momentary loss of access to targeted areas. These social groups will then be given particular attention through safeguard measures including the development of alternative income generation activities like bee-keeping.

#### *Protection of natural habitats*

The project is planning to rehabilitate natural habitats, namely the mangroves and the forests.

Component 2 of the project includes a “mangrove planting” component, which is a vital ecosystem in the reproduction and development of some fish and shellfish species. Mangroves are also a favorite habitat for arches and oysters, which will be used in the project. The tree planting activity is therefore crucial and timely, as the mangrove is facing salinity and deforestation degradation factors. Similarly, the planting of typical trees species on the Island such as oil palm, coconut tree or “ditakh” (*Detarium senegalensis*), will further contribute to restoring vegetation.

Most of dikes rehabilitation activities will not cause a reduction of terrestrial and aquatic habitats, as the infrastructures subject to rehabilitation already exist.

### *Conservation of Biological Diversity*

The project area of intervention, the Saloum Delta, has been classified as biosphere reserve (RBDS) since 1981 by UNESCO and as a site of international importance since 1984 by the RAMSAR Convention. This biosphere reserve covers an area of 334,000 ha.

The statutory framework defines the functions of the RBDS. Those functions are:

- conservation: contribute to the conservation of landscapes, ecosystems, species and genetic variation;
- development: encourage sustainable economic and human development in a socio-cultural and ecological way;
- logistical support: providing means for demonstration activities and environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development.

The central core of the RBDS is composed of five parts: three (03) marine protected areas, one community\_managed nature reserve and one national park):

- Marine Protected Area of Bamboung;
- Marine Protected Area of Gandoul;
- Marine Protected Area of of Sangomar that covers the project intervention area;
- Community-managed nature reserve of Palmarin;
- National Park of Saloum Delta.

According to the Convention on Biological Diversity, a Marine Protected Area (MPA) is defined as: “*any defined area within or adjacent to the marine environment, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings*”.

Priority actions identified in the management plan of the Sangomar MPA (Cf. Section B in Part II) are almost the same as those planned under this project. The creation of the MPA and the development of its management plan are done in full compliance with the

protection status of the RBDS. Therefore, the project's activities also comply with this status and do not present any threats for the environment.

### *Climate Change*

The insular nature of the project's area of intervention makes it particularly at risk of rising sea levels, one of the major consequences of climate change (increased temperature). Models that have taken into account the full range of the 35 scenarios forecast an average increase from 0.09 m to 0.88 m of the sea level between 1990 and 2100 (IPCC, 2001). In this context, the project will endeavour to reduce greenhouse gas emissions. This is reflected in the "tree planting" component that can contribute to carbon sequestration. At the same time, the development of rice fields will likely not cause logging, given the low rate of recovery on the site.

### *Pollution Prevention and Resource Efficiency*

Activities such as rice cultivation can be source of water and soil pollution, due to the use of fertilizers that will be thrown through drainage waters. The Environmental and Social Risk Management Plan suggests a development of plans that manage waste and drainage waters in order to mitigate site contamination. At the same time, the use of herbicides in rice cultivation will not be promoted.

Soil or water pollution can also be caused by accidental spill of oil used to power the concrete mixer during the rehabilitation of the dikes. These impacts are limited in time as the concrete mixer will be used only during the manufacturing of the reinforced concrete plates. To reduce the occurrence of this risk, a waterproof space will be created and a regular maintenance of the engine will be ensured.

Waste produced at each stage of the project may also generate pollution. Different types of waste are foreseen:

- Common (plastic and iron): packaging, ropes, used materials (PVC pipes), rubble, bags, iron rods, etc.;
- organic: fish, oyster and shell remains;
- vegetal waste: piece of wood, vegetal leftovers;
- chemical: used oils.

In order to manage this type of pollution, a waste management plan will be developed.

A poor control of the density of farm fish may result in the degradation of water quality and even water eutrophication in the long run. This could in turn lead to the depletion of wild fish populations. To mitigate this risk, regular controls will be made by ANA in order to monitor the water quality.

### *Public health*

Falls or drowning may occur during aquaculture activities (fish farming in particular) and transportation to the rice plots. To prevent this, the project will provide protective equipment (life jackets, lifelines) to the actors who will also be sensitized on such risks.

Dust emissions during the reprofiling works (using the concrete mixer), development of the rice plots and exploitation of shell mounds can be source of respiratory and/or eye diseases. In order to mitigate these risk, protective equipment will be provided to workers and sites will be watered regularly to prevent dust.

The presence of external workforce can be a cause of an outbreak of sexually transmitted diseases, including HIV/AIDS. During the awareness raising sessions, issues related to STD/HIV-AIDS will be covered.

### *Physical and cultural heritage*

The shell mounds are shell deposits resulting from human activities over the time. They are found in many islands of the Saloum Delta. On some of these islands, a high historical and archaeological value is accorded to them (used as funerary sites), but not for all of them. In the village of Dionewar, there is only one shell mound (“Ndiamon-Badat”) classified as a “UNESCO cultural heritage site”. This site will not be used by the project activities. Other shell mounds on the island are neither considered as sacred nor classified. These latter are commonly used by the populations and the Government as a source of material for building houses, roads and dikes.

Decision on shell mounds to be used under the project was made after consultations with local communities and authorities. The quantities involved will be limited. Indeed, the rehabilitation will consist of putting in place reinforced concrete plates on both sides of the dikes. The material resulting from the excavations made of clay and shells, will be reused and supplemented with shells collected from the shell mounds.

### *Land and soil conservation*

The use of fertilizers and pesticides in rice cultivation can lead to chemical soil degradation.

To manage this risk, fertilizer and pesticide management plan will be developed and implemented, in close collaboration with the agricultural staff.

In line with CSE’s Environmental and Social Policy, an Environmen



tal and Social Impact Assessment has been conducted. It allowed:

- identifying direct, indirect, and cumulative risks and impacts (environmental and social) associated with the project's activities;
- classifying these risks or impacts according to their severity and probability of occurrence.

During this process, a strong and constructive consultation framework has been established and stakeholders were consulted on several occasions.

**Table 6: Analysis of risks related to project's activities**

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>		<p><u>Potential risks:</u></p> <ul style="list-style-type: none"> <li>- Environmental and social harms</li> <li>- Challenging measures aiming at a sustainable use of natural resources</li> <li>- Child labor and work related accidents</li> </ul> <p><u>Requirements:</u></p> <ul style="list-style-type: none"> <li>- Identify and implement relevant safeguard measures</li> <li>- Associate relevant local authorities (Municipal council and Sub-Prefect)</li> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Enforce labor regulations</li> <li>- Prohibit any kind of child labor</li> </ul> <p><u>Management:</u></p> <ul style="list-style-type: none"> <li>- Undertake an ESIA and ensure a sound implementation of the associated ESMP</li> <li>- CSE and the PMU will ensure that relevant local authorities (sub-prefect, municipality) be informed in written prior to the launch of any activity</li> <li>- CSE and the PMU will ensure that the company will provide all required protection equipment and will conduct awareness campaign about the risks by including these measures in the technical specifications.</li> <li>- CSE and PMU will ensure that children will not be involved in works on the project sites and this measure will be included in the convention with the executing entities and the service providers</li> </ul>
<i>Access and Equity</i>		<p><u>Potential risk :</u></p> <ul style="list-style-type: none"> <li>- Conflicts regarding the distribution of the rice plots and equipment</li> <li>- Conflicts during the selection of the members of committees or the beneficiaries of trainings</li> </ul> <p><u>Requirement:</u></p> <ul style="list-style-type: none"> <li>- Choose the beneficiaries of the capacity building sessions, the rice plots and the member of the management committees in a participative way in collaboration with</li> </ul>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		<p>the local and traditional authorities.</p> <p><u>Management :</u></p> <ul style="list-style-type: none"> <li>- Setup a local committee in charge to oversee the distribution of the project's assets and the access to the project's benefits</li> </ul>
<i>Marginalized and Vulnerable Groups</i>	No marginalized and vulnerable groups are noted	None
<i>Human Rights</i>	No violation of human rights is foreseen through the project implementation.	None
<i>Gender Equity and Women's Empowerment</i>		<p><u>Potential risk:</u></p> <ul style="list-style-type: none"> <li>- Non integration of the women in the decision making bodies (infrastructure, forest products management committees, steering committee for the local convention)</li> </ul> <p><u>Requirement:</u></p> <ul style="list-style-type: none"> <li>- Establish a quota for women in all decision-making bodies.</li> <li>- Organize, women-specific consultations for all decision making processes where they might be embarrassed to talk before men</li> </ul> <p><u>Management:</u></p> <ul style="list-style-type: none"> <li>- Breakdown the M&amp;E indicators based on gender.</li> <li>- Executing agencies will used gender based approaches during consultative processes</li> </ul>
<i>Core Labour Rights</i>		<p><u>Potential risks:</u></p> <ul style="list-style-type: none"> <li>- Accidents</li> <li>- Bad working conditions</li> <li>- Child labor</li> </ul> <p><u>Requirement:</u></p> <ul style="list-style-type: none"> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Enforce relevant labor regulations</li> <li>- Prohibit any kind of child labor</li> </ul>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		<p><u>Management :</u></p> <ul style="list-style-type: none"> <li>- CSE and the PMU will ensure that the company will provide all required protection equipment and will conduct awareness campaign about the risks by including these measures in the technical specifications.</li> <li>- CSE and PMU will ensure that children will not be involved in works on the project sites and this measure will be included in the convention with the executing entities and the service providers</li> </ul>
<i>Indigenous Peoples</i>	Not relevant for this project	None
<i>Involuntary Resettlement</i>		<p><u>Potential risks:</u></p> <ul style="list-style-type: none"> <li>- Involuntary resettlement of economic activities (temporary stop of shellfish resources exploitation) due to biological rest</li> </ul> <p><u>Requirement :</u></p> <ul style="list-style-type: none"> <li>- Propose alternative economic alternative (beekeeping is proposed)</li> </ul> <p><u>Management :</u></p> <p>CSE and the PMU will ensure the effective implementation of beekeeping</p>
<i>Protection of Natural Habitats</i>	No further assessment required	None
<i>Conservation of Biological Diversity</i>	No further assessment	None
<i>Climate Change</i>	No further assessment required	None
<i>Pollution Prevention and Resource Efficiency</i>		<p><u>Potential risks:</u></p> <ul style="list-style-type: none"> <li>- Accidental spills</li> <li>- Increase of the organic matter (overproduction of organic waste from due to uncontrolled fish density)</li> <li>- Waste</li> </ul> <p><u>Requirement:</u></p> <ul style="list-style-type: none"> <li>- Develop a waterproof space (by a geotextile membrane)</li> <li>- Maintain regularly the concrete mixer</li> <li>- Analyze the water quality (for the fish</li> </ul>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		<p>cages)</p> <ul style="list-style-type: none"> <li>- Build new cages to transfer the overpopulation</li> <li>- Develop and implement a waste management plan</li> </ul> <p><u>Management :</u></p> <ul style="list-style-type: none"> <li>- CSE and the PMU will ensure that the specifications of the company will include the installation of the waterproof space and that the concrete mixer will be maintain regularly</li> <li>- CSE will be responsible for overseeing the implementation of the ESMP and ensure that ANA and all the structures involved will provide the water quality analysis reports and will implement the necessary measures to avoid excessive fish in the cages</li> <li>- CSE will ensure that the waste management plan is developed and implemented effectively</li> </ul>
<i>Public Health</i>		<p><u>Potential risks :</u></p> <ul style="list-style-type: none"> <li>-Outbreak of sexually transmitted infections, including HIV/AIDS</li> <li>- Accidents,</li> <li>- Falls or drowning</li> <li>- Ocular or respiratory diseases</li> </ul> <p><u>Requirement:</u></p> <ul style="list-style-type: none"> <li>- Sensitization of workers and populations (through the environmental and social management plan)</li> <li>- Provide protective equipment (life jackets, lifebelts) for the operators of the aquaculture sites and rice plots</li> <li>- Provide protective equipment to the workers (for the rehabilitation of the dikes)</li> <li>- Spray regularly the sites (dikes and borrowing sites) to avoid the dust takeoffs</li> </ul> <p><u>Management :</u></p> <ul style="list-style-type: none"> <li>- CSE and the PMU will ensure that the specifications of the company will include awareness the workers about STDs, HIV-AIDS, the provision for the protective equipment and the spraying of the sites</li> <li>- CSE will validate the list of future beneficiaries and participate in the distribution of protective equipment (life jackets, lifebelts, etc.)</li> </ul>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Physical and Cultural Heritage</i>		<p>Potential risks:</p> <ul style="list-style-type: none"> <li>- Removal of material from the shell mound considered as historical site</li> </ul> <p>Requirements:</p> <ul style="list-style-type: none"> <li>- Exclude the “Ndiamon-Badat” shell mound from areas of extraction.</li> </ul> <p>Management:</p> <ul style="list-style-type: none"> <li>- The PMU will develop an awareness campaign towards the project’s stakeholders about the status of the “Ndiamon-Badat” shell mound</li> <li>- Local steering committee and PMU will ensure a follow-up of the exclusion measure</li> </ul>
<i>Lands and Soil Conservation</i>		<p><u>Potential risks:</u></p> <ul style="list-style-type: none"> <li>- Fertilizers used in rice cultivation as well as in the preparation of rice plots can cause soil chemical degradation.</li> </ul> <p><u>Requirement:</u></p> <ul style="list-style-type: none"> <li>- Develop and implement a pesticide management plan</li> </ul> <p><u>Management :</u></p> <ul style="list-style-type: none"> <li>-CSE will include in its report of monitoring and supervision, the implementation of the pesticide management plan (effective implementation, action plan, results and soil and water salinity results)</li> </ul>

### **Categorization**

In view of the above, the project is categorized as “Category 2” of the Environment Code of Senegal, which means that it has limited impacts on the environment or the impacts can be mitigated by implementing measures or changes in its development. This category is subject to an initial environmental and social assessment.

With regard to the Adaptation Fund AF categorization, the project can be categorized as Category B, meaning that it has potential adverse impacts, but in small number and scale, not widespread and easily mitigated through an ESMP.

### **Grievance mechanism**

CSE has developed a grievance mechanism policy. That grievance mechanism is the one applicable to the project. The purpose of the policy is to make available a framework for resolving specific grievances in a manner that allows the pursuit of project/program's goals while simultaneously safeguarding the environment and the landscape in line with the expectations of communities. This is how the policy works:

Receiving and recording the complaint: A complaint-resolution staff (CRS) has been created and is part of CSE's "Environmental Assessment and Risk Management" Major Program. The complaint can be sent by electronic mail, fax, post, or hand-delivered. It can be transmitted either directly to the contact point of the CSE or through community leaders, government officials, community organizations, contractors, CSE's staffs or Community Liaison Officers (CLO). Once a complaint has been received, it is recorded in the central register and the CRS will acknowledge receipt of the grievance and inform the complainant about the time frame in which a response can be expected. The CRS then checks the eligibility of the complaint. If the complaint is rejected, the complainant is informed within one week of the decision and the reasons for the rejection. The DEEC is also notified. If eligible, the complainant is also notified, and the grievance is processed. The CRS proceeds to an assessment.

Assessing the grievance: The assessment consists of: identifying the parties, issues, views, and options involved; gathering views of other stakeholders (including those of the project execution team or contractors); determining initial options that parties have considered and exploring various approaches for settlement; classifying the complaint depending its seriousness (high, medium, or low), in collaboration with the DEEC's provincial unit.

Formulating a response: The CRS will prepare a response considering the complainants' views about the process for settlement, and will provide a specific response. The response may suggest an approach for how to settle the issues, or it may offer a preliminary settlement. The response will be reviewed during a meeting with the CRS, the General Manager, the project coordinator and the complainant. If the proposal is a settlement offer and it is accepted, the complaint is resolved amicably. If the case is complex and a resolution time frame cannot be met, an interim response will be provided (oral or written communication) to inform the complainant of the delay, explain the reasons, and liaise with the DEEC in order to offer a revised date for next steps. The grievance is then forwarded to the Directorate of Environment for further action.

Monitoring and reporting: The focal point receives and monitors each grievance case. All complaint cases filed and holding treatments for settlement will be subject to a report, which is shared with relevant stakeholders and CSE's staff.

## PART III: IMPLEMENTATION ARRANGEMENTS

### A. Arrangements for project implementation

#### Institutional framework for the implementation of the project activities

Several institutions are involved in fighting climate change in Senegal. For the implementation needs of this project, only the main stakeholders in this project will be analyzed.

The **Direction of the Environment and Classified Establishments (DEEC)** of the Ministry of the Environment and the Sustainable Development (MEDD) is the Designated National Authority (DNA) of the Adaptation Fund (AF) in Senegal; she has endorsed the current request of financing. (See letter of endorsement)

The **Centre de Suivi Ecologique (CSE)** is semi-autonomous body created in 1993 with the long-term mission of contributing to the economic development of Senegal by facilitating the participative management of natural resources and the environment by gathering, treating, analyzing and disseminating data and information about the territory and the resources. The CSE covers a wide range of interventions, including the monitoring of the environment, town and country planning, decentralization, early warning, disasters management, capacity-building, coastal area management, etc. Its activities, across all these areas, are based on the use of the geomatics combined with field work. The CSE was accredited as National Implementation Entity (NIE), with the Adaptation Fund (AF) and with the Green Climate Fund (GCF). The CSE successfully led an adaptation project in Senegal's coastal zone (Adaptation to coastal erosion in vulnerable zones). It has also recently — and successfully — submitted to the GCF a project proposal, which is one of the three first projects approved for Africa by the Green Climate Fund.

The **National Council for Functional Literacy (CONAF)** was created in October 1993. It was registered as a national Non-Governmental Organization (NGO) under the number 03140 / MFSAEFMPE / DDC on April 1st, 2010. The CONAF is a NGO that works for the development and the promotion of the Senegalese people's well-being, and particularly the vulnerable ones. CONAF fights to reduce poverty and ignorance through training of vulnerable groups (women and girls), raising awareness and providing tools and economic means through functional community-based organizations. It's in this context that the CONAF, in partnership with the **Association of the Natives for the Development of Dionewar (ADD)**, actively collaborate in research to protect the village of Dionewar against coastal erosion and floods. The synergy between both structures is visible on the field through mangrove reforestation actions and the installation of dikes that face floods and coastal erosion, which threaten the village of Dionewar.

The **National Agency for Aquaculture (ANA)** is an autonomous administrative structure, created by decree 2011-486 of April 8<sup>th</sup>, 2011 (repealing the decree 2006-



766) and placed under the authority of the Ministry of Fisheries and Maritime Economy. As its general mission, ANA seeks to contribute to the development of fish farming by closely assisting professionals in the sector, and by providing the necessary support for the sustainable development of the aqua-cultural exploitations and the realization of the National Program of Development for Fish Farming objectives. It is in charge, and in synergy, with the appropriate structures, to:

- identify and exploit sites favorable to marine and continental fish farming;
- sensitize and supervise entrepreneur project leaders in the various segments of the aqua-cultural sector;
- strengthen management capacities of fish farming professionals, in particular the technical, financial, commercial and organizational aspects;
- support the implementation of aqua-cultural productions farms;
- assure, in partnership with the specialized structures, the required quality monitoring services for the aqua-cultural companies;
- seek national and foreign investments for the aqua-cultural sector.

The **National Agency for Civil Aviation and Meteorology (ANACIM)** was created by decree 2011-1055 of July 28<sup>th</sup>, 2011. It arose from the fusion of the former agencies of the civil aviation and the meteorology service. Through its Directorate of Meteorology, ANACIM is the body in charge with the collection and dissemination of meteorological data on the entire national territory. At a provincial level, ANACIM has standard meteo stations allowing it to collect data and perform the forecasting of several parameters namely: rainfall, wind, humidity, tide. These data are regularly collected and analyzed to produce weather reports that are distributed through various broadcastings channels, among which include the written press, radio, TVs and websites.

**Decentralized services (Sub-Prefecture and CADL).** The municipality of Dionewar is under the administrative authority of the sub-prefecture, which is based in the village of Niodior. As representative of the Government at local level, the sub-prefect has under his authority all government employees and civil agents in the “arrondissement” (third administrative level in Senegal). As such, he coordinates the economic and social development actions within the framework of the local planning strategies. He is also in charge of mobilizing all appropriate means to arouse and to encourage the populations’ participation in development actions. In this respect, he chairs the local development support centre (CADL) among which the attributions, the organization and the functioning are all fixed by order.

The **Local Development Support Centre (CADL)** is a decentralized body of the Local Development Support Directorate (DADL). It is charged with instigating and following up on all the development actions at the community level, within the limits of the district’s territory. The CADL agents assure a support function, council and training in diverse domains such as: agriculture, environment, fishing, community-based organizations, the acts and laws on decentralization etc. In this regard, the municipality’s budget is always developed with the support of the CADL.

## **Project management's bodies**

The National Implementing Entity (**NIE**): The Centre de Suivi Ecologique is the implementing entity of the project for the Adaptation Fund and, as such, assures the administrative and financial management of the project. Aside from the project's bookkeeping, the CSE will be in charge of: a) the implementation of a financial accounting system and management of the project's resources, including disbursements; b) drawing up expenditure forecasts for activities planned in the annual work plan and budget (AWB); c) the project account management; d) the account recording for the project operations, the preparation of the annual financial statements and the timeliness of all project documentation relating to financial and accounting management; e) the control of the effectiveness of services; f) providing technical support to the executing agencies; the reporting to the AF, both technical and financial; g) the oversight and the monitoring of the implementation of the Environmental and social management actions; and h) the programming of the annual audits, the transmission of audit reports to the Government and to the AF, and the implementation of the recommendations of audits. The implementation of the financial management activities will be made correspondingly and in line with the administrative, financial and accounting procedures, such as defined in the CSE's Handbook of Procedures. This latter defines the scope of work of the project staff and the modalities of appreciation of their performances.

The **National Steering Committee (NSC)**: the project implementation will be overseen by the NSC, which will be charged with the responsibility of approving the plans, operational and annual reports of the project and for guaranteeing that the project activities are in line with those in the document approved by the AF and with the country's policy framework. The NSC will hold its first meeting during the start-up phase of the project and will meet biannually to perform the project's progress assessment, monitor results, receive other reports for which it can ask for that purpose and get on annual continuous plans of work. The NSC will be composed of the representatives of (i) the Designated Authority for the Adaptation Fund (ii) the Climate Change National Committee, (iii) the decentralized bodies operating in Dionewar, (iv) the community-based organizations, (v) the private sector, (vi) the research institutions, (vii) and the CSE.

The **Project Management Unit (PMU)**: The Project will be executed by a project team, called Project Management Unit (PMU) that will be based in Dionewar. The PMU will include the following key staff: i) A local project coordinator; ii) a Monitoring and Evaluation specialist; iii) an administrative and financial assistant; and v) two field officers (Members of the CADL). Additionally, staff members of ANA and ANACIM will also be mobilized, when needed and for specific tasks. The PMU will emanate from the main proponent of the project, which is CONAF-ADD and which will provide the coordinator. The PMU will serve as a technical assistance for CONAF-ADD which will ensure CSE's execution of activities on-the-ground. An agreement will be signed between CSE and CONAF-ADD, and this latter will make the recruitment of the PMU

staff using CSE's procedures. Having CONAF-ADD strongly involved in the project management will ensure ownership, strengthen local actors' capacities and, thereby, ensure sustainability.

The CSE will not be directly involved in executing project's activities, but will be supervising the project execution.

The PMU will be responsible for: i) the preparation and the implementation of annual work plans and annual budgets (AWB), ii) relations with administrative authorities and other partners, iii) coherence between the components of the project, iv) the supervision and follow-up execution of all activities promoted by the project. It will establish a synergetic partnership with current projects under implementation in the zone, as well as other projects which are complementary of those of this project. It will contribute to the harmonization of the approaches of intervention (compatibility between the AWB, the harmonization and the alignment of the activities etc.) to facilitate information exchanges, experiences and lessons learned between all stakeholders.

### **Coordination and implementation modalities**

The **Annual Work Program and Budget (AWB)**: The AWB will be prepared by the PMU on the basis of activities planned under the project's different components. The AWB will contain the activities' details, their unit and global costs, the monitoring indicators as well as the modalities of execution. It will be subject to approval by the NSC and an opinion of non-objection by the CSE before its implementation. The populations will adopt a flexible approach allowing regular revisions of the AWB during the budgetary year and take into account the request formulated and the planned deadlines of execution.

**Service providers:** The Project will subcontract the execution of some activities to service providers from the associative, public, and private sectors. The PMU will develop specifications and will sign performances contracts with the service providers specifying the activities to be executed, the expected results, the obligations and the rights of each party, the deadlines of execution, the deliverables, the reports and monitoring-evaluation indicators. For information purposes and not restrictive, contracts and procurements for the project activities can be made with the potential service providers below: i) the public institution providers: the institutions of research and the regional and departmental technical services of the relevant Ministries on the subject, in particular for the activities of specialized technical support, supervision or follow-up; ii) associative providers: NGO, GIE, umbrella organizations and local development associations, in particular for advice and training; and iii) private operators: works firms, engineering consulting firms, independents consultants, toilers.

**Implementation approach of the components:** In a general way, the implementation approach is articulated around three main principles: i) the full and active participation of local populations and their representative institutions in all the stages of the Project implementation, ii) the contractualization of persons in charge of the execution of the

actions promoted by the Project (development of the local offer of service), and iii) the research and the promotion of an operational partnership between the Project, the local actors and the other development partners intervening in the same area. Local communities have already been consulted and involved in the design of the project's activities. They are the main proponents of the project through ADD which will also provide the coordinator of the PMU. Furthermore, the communities will be directly involved in the execution, monitoring and evaluation of the project's activities. In regards to the environmental and social safeguards, public consultations have been conducted in an appropriate way for communities that are directly affected by the project's activities. They will also be involved in the approval of the progress report in the implementation of the environmental and social risk management plan.

**Startup activities:** Will mainly include the following: i) selection and recruitment of the Project's key staff; ii) elaboration of a AWB; iii) preparation of a monitoring-evaluation (M&E) plan and the implementation of the M&E system; iv) identification of potential service providers, the preparation of the files of calls for tender of the main service providers; v) organization of the inception workshop and starting up of the Project.

### Institutional framework for the implementation of the ESMP

The ESMP applies to the preparation and commissioning of all activities. It concerns all actors and technical services collaborating for the implementation of the project.

All these actors, both in management and in terms of implementation, have specific responsibilities in the maintenance and implementation of procedures and measures related to the ESMP.

The final responsible for all measures is CSE. However, the implementation of the mitigation measures, in most cases, will be the responsibility of the company concerned by the work or the implementation of the activities. Contracts and agreements should clearly define these conditions. It would also be important to include in the specification the principle of responsibility. This principle will include fees in the contracts or conventions (e.g. the civil engineering company), if a company does not comply with one or more measures.

The project implementation will involve five categories of actors at local level which are:

- ❖ The CSE and the Project Management Unit;
- ❖ The local and administrative authorities;
- ❖ Population, Community and Local structures (Economic Groups, Producer groups, Associations, etc.);
- ❖ Technical Services: DEEC, ANA, Forestry Department, Rural Development Department, Medical Service Department, etc.; and,
- ❖ Service Providers (Enterprises, Consultants)

The roles and responsibilities of institutions involved in the implementation of the ESMP are:

❖ **CSE**

Proficiency in project works will be done by the CSE as an entity accredited by the Adaptation Fund. Among other activities, the CSE will be responsible for ensuring: (i) compliance regarding the Fund's commitments (ii) the supervision of the implementation of the ESMP; (iii) the effectiveness of the inclusion of environmental clauses in tender documents (DAO) for the selection of the company or the consultant; (iv) the effective implementation of measures to mitigate the negative impacts and environmental monitoring program; (v) the consideration of the implementation status of the ESMP in the preparation of periodic reports on the implementation of the project.

The CSE, through its Environmental and Social Safeguard Unit (ESSU), will ensure compliance with its policies and standards (Grievance Mechanism, Environmental and Social Policy, Gender Policy).

❖ **The Project Management Unit**

The Project Management Unit (PMU): The Project will be executed by a project team, called Project Management Unit (PMU) that will be based in Dionewar. The PMU will include the following key staff: i) A local project coordinator; ii) a Monitoring and Evaluation specialist; iii) an administrative and financial assistant; and v) two field officers (Members of the CADL). Additionally, staff members of ANA and ANACIM will also be mobilized, when needed and for specific tasks. The PMU will emanate from the main proponent of the project, which is CONAF-ADD and which will provide the coordinator. The PMU will serve as a technical assistance for CONAF-ADD which will ensure CSE's execution of activities on-the-ground. An agreement will be signed between CSE and CONAF-ADD, and this latter will make the recruitment of the PMU staff using CSE's procedures. Having CONAF-ADD strongly involved in the project management will ensure ownership, strengthen local actors' capacities and, thereby, ensure sustainability.

❖ **Administrative and local authorities**

The local authority: Municipal Council

The intervention of the local council has started since the formulation of the project, and will continue during the implementation. In relation to the decentralized technical services and other partners, the City Council will have a key role:

- Advise, support, supervision and technical support especially in the transferred areas, either through the steering committee deliberation sessions or directly in the field through the implementation of the project activities;
- Support for validation and assessment of annual work plans and project budget;
- Support for the implementation of the update process of the municipal development plan with integrating climate change aspects;
- Regular participation in various sectoral meetings related to the implementation of project activities.

*The administrative authority: Niodior Sub-Prefect*

The municipality of Dionewar is under the administrative authority of the sub-prefecture, which is based in Niodior. As representative of the Government at local level, the sub-prefect has under his authority all government employees and civil agents in the “district”. As such, he coordinates the economic and social development actions within the framework of the local planning strategies. He is also in charge of mobilizing all appropriate means to arouse and to encourage the populations’ participation in development actions. In this respect, he chairs the local development support centre (CADL) among which the attributions, the organization and the functioning are all fixed by order.

Its role will be important to monitor and encourage technical services’ actions involved in the implementation of the ESMP.

❖ **Local organizations and associations**

The organizations, in their different components (associations, CBOs, GIE) will play an important role in the implementation of the project locally. Indeed, they will complement the action of the agencies involved in the implementation of the project. This is essentially the Natural Resource Management Committee (COGER), the Federation of Local GIE (FELOGIE) Dionewar, the Association for the Development of Dionewar (ADD), the National Committee for Functional Literacy (CONAF), Zero Plastic Association (AZP). These structures are involved so far, according to their statutes, guidelines and resources to the socioeconomic development of the village. These associations support the project in activities such as awareness and reforestation in order to better ensure the ownership of the project by the beneficiaries.

❖ **Technical Services**

The Technical Services has a supervisory role, consulting, support and outreach to rural populations. This is why the project will use their expertise to implement the activities.

The technical services include ANA, Forestry Department, Environment, Rural Development, Regional Development Agency, Rural Engineering, Fisheries, etc.

A convention which will define the role and mission of each of these structures will be made.

#### Directorate of Environment and Classified Establishments (DEEC)

The Directorate of Environment and Classified Establishments is responsible for the implementation of the Government's environmental policy, including the protection of nature and human against pollution and nuisances. To this end, it is responsible for:

- prevention and control of pollution and nuisances;
- monitor actions of the various services involved and organizations in the field of Environment;
- the preparation of legal texts concerning the environment.

As part of the project in relation to other services and partners, its mission will focus on environmental monitoring in particular with regard to verification of compliance with environmental clauses in the ESMP. DEEC has a regional bureau in Fatick.

#### National Agency for Aquaculture (ANA)

The ANA has as a mission to contribute to the development of aquaculture by providing professional guidance, and specific support necessary for sustainable development of aquaculture activities and the objectives of the National Development Program Aquaculture. Under the project, the ANA is responsible, in synergy with the appropriate structures, to:

- support the development of aquaculture farms (fish and oyster farms);
- educate and mentor the beneficiaries in the different segments of the aquaculture sector;
- strengthen the members of the management committees including the technical, financial, commercial and organizational management capacities;
- monitor the acquisition and distribution of equipment and materials for aquaculture (boots, gloves, etc.) to beneficiaries;
- ensure regular monitoring of the water quality on sites.

The ANA has a regional bureau in Fatick.

#### Regional Forestry Department

The main role and responsibilities of Forestry department will be to:

- Support the identification of degraded sites, evaluate the material resources (especially equipment), human and financial need, and develop an response plan;
- To evaluate the amount of planting material (propagules) necessary and identify sampling sites;
- Contribute to raising awareness and strengthening the operational capacities of reforestation;
- Ensure the effective empowerment of the people and the local community in the development of forest products;
- Evaluate at the end of each year the reforestation campaign, in collaboration with the local council, the people and the 'Project Management Unit;
- Deliver permits movement of forest products at the request of the village and prior approval of the City Council;
- The intervention the department is provided throughout the process. At the end of the project it is expected a significant role in this service business sustainability process;
- Establish a monitoring mechanism participatory evaluation and sustainability.

The Forestry Department has a bureau at the departmental level (Foundiougne) and district level (Niodior).

#### Regional Directorate of Rural Development (DRDR) and its Rural Engineering Section

The DRDR is responsible for putting in place a coherent framework for strategic planning, management and monitoring and evaluation of agricultural policies, strategies and programs at regional level. It promotes agricultural diversification, identification and development of promising agricultural sectors.

Under the project, the DRDR role will be to:

- Ensure the availability of inputs, including rice seed and fertilizer;
- Ensure the establishment of standby arrangements and intervention for good plant protection;
- Contribute to the training and supervision of populations;

Through its rural engineering section, it will be responsible for monitoring and control of dike rehabilitation;

- To support the formulation of a plan of management and maintenance of the dikes;
- To train the members of the management and maintenance committees;
- To monitor the management and maintenance of the dikes.



## Regional Health Department and Regional Medical Service

The medical area is dedicated to the control, technical coordination and continuous training of regional health structures.

Under the project, the expected activities of the Regional Medical Service are:

- Collection and provision of relevant information to define a strategy if necessary to prevent population from diseases, especially those related to the presence of external workforce;
- Contribute to define and implement a Communication, Information and Education Health program;
- Contribute to the establishment of a participatory monitoring and evaluation system.

The Regional Medical Service has a bureau on departmental (health district), district and communal levels.

### ❖ Services Providers

#### Companies

It is essentially the companies in charge of the rehabilitation of dikes. Their responsibilities can be in terms of: (i) overall compliance with their commitments; (ii) the commitments concerning the implementation of environmental and social measures; (iii) provision of reports and other documents required integrating the management of environmental and social measures; (iv) compliance with all the environmental and social requirements attached to the ESMP.

#### Consultant

The project will use consulting services for the implementation of certain activities (specific studies or review of local development plan). These interventions must consider the measures defined in the ESMP.

## B. Measures for financial and project risk management

Table 7: Measures for financial and project risk management

Risks	Level	Proposed mitigation measures
<p><u>Institutional and political</u> The local elected representatives and the representatives of the State who have already been trained by the project have changed after the local elections in 2017</p>	Low	Training sessions are organized every year by the project and the new elected representatives or officials appointed by the government can benefit from trainings
<p><u>Climatic</u> Extreme weather events affect the realizations of the project</p>	Low to medium	The technical specifications for constructions of dikes, ridges, fish ponds, spat collector and grow out bags, take into account the most extreme events having affected the project's zone
<p><u>Financial</u> The implementation of alternative options of production (fish farming, oyster farming, etc.) will generate important financial resources, which can be sources of conflict between stakeholders or subject to embezzlement. This might compromise the financial sustainability of the project achievements.</p>	Medium	Management committees are put in place and their members trained on transparent and fair management of the generated funds. A management plan is also developed for purposes of production efficiency.
<p><u>Social</u> The arrival of a foreign workforce and the establishment of protective infrastructure and income-generating activities in a single village in the municipality (which counts three villages) can be a source of conflict and tension between the villagers.</p>	Low	Conduct awareness sessions and inform the municipality. It is also important to explain early on that the project was initiated by Dionewar nationals, which is essentially why the village was chosen for these activities and infrastructure. When the building starts, it is also essential to inform foreign workers on local cultural settings to help avoid conflict with villagers.

### **C. Measures for environmental and social risk management, in line with the Adaptation Fund’s Environmental and Social Policy**

In regards to compliance with the regulatory framework, the project must enforce the relevant provisions provided through regulations and strategies.

Pursuant to the Senegalese Environmental Code, the project was subject to an environmental and social assessment and an environmental and social management plan was developed.

The project will further comply with other legal texts, such as the Mining Code which requests career clearance to meet the needs to construct infrastructures (dikes, basins, etc.). The Forest Code will support the project activities on tree planting, namely in regards to implementation and evaluation techniques and standards. The project will also comply with the Fisheries Code governing the modalities for capture and resource management: the equipment used for aquaculture development shall be certified by the competent services of the Ministry of Fisheries.

Land tenure can be a sensitive issue and will therefore receive particular attention. The Saloum estuary is characterized by a multitude of “bolongs” and it is not difficult to find the space to conduct oyster activities without interfering with navigation or other fishing activities. However, expanding oyster farming requires communication across all Saloum islands to identify production areas, while making sure to avoid barriers to seaworthiness. To anticipate other potential land tenure related issues, a “cadastral map” for rice-growing areas will be developed. This will help clarify the land status before any intervention and will guide the distribution of lands at the end of the realizations.

Oyster farming actors shall inform the Dionewar Municipality Council about the conduct and location of activities. For fish farming and planting of coconut palms, committed groups will file an allocation request to the Council. Indeed, decentralization texts give to that Council the authority to allocate land by authorization under the State-ownership. Mangrove reforestation will also be performed on the banks of bolons on spaces under the State-ownership of land.

At the international level, the Convention on Biodiversity will be invoked to bolster efforts for species conservation on the Island, while the Convention on Persistent Organic Pollutants will be in force to monitor the use and management of chemicals in aquaculture and rice cultivation. At the same time, the use of herbicides in rice cultivation will not be promoted.

The population and workers will be systematically sensitized on health risks — and mainly HIV/AIDS-related risks.

Each project activity has been analyzed according to the CSE’s Environmental and Social Policy requirements in order to identify potential risks and appropriate mitigation measures. As for the Environmental and Social Impact Assessment (ESIA), the

Environmental and Social Management Plan (ESMP) is also based on those requirements, with the aim to:

- assessing possible measures to avoid, minimize and / or mitigate risks identified;
- develop a monitoring plan for the E&S activities;
- promote a policy for high quality of environmental and social practices.

All costs associated with the positive impacts are included in the planned activities.

The table below shows the mitigation measures and the associated costs and the environmental monitoring plan. The environmental oversight plan is included in the separate document (*Cf. Environmental and Social Management Plan*).

**Table 8: Measures for environmental and social risk management**

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Compliance with the Law</i>	<ul style="list-style-type: none"> <li>- Environmental and social harms</li> <li>- Challenging measures aiming at a sustainable use of natural resources</li> <li>- Child labor and work related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Dykes rehabilitation</li> <li>Fish and oyster farming</li> <li>Reforestation</li> <li>Local planning</li> </ul>	<ul style="list-style-type: none"> <li>- Identify and implement relevant safeguard measures</li> <li>- Associate relevant local authorities (Municipal council and Sub-Prefect)</li> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Enforce labor regulations</li> <li>- Prohibit any kind of child labor</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake an ESIA and ensure a sound implementation of the associated ESMP</li> <li>- CSE and the PMU will ensure that relevant local authorities (sub-prefect, municipality) be informed in written prior to the launch of any activity</li> <li>- CSE and the PMU will ensure that the company will provide all required protection equipment and will conduct awareness campaign about the risks by including these</li> </ul>	<ul style="list-style-type: none"> <li>- Executing entities</li> </ul>	<ul style="list-style-type: none"> <li>- Local representation of the Directorate of environment (DREEC)</li> </ul>	<ul style="list-style-type: none"> <li>- No cost associated</li> </ul>
					<ul style="list-style-type: none"> <li>- PMU</li> </ul>		<ul style="list-style-type: none"> <li>- Local steering committee, Municipality</li> </ul>

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
				<p>measures in the technical specifications.</p> <p>- CSE and PMU will ensure that children will not be involved in works on the project sites and this measure will be included in the convention with the executing entities and the service providers</p>		- Local steering committee, Municipality	- No cost associated
<i>Access and Equity</i>	<p>-Conflicts regarding the distribution of the rice plots and equipment</p> <p>-Conflicts during the selection of the members of committees or the beneficiaries of trainings</p>	<p>Rice growing activity</p> <p>Capacity building</p> <p>Establishment of the management committees</p>	<p>-Choose the beneficiaries of the capacity building sessions, the rice plots and the member of the management committees in a participative way in collaboration with the local and traditional authorities.</p>	<p>Setup a local committee in charge to oversee the distribution of the project's assets and the access to the project's benefits</p>	PMU	<p>Executing Entities</p> <p>Local Authorities</p>	Included in activities' budgets

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Marginalized and Vulnerable Groups</i>	None						
<i>Human Rights</i>	None						
<i>Gender Equity and Women's Empowerment</i>	- Non integration of the women in the decision making bodies (infrastructure, forest products management committees, steering committee for the local convention)	Implementation of the management committees	- Establish a quota for women in all decision-making bodies. - Organize, women-specific consultations for all decision making processes where they might be embarrassed to talk before men	- Breakdown the M&E indicators based on gender. - Executing agencies will use gender based approaches during consultative processes.	Executing entities	Women organization	Cost included in the activity's budget
<i>Core Labour Rights</i>	- Accidents - Bad working conditions - Child labor	Rehabilitation of the dikes Aquaculture installation	- Provide protection equipment to avoid accident - Conduct awareness campaign for the workers about the risks of accidents - Respect all the labor regulations - Forbid any kind of child	- CSE and the PMU will ensure that the company will provide protection equipment and will conduct awareness campaign about the risks by including that measure in the specifications	Civil engineering company ANA	PMU	<u>No cost associated (included in the activity's budget)</u>

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
			labor	- CSE and PMU will ensure that children will not be employed for the project's activities and the measure will be included in the convention with the executing entities and the service providers			
<i>Indigenous Peoples</i>	None						
<i>Involuntary Resettlement</i>	-Involuntary resettlement of economic activities (temporary stop of shellfish resources exploitation) due to biological rest	Preparation of local convention	-Propose alternative economic alternative (beekeeping is proposed)	CSE and the PMU will ensure the effective implementation of beekeeping	<u>PMU</u>	<u>Management committees</u> <u>Forestry department</u>	<u>Included in the activity's budget</u>
<i>Protection of Natural Habitats</i>	None						





Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
		Each activity of the project		measures to avoid excessive fish in the cages - CSE will ensure that the waste management plan is developed and implemented effectively			
<i>Public Health</i>	<ul style="list-style-type: none"> <li>- Outbreak of sexually transmitted infections, including HIV/AIDS</li> <li>- Accidents</li> <li>- Falls or drowning</li> <li>- Ocular or respiratory diseases</li> </ul>	<p>Rehabilitation of the dikes</p> <p>Rice growing activity and aquaculture farms</p>	<ul style="list-style-type: none"> <li>- Sensitization of workers and populations (through the environmental and social management plan)</li> <li>- Provide protective equipment (life jackets, lifebelts) for the operators of the aquaculture sites and rice plots</li> <li>- Provide protective equipment to the workers (for the rehabilitation of the dikes)</li> <li>- Spray regularly</li> </ul>	<ul style="list-style-type: none"> <li>- CSE and the PMU will ensure that the specifications of the company will include awareness the workers about STDs, HIV-AIDS, the provision for the protective equipment and the spraying of the sites</li> <li>- CSE will validate the list of future beneficiaries and participate in the distribution of protective</li> </ul>	Civil engineering company	ANA PMU Health department	Included in the activity's budget

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
			the sites (dikes and borrowing sites) to avoid the dust takeoffs	equipment (life jackets, lifebelts, etc.)			
<i>Physical and Cultural Heritage</i>	Removal of material from the shell mound considered as historical site	Dikes rehabilitation	Exclude the “Ndiamon-Badat” shell mound from areas of extraction.	<ul style="list-style-type: none"> <li>- The PMU will develop and implement an awareness campaign towards the project’s stakeholders about the status of the “Ndiamon-Badat” shell mound</li> <li>- Local steering committee and PMU will ensure a follow-up of the measure of exclusion</li> </ul>	PMU	Local authorities, local steering committee	Included in the budget for Activity 3.3

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Lands and Soil Conservation</i>	- Fertilizers used in rice cultivation as well as in the preparation of rice plots can cause soil chemical degradation .	Rice growing activity	<ul style="list-style-type: none"> <li>- Develop and implement a pesticide management plan</li> <li>- Stabilize the slopes of the dikes</li> <li>- Compact the shaken up parts and implement a drainage system</li> </ul>	<ul style="list-style-type: none"> <li>- CSE will include in its report of monitoring and supervision, the implementation of the pesticide management plan (effective implementation, action plan, results and soil and water salinity results)</li> <li>- CSE will ensure that the specifications of the company include the stabilization of the dikes slopes, the compaction of the shaken up parts and the effective implementation of a drainage system.</li> </ul>	Agriculture department	PMU Management committees	<u>30,000</u>
<b>TOTAL</b>							<b>52,500</b>

**Table 9: Environmental monitoring plan**

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
<b>COMPONENT 1</b>	Aquaculture	Implementation of an oyster farm	Monitoring of the physicochemical and bacteriological parameters of the oyster farm's site	Number of analysis report	Physicochemical (temperature, turbidity, oxygen, pH) and bacteriological analysis report	12	Before the works and every 3 months after installing	ANA	PMU RMC <sup>28</sup>	6,590
		Implementation of a fish farm with floating cages	Monitoring of the physicochemical and bacteriological parameters of the fish farm's site	Number of analysis report	Physicochemical (temperature, turbidity, oxygene, pH) and bacteriological analysis report	12	Before the works and every 3 months after installing	ANA	PMU RMC	6,590
		Strengthen the actors' capacities on fish and oyster farming techniques	Monitoring the selection of beneficiaries taking into account gender aspects	Number of Economic Interest Group trained and involved in the management committees	Training session report	18	At the time of planning, and during the implementation of the capacity building plan	PMU		FTR
		Implement farm management plan	Monitoring the implementation of the farm management plan including environmental clauses	Number of management plan realized	Management plans	2	Throughout the project	ANA	PMU	2 450
		Endowment (boots, gloves, safety jacket, etc.)	Check of the technical specifications of the equipment	Quality of the equipment	Receipt	200	Upon receipt of the equipment	PMU	ANA	FTR <sup>29</sup>

<sup>28</sup> Regional Monitoring Committee : a permanent coordination mechanism including technical services at regional level. This body is tasked to monitor the effective implementation of environmental and social monitoring activities

<sup>29</sup> FTR : For The Record

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
COMPONENT 2	Extension and rehabilitation of the dikes to fight against flooding in Dionewar	Rehabilitation and extension of the dikes	Monitoring the respect of labor rights especially with regard to child labor	Percentage of minor included in the works	Attendance list	0	During the activity	PMU	RMC	FTR
	Infrastructure management	Preparation of a maintenance guide	Monitoring the implementation of the maintenance guide	Number of visit	Inspection report	4	Before and after the rainy season	AGRICULTURE DEPARTMENT (SECTION RURAL ENGINEERING)	RMC PMU	FTR
		Project's activities	Monitoring of the health information and communication program's implementation	Number of realized awareness campaign	Awareness campaign report	8	Once a month during the four months of the rainy season	Health Regional Service	PMU	FTR
	Development of rice plots at Djimsane	Rehabilitation of the dike	Monitoring the water quality (drain water): physicochemical parameters such as pH, temperature, conductivity) Monitoring soil quality upstream and downstream of the dike (pH, salinity and sodium concentrations, etc.)	Number of water and soil quality analysis	Water and soil quality analysis report	6	Twice yearly (right after the rainy season and after dry season)	AGRICULTURE DEPARTMENT (SECTION RURAL ENGINEERING)	RMC	25,740
		Development of rice plots	Monitoring of the implementation of the Pesticide management plan	Number of realized analysis	Quality of drainage water analysis report	6	Before and after the rainy season	DRDR	RMC	

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
<b>COMPONENT 3</b>	Review and update of the PDC	Integrate climate change aspects into the PDC	Monitoring the implementation of the PDC with the climate change aspects	Number of monitoring field mission	Field mission report	9	Quarterly during the project lifespan	PMU	RMC ARD	FTR
	Preparation of a local convention for natural resources management	Implement a local convention to better regulate the use of forest products and to respect the biological recovery period of the fish products	Monitoring the implementation of the local convention	Number of monitoring field mission	Field mission report	9	Quarterly during the project lifespan	PMU	RMC ARD	FTR
			Monitoring the implementation of the alternative activities	Number of monitoring field mission	Field mission report	6	Quarterly during the last two years	PMU	RMC Forestry Department	3,220
	Sharing the lessons learned from the project	Sharing the project's activities	Monitoring the process of sharing the project's activities	Effectiveness of the sharing lessons learned report	Sharing lessons learned report	2	Mid-term and at the last semester of the project	CSE	RMC	FTR
				Number of workshops	Workshop report	3				
<b>TOTAL</b>										<b>44,590</b>

FTR: For the Record = Means that the budget of the element to monitor is rather included in the activity's budget or in the whole M&E activity

At the beginning of the project, stakeholders will be informed about the risks and impacts incurred and defined protection measures; an appeals and grievance management mechanism will be made public.

CSE’s Environmental and Social Policy and the Adaptation Fund’s Environmental and Social Policy will be made available to project stakeholders. They will also be promoted through training and dialogue with implementing agencies to build a common understanding of the principles and practices that have been adopted. Essentially this is to help enhance development benefits and avoid unnecessary harm to the environment and the communities.

## **D. Monitoring and evaluation arrangements and budgeted M&E plan**

The Monitoring and Evaluation of the project will be made according to the procedures established by the CSE and by the AF. The Results framework gives the performance indicators against which the project will be evaluated and specifies the baseline as well the objectives to be achieved. The M&E system proposed describes the main planned activities to be executed in the M&E, reporting and project analysis system (MERAS).

The M&E plan (MEP) is the main element for the Monitoring and Evaluation activities, reporting and analysis System (MERAS) and will play a key role for the planning, management and implementation of project activities. The MERAS is designed to play three main roles: 1) Coordinate the M&E activities of the project; 2) Provide data collected in the appropriate formats for the various stakeholders; and, 3) Store this data / information as well as the other relevant data / information in a computerized system. The total cost of the MEP is estimated at 128,129 USD among which 30,039 USD will be financed by the CSE with its management fees.

The table below shows a list of potential products of the MERAS, with an indicative calendar for the publication of the diverse products, and corresponding budget. The project will have to produce and circulate several documents during the first months of implementation. Thereafter certain documents will be produced periodically while the others will be on demand.

**Table 10: Budgeted Monitoring and Evaluation plan**

<b>Outputs</b>	<b>Main responsible</b>	<b>Timeframe</b>	<b>Budget (\$ us)</b>	<b>Destination</b>
Inception workshop’s report	Project team CSE	During the first month following the startup of project	15,539 (9,500 + 6,039)	CSE, AF



<b>Outputs</b>	<b>Main responsible</b>	<b>Timeframe</b>	<b>Budget (\$ us)</b>	<b>Destination</b>
M&E Plan <sup>30</sup>	Project team CSE	During the first month following the start of project	-	CSE, AF
National Steering committee meeting reports	Project team CSE	Every 6 months	6,000	CSE, AF
CSE supervision field mission reports	CSE	Monthly in year 1 Quarterly from year 2 to completion	24,000	National Steering committee (NSC), CSE
Final M&E Plan (Including baseline)	Project team	At the beginning of the project (1st month)	-	National Steering committee (NSC) CSE, AF
Monthly progress report	Project team	The 5 <sup>th</sup> of each month	-	National Steering committee (NSC)
Quarterly report	Project team Task Manager CSE	End of each quarter	-	NSC, CSE, AF
Mid-term evaluation report	Consultants	At project mid-term	3,000	NSC, CSE, AF
Final evaluation report	Consultants	At project completion	7,500	NSC, CSE, AF
Audit Report	External auditors	By end of project	10,000	NSC, CSE, AF
Maps, posters, videos, photos, etc.	Project team	Rolling, upon availability	17,500	Diverse
Monitoring of the implementation of the Environmental and Social Management	Technical services, PMU, Administrative and local authorities,	Periodically	44,590-	Technical services, PMU, administrative and local

<sup>30</sup> As indicated in the table below, the detailed M&E plan will be developed during the start-up phase. It will be designed based on the logical framework and the ESMP monitoring plan. The planning of the M&E activities will be also developed with the aim to achieve the targeted results.

Outputs	Main responsible	Timeframe	Budget (\$ us)	Destination
PlanMonitoring environmental parameters	community based associations			authorities, community based association
<b>TOTAL</b>			<b>128,129</b>	

## E. Results framework for the project proposal

Table 11: Results framework

<b>Title: REDUCING VULNERABILITY AND INCREASING RESILIENCE OF COASTAL COMMUNITIES IN THE SALOUM ISLANDS (DIONEWAR)</b>						
<b>Project goal:</b> Reduce the vulnerability of populations in the Saloum Islands to flooding and coastal erosion.						
<b>Specific objectives:</b>						
1. Improve the resilience of the sectors of fishing, aquaculture and forestry to natural hazards						
2. Reduce the vulnerability of populations and natural habitats to hazards through the establishment of structures to better regulate flooding, control coastal erosion and fight against land salinization.						
3. Enhance Communal Development Planning through integration of climate change, setting up local conventions and documenting lessons learned						
<b>RESULTS CHAIN</b>		<b>PERFORMANCE INDICATORS</b>			<b>MEANS OF VERIFICATION</b>	<b>COMMENTS ON INDICATORS</b>
		<b>Indicator</b>	<b>Baseline<sup>31</sup></b>	<b>Target</b>		
<b>OBJECTIVE</b>	Reduced vulnerability of populations in the Saloum Islands to flooding and coastal erosion	Number of risk-exposed coastal households benefiting of adaptation measures	451 households threatened by flooding and coastal erosion	At least 270 households (112 at mid-term)	Progress reports, survey	

<sup>31</sup> Current baseline information derives from documentary review and field missions during project preparation and may need to be updated at the early stage of the project implementation as indicated in the monitoring and evaluation section of this project document.

<b>OUTCOMES</b>	Improved resilience of the main ecosystems of Dionewar Island and sustainable livelihoods of populations	<p>- Are (ha) of mangrove and terrestrial ecosystems restored</p> <p>- % of increase of income of population involved in alternative income generating activities (breakdown by gender)</p>	0	5ha of mangrove (2 ha at mid-term) and 6ha of terrestrial ecosystem (2ha at mid-term)	Field visit, progress reports	
			0	Increase of 25% at least	Survey	
	Reduced vulnerability of populations and socioeconomic infrastructures in Dionewar to hazards with the construction or rehabilitation of protection structures	Number of dikes and ridges rehabilitated and built to protect households and socioeconomic infrastructures against flooding and coastal erosion	0	2 dikes, 2km of ridges	Field visit, completion report of contractors	
Strengthened capacity of local institutions to mainstream climate change in Communal Development Planning, sustainable natural resources management strategies and to document and disseminate lessons learned.	<p><i>Number of persons (including decision makers) aware of local climate issues and adequate measures to be implemented</i></p> <p><i>Number of local development tools that integrate adaptation measures</i></p>	0	100 persons (50 at mid-term) (half of them women and half of them men)	Training Workshop reports (list of participants)		
		0	2 (PCD and PLAE)	Updated PCD and PLAE documents		

<b>OUTPUTS</b>	<b>Component 1: Enhancing resilience for productive sectors in Dionewar Island</b>					
	1.1. <i>Alternative Fish and oyster farming production system developed for 18 women associations, including the setup of 30 fish growing cages, 200 spat collectors and 1000 growout bags (USD 88,082)</i>	- Number and type of adaptive production system	0	3	Progress reports, field visit	<u>Alternative fish and oyster farming includes: growing cages, spat collector and growout bags</u>
		- Number of fish cages	0	30		
	- Number of spat collector	0	200	Analysis Reports		
- Number of growout bags	0	1000				
	- Number of analysis report for the monitoring of the physicochemical and bacteriological parameters of the oyster farm's site	0	12			
	- Number of analysis report for the monitoring of the physicochemical and bacteriological parameters of the fish farm's site	0	12	Analysis Reports		
1.2. <i>At least 6 ha of trees planted (enrichment planting with especially coconut trees and oil palms) and 5 ha of mangrove rehabilitated in Dionewar and its satellite islands in order to revitalize the main productive sectors (USD 151,983)</i>	- Area (ha) of trees planted	0	- 6ha of tree planted (2ha at mid-term)	Field visits, progress reports		
- Area (ha) of mangrove rehabilitated	0	- 5ha of mangrove rehabilitated (2 ha at mid-term)				

1.3. At least 18 women economic interest groupings and natural resources management committee trained to improve their technical performance (USD 42,483)	- Number of women's economic groups trained  - Number of members of management committee and of community based organisations trained	0  0	18 (10 at mid-term)  30 women	Training sessions reports	
1.4. Fish and oyster farms management plans developed (USD 18,550)	- Number of management plans	0	2	Management plan documents	
<b>Component 2</b> : Protection against flooding, coastal erosion and salinization in Dionewar					
2.1. The 2 dikes to protect against flooding are restored and extended over 2 km ( USD 627,550)	- Number of new dikes restored or extended	0	2	Contractor's completion report/Field visit	
2.2. Ridges are built around rice plots in Dionewar (USD 95,027)	- Area (ha) of rice plot protected by ridges  - Number of water and soil quality analysis (physicochemical parameters such as pH, temperature, conductivity) Monitoring soil quality upstream and downstream of the dike (pH, salinity and sodium concentrations, etc.)	0  0	10 ha at least  6	Contractor's completion report/ Field visit  Analysis Reports	

2.3. A maintenance plan developed, involving key stakeholders (USD 21,000)	- Number of dikes' maintenance plan developed	0	1	Maintenance plan document	
<b>Component 3:</b> Strategic planning and knowledge management					
3.1. The Communal Development Plan (PCD) and the PLAE are reviewed in order to integrate adaptation to climate changes options & costs benefits (USD 21,000)	- Number of planning documents reviewed that integrated adaptation options	0	2	Updated PCD, updated PLAE	
3.2. Rules governing the exploitation of timber and non-timber forest products and the biological rest updated and formalized through a Local Convention ((USD 15,646)	- Number of local convention on sustainable management of natural resources adopted	0	1	Municipality deliberation note	
	- Number of field missions for monitoring the implementation of the alternative activities (bee-Keeping, etc.)	0	6	Field visit	

<p>3.3. <i>Project's lessons learned documented and shared (USD 16,150)</i></p>	<ul style="list-style-type: none"> <li>- Number of production of lessons learned</li> <li>- Number of persons (including decision makers) informed of local climate change issues and adequate measures to be implemented</li> </ul>	<p>0</p> <p>0</p>	<p>Audio records, video, posters and publications</p> <p>410 persons (270 adult women, 120 adult men, 20 students (10 girls and 10 boys))</p>	<p>Audio records, video, posters and publications</p> <p>M&amp;E reports, MTE report, Final evaluation Report</p>	<p><u>Productions includes: audio, video, posters and hard paper publication</u></p>
<p>3.4. Automatic meteorological station implemented (USD 29,400)</p>	<ul style="list-style-type: none"> <li>- Number of meteorological station implemented</li> </ul>	<p>0</p>	<p>1</p>	<p>Field visit, contractor's achievement report</p>	
<p>4. Project Execution (USD 118,290)</p>	<ul style="list-style-type: none"> <li>- Rate of achievement</li> </ul>	<p>0</p>	<p>100%</p>	<p>Progress reports, midterm and final evaluation report</p>	
<p>5. Project management CSE (USD 105,839)</p>	<ul style="list-style-type: none"> <li>- Number of reports</li> <li>- Rate of disbursement</li> <li>- Rate of achievement</li> </ul>	<p>0</p> <p>0</p> <p>0</p>	<p>12</p> <p>100%</p> <p>100%</p>	<p>Reports</p> <p>Audit report</p> <p>Final evaluation, field visit, customer satisfaction survey</p>	<p><u>9 quaterly reports, 2 annual reports, 1 final report</u></p>



## **F. Projects alignment with the Results Framework of the Adaptation Fund**

The overall objective of the project (“to reduce the vulnerability of populations in the Saloum Islands to flooding and coastal erosion”) contributes to the Adaptation Fund’s Outcomes: 1 (“Reduced exposure at national level to climate-related hazards and threats”), 5 (“Increased ecosystem resilience in response to climate change and variability-stress induced”), 6 (“Diversified and strengthened sources of income for vulnerable people in targeted areas livelihoods”), 4 (Increased adaptive capacity within relevant development sector services and infrastructure assets), 3 (Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level), and 7 (Improved policies and regulations that promote and enforce resilience measures). This will be achieved by enhancing the resilience of natural habitats, populations and their activities to the adverse effects of climate change and climate variability.

The first project outcome (“The resilience of the main productive sectors of Dionewar Island is enhanced and sustainable livelihoods of populations are improved”) aligns with the Adaptation Output 5 (Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability) and Output 6: “Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability”.

The Project Outcome 2 (“The vulnerability of populations in Dionewar to hazards is reduced with the construction or rehabilitation of protection structures”) aligns with the Adaptation Fund Output 4: “Vulnerable physical, natural, and social assets strengthened in response to climate impacts, including variability change”.

The project Outcome 3 (“Climate change is integrated in Communal Development Planning, natural resources are used in a more sustainable way and lessons learned are documented and shared”) is aligned with the Adaptation Fund Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities and Output 7: “Improved integration of climate-resilience strategies into country development plans”.

Table 12 : Project alignment with the AF's results framework

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Reduce vulnerability of populations in the Saloum Islands to flooding and coastal erosion.	Number of risk-exposed coastal household of Dionewar benefiting of adaptation measures	<p><b>Outcome 1:</b> <i>Reduced exposure to climate-related hazards and threats</i></p> <p><b>Outcome 5:</b> <i>Increased ecosystem resilience in response to climate change and variability-induced stress</i></p> <p><b>Outcome 6:</b> <i>Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</i></p> <p><b>Outcome 4:</b> <i>Increased adaptive capacity within relevant development sector services and infrastructure assets</i></p> <p><b>Outcome 3:</b> <i>Strengthened awareness and ownership of adaptation and</i></p>	<p>1.2.1. Percentage of target population covered by adequate risk-reduction systems</p> <p>5. Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress</p> <p>6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods</p> <p>4.2. Physical infrastructure improved to withstand climate change and variability-induced stress</p> <p>3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and</p>	

		<p><i>climate risk reduction processes at local level</i></p> <p><b>Outcome 7:</b> <i>Improved policies and regulations that promote and enforce resilience measures</i></p>	<p><i>of appropriate responses</i></p> <p><i>7. Climate change priorities are integrated into national development strategy</i></p>	
<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>
<p><u>Outcome 1:</u> Improved resilience of the main ecosystems of Dionewar Island is enhanced and sustainable livelihoods of populations</p>	<p>1.1. Number ha of mangrove and terrestrial ecosystems restored</p> <p>1.2. Percentage of increased income for populations involved in alternative generation income activities (desegregated by gender)</p>	<p><b>Output 5:</b> <i>Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability</i></p> <p><b>Output 6:</b> <i>Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</i></p>	<p>5.1. <i>No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)</i></p> <p>6.2.1. <i>Type of income sources for households generated under climate change scenario</i></p>	301,098
<p><u>Outcome 2:</u> Reduced vulnerability of populations and socioeconomics infrastructures in Dionewar to</p>	<p>2.1. Number of dikes rehabilitated and built to protect household and socioeconomic infrastructures against flooding</p>	<p><b>Output 4:</b> <i>Vulnerable development sector services and infrastructure assets</i></p>	<p>4.1.2. <i>No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability</i></p>	743,577

hazards with the construction or rehabilitation of protection structures		<i>strengthened in response to climate change impacts, including variability</i>	<i>and change (by sector and scale)</i>	
<b>Outcome 3:</b> Strengthened capacity of local institutions to mainstream climate change in Communal Development Planning, sustainable natural resource management strategies and to document and disseminate lessons learned.	3.1. <i>Number of persons (including decision makers) aware of local climate change issues and adequate measures to be implemented</i>  3.2. <i>Number of local development tools that integrate adaptation measures</i>	<b>Output 3:</b> <i>Targeted population groups participating in adaptation and risk reduction awareness activities</i>  <b>Output 7:</b> <i>Improved integration of climate-resilience strategies into country development plans</i>	3.1 <i>No. of news outlets in the local press and media that have covered the topic</i>  7.1. <i>No. of policies introduced or adjusted to address climate change risks (by sector)</i>	82,196

Through its 3 components, the project is in line with 4 out of the 5 Adaptation Fund core impact indicators.

Activities planned under **Components 1** (*Enhancing resilience of main ecosystems in Dionewar island*) and **2** (*Protection against flooding and salinization in Dionewar*) will contribute to measuring impacts in terms of

- “Number of Beneficiaries”;
- “Assets produced, developed, improved or strengthened” with the rehabilitation of the flood management system;
- “Increased income, or avoided decrease in income”: development of fisheries, non-wooded forest products availability and agriculture; and
- “Natural Assets Protected or Rehabilitated”: reduction of deforestation, improvement of biodiversity, restoration of mangroves and enhancement of the integrity of ecosystem

Activities planned under **Component 3** (*Strategic planning and knowledge management*) contribute to measuring impacts in terms of “Assets Produced, developed, Improved or strengthened” by the mainstreaming of climate change in Communal Development Planning.

Table 13: Targets for AF's Core indicators of the project

Core indicators	Information on the core indicators
<p style="text-align: center;"><b>Number of Beneficiaries</b></p>	<p><b>3 480 direct beneficiaries and 1,915 indirect beneficiaries</b></p> <p><b><u>Detailed calculation of the direct beneficiaries</u></b></p> <ul style="list-style-type: none"> <li>- 270 households (<b>2970 persons</b>)</li> <li>- <i>Strengthened capacity of local institutions to mainstream climate change in Communal Development Planning, sustainable natural resources management strategies and to document and disseminate lessons learned of 100 persons (50 at mid-term) (half of them women and half of them men)</i></li> <li>- <i>Informed of local climate change issues and adequate measures to be implemented for 410 persons (270 adult women, 120 adult men, 20 students (10 girls and 10 boys)</i></li> </ul> <p><b><u>Detailed calculation of the indirect beneficiaries</u></b></p> <ul style="list-style-type: none"> <li>- <i>All project activities will have an impact on the entire population</i></li> </ul>
<p><b>Assets produced, developed, improved or strengthened” with the rehabilitation of the flood management system</b></p>	<p><b>Assets improved or strengthened (in short-term)</b></p> <ul style="list-style-type: none"> <li>- 270 households</li> <li>- 1 Fish processing unit for the women</li> <li>- 1 cemetery</li> <li>- 1 High School</li> <li>- 2 Elementary School</li> <li>- 1 Health Post</li> <li>- 1 Post Office</li> </ul> <p><b>Assets improved or strengthened (long-term)</b></p> <ul style="list-style-type: none"> <li>- The entire village</li> </ul>
<p><b>“Increased income, or avoided decrease in income”: development of fisheries, non-wooded forest products availability and agriculture;</b></p>	<ul style="list-style-type: none"> <li>- The average annual income from the plantations of coconut and palm trees and reforestation of mangrove is estimated at USD 8,990 from the fourth year of reforestation.</li> <li>- The reforestation of 6 hectares of mangrove is also planned to play an important role in the fight against flooding, reproduction, and the development of certain fish species, oyster development, construction wood production (poles) and wood fuel. After three years, the mangrove can contribute to the oyster farming development.</li> <li>- The development of fish and oyster farms to improve populations' incomes will allow an annual production estimated at USD 387,164 during the first two years of exploitation. After the first two years of aquaculture exploitation, the annual income can be increased to USD 774,327.</li> </ul>
<p><b>“Natural Assets Protected or Rehabilitated”: reduction of deforestation,</b></p>	<ul style="list-style-type: none"> <li>- 5ha of mangrove</li> <li>- 6ha of tree planted</li> </ul>

<b>Core indicators</b>	<b>Information on the core indicators</b>
<b>improvement of biodiversity, restoration of mangroves and enhancement of the integrity of ecosystem</b>	

## G. Detailed budget

### a) Summary output budget

**Table 14: Output budget**

<b>Components</b>	<b>Output</b>	<b>Year-1</b>	<b>Year-2</b>	<b>Year-3</b>	<b>Total</b>
<b>Component 1:</b>	1.1	52,980	17,551	17,551	88,082
Enhancing resilience of main ecosystems in Dionewar island	1.2	87,516	36,783	27,683	151,983
	1.3	14,161	14,161	14,161	42,483
	1.4	0	16,100	2450	18,550
<b>Total Component 1</b>		<b>154,657</b>	<b>84,595</b>	<b>61,845</b>	<b>301,098</b>
<b>Component 2:</b>	2.1	624,000	0	3550	627,550
Protection against flooding, coastal erosion and salinization in Dionewar	2.2	46,837	24,095	24,095	95,027
	2.3	21,000	0	0	21,000
<b>Total Component 2</b>		<b>691,837</b>	<b>24,095</b>	<b>27,645</b>	<b>743,577</b>
<b>Component 3:</b>	3.1	10,000	8,000	3,000	21,000
Strategic planning and knowledge management	3.2	5,893	5,039	4,714	15,646
	3.3	6,050	5,550	4,550	16,150
	3.4	29,400	0	0	29,400
<b>Total component 3</b>		<b>51,343</b>	<b>18,589</b>	<b>12,264</b>	<b>82,196</b>
<b>Project execution</b>		<b>43,280</b>	<b>30,320</b>	<b>44,690</b>	<b>118,290</b>
<b>Total Project cost</b>		<b>941,117</b>	<b>157,599</b>	<b>146,444</b>	<b>1,245,161</b>
<b>Management fees</b>		<b>37,239</b>	<b>34,200</b>	<b>34,400</b>	<b>105,839</b>
<b>TOTAL PROJECT COST</b>		<b>978,356</b>	<b>191,799</b>	<b>180,844</b>	<b>1,351,000</b>

## b) Detailed budget with budget notes

Table 15: Detailed budget

COMPONENT	OUTPUTS	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	NOTES
Component 1:	Output 1.1	<u>Fish farming</u>					
Outcome 1	200 spats	Logistic	10,000	-	-	10,000	Motorized speedboat
		Operating expenses	5,895	5,895	5,895	17,685	
		<u>Oyster farming</u>					
		Fixed asset	13,060	-	-	13,060	
		Working capital	12,965	-	-	12,965	
		Implementation of mitigation measures	6,667	6,667	6,666	20,000	
		Oversight activity (waste management, application of environmental clauses, etc.)		596	596	1,192	
		Monitoring activity (physicochemical and bacteriological parameters, selection of beneficiaries, etc.)	4,393	4,393	4,394	13,180	
		<b>Total Output 1.1</b>	<b>52,980</b>	<b>17,551</b>	<b>17,551</b>	<b>88,082</b>	
	Output 1.2.	<u>Tree Nursery</u>					
	6ha reforestation	Laying out	10,000	-	-	10,000	Cleaning, fencing, digging well
	5ha mangrove	Inputs	2,849	2,449	2,849	8,147	Plastic container, seed, phytosanitary products
		Equipment	49,833	-	-	49,833	Rakes, shovels, wheelbarrows, and other equipment
		Labour	23,734	23,734	23,734	71,202	10 temporary workers for watering, weeding, etc.
		<u>Reforestation</u>					



COMPONENT	OUTPUTS	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	NOTES
		Logistic	600	600	600	1,800	Cart rental for young trees transportation
		Social labor	500	500	500	1 500	Allowances, restauration for 100 persons/session
		Ecoguards training	-	5,000	-	5,000	Consultancy services for training 15 eco-guards
		Ecoguards equipment	-	4,500	-	4,500	Uniforms and other equipments
		<b>Total Output 1.2</b>	<b>87,516</b>	<b>36,783</b>	<b>27,683</b>	<b>151,982</b>	
	Output 1.3.	<u>Organizational Management</u>					
	19 GPF trained	Consultancy services	5,000	5,000	5,000	15,000	10H/day x 3 sessions
		Workshop	1,800	1,800	1,800	5,400	30 participants/session of 5days x 3
		<u>Production mgt</u>					
		Consultancy services	5,000	5,000	5,000	15,000	10 P/day x 3 sessions
		Workshop	1,800	1,800	1,800	5,400	30 participants/session of 5 days x 3 sessions
		Oversight activity (integration of gender principles during the setting up of committees, application of environmental clauses - waste and water management - during training sessions, etc.)	561	561	561	1,683	
		<b>Total Output 1.3</b>	<b>14 161</b>	<b>14 161</b>	<b>14 161</b>	<b>42 483</b>	
	Output 1.4.	<u>Fish farming</u>					
	2 Management Plan	Consultancy services	-	7,000	-	7,000	15 P/Day

COMPONENT	OUTPUTS	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	NOTES
		Validation workshop	-	700	-	700	One day workshop for 50 participants (Restauration)
		<u>Oyster farming</u>					
		Consultancy services	-	7,000	-	7,000	15 P/day
		Validation workshop	-	700	-	700	One day workshop for 50 participants (Restauration)
		Oversight activity (Integration of environmental clauses into the management plan, etc.)		700		700	
		Monitoring the integration of environmental clauses into management plan			2,450	2,450	
		<b>Total output 1.4</b>	<b>0</b>	<b>16,100</b>	<b>2,450</b>	<b>18,550</b>	
<b>TOTAL COMPONENT 1:</b>			<b>154,657</b>	<b>84,595</b>	<b>61,845</b>	<b>301,098</b>	

COMPONENT	OUTPUTS	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	Notes
Component 2:	Output 2.1						
	2 dikes	Surveying	35,000	-	-	35,000	Complementary feasibility studies
Outcome 2		Shell storage	527,000	-	-	527,000	Supervision and technical assistance
		Contract services	62,000	-	-	62,000	
		Implementation of mitigation measures (anti-contamination plan, waste management, etc.)			2,500	2,500	
		Oversight activity (respect of labor right, especially with regard to child labor, etc.)			1,050	1,050	
		<b>Total Output 2.1</b>	<b>624,000</b>	<b>0</b>	<b>3,550</b>	<b>627,550</b>	
	Output 2.2						
	Ridges	Rice areas mapping	10,000	-	-	10,000	Cadastral map of rice-growing areas
		Purchase of equipment	10,000	-	-	10,000	
		Social mobilization actions	8,000	-	-	8,000	Construction
		Consultation with producers	3,000	-	-	3,000	(use and amortization of material)
		Construction of multipurpose unit	1,699	-	-	1,699	
		Tiller	4,138	-	-	4,138	
		Implementation of mitigation measures (Pest and Pesticide management plan)	10,000	10,000	10,000	30,000	
		Oversight activity		1,225	1,225	2,450	

COMPONENT	OUTPUTS	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	Notes
		(gender aspects into the committees, integration of environmental clauses, etc.)					
		Monitoring activity (Physicochemical parameters, etc.)		12,870	12,870	25,740	
		<b>Total Output 2.2</b>	<b>46,837</b>	<b>24,095</b>	<b>24,095</b>	<b>95,027</b>	
	Output 2.3.						
	Maintenance plan	Maintenance guide	15,000	-	-	15,000	
		Management committee	3,000	-	-	3,000	
		Report back session	3,000	-	-	3,000	
		<b>Total output 2.3</b>	<b>21,000</b>	<b>-</b>	<b>-</b>	<b>21,000</b>	
	Implementation of the ESMP	<b>Implementation of the ESMP</b>	<b>24,040</b>	<b>24,040</b>	<b>24,040</b>	<b>72,120</b>	
<b>TOTAL COMPOSANTE 2:</b>			<b>705,877</b>	<b>24,040</b>	<b>24,040</b>	<b>753,957</b>	

COMPONENT	OUTPUTS	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	Notes
Component 3:	Output 3.1						
	Mainstreaming CC	Update PCD and PLAE	7,000	-	-	7,000	Consultancy services 30 P/Day
		Training (1) local representatives	-	5,000	-	5,000	Consultancy 10 P/Day. "Climate resilient budget"
		Training (2) local representatives	2,600	2,600	2,600	7 800,00	Consultancy 7 P/D x 3 sessions. "CC management"
		Workshops	400	400	400	1,200	25 participants per training session
		<b>Total Output 3.1</b>	<b>10,000</b>	<b>8,000</b>	<b>3,000</b>	<b>21,000</b>	
	Output 3.2.						
	Local	Diagnostic RN natural resources	3,000	-	-	3,000	Consultancy services 15 P/day
	convention	Drafting local convention	1,400	-	-	1,400	Consultancy services 10 P/day
	(LC)	Validation workshop	-	600,00	-	600	
		Deliberation session	-	600,00	-	600	Support to municipality
		Edition duplication LC	-	2 346,00	-	2,346	Production of 500 copies
		Oversight activity (application of alternatives measures proposed to social groups whose livelihoods activities may be affected by the new local regulations; e.g. development of bee-keeping activities, etc.)	1,493	1,493	1,494	4,480	
		Monitoring the effectiveness of the application of the mitigation measures			3,220	3,220	

COMPONENT	OUTPUTS	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	Notes
		proposed to social groups whose livelihoods activities may be affected by the new local regulations					
		<b>Total Output 3.2</b>	<b>5 893</b>	<b>5 039</b>	<b>4 714</b>	<b>15 646</b>	
	Output 3.3.						
	CC Knowledge	Annual reports production	2,500	2,500	2,500	7,500	Illustrated publication (Edition and impression)
	Management	Audio et television broadcasting	-	1,000	-	1,000	Media mobilization
		Posters production	2,500	-	-	2,500	
		Workshops	1,050	2,050	2,050	5,150	DSA for project's staff
		<b>Total Output 3.3</b>	<b>6,050</b>	<b>5,550</b>	<b>4,550</b>	<b>16,150</b>	
	Output 3.4						
	Weather Station	Weather station	22,000	-	-	22,000	
		Identification mission	2,500	-	-	2,500	
		Installation mission	1,000	-	-	1,000	
		Securisation work	2,500	-	-	2,500	
		Maintenance	1,400	-	-	1,400	
		<b>Total Output 3.4</b>	<b>29,400</b>	<b>-</b>	<b>-</b>	<b>29,400</b>	
	<b>TOTAL COMPONENT 3:</b>		<b>51,343</b>	<b>18,589</b>	<b>12,264</b>	<b>82,196</b>	

COMPONENT	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	NOTES
Project execution						
	<u>Staff salaries and allowances</u>					
	M & E specialist salary	7,200	7,200	7,200	21,600	
	Local coordinator salary	6,000	6,000	6,000	18,000	
	Admin and fin assistant salary	3,600	3,600	3,600	10,800	
	Allowances of CADL technical staff	4,800	4,800	4,800	14,400	
	<u>Refection and equipment of office</u>					
	Refection former rural community office	3,290	-	-	3,290	
	Office furniture	900	-	-	900	
	Computing equipment	2,400	-	-	2,400	
	Maintenance	-	200	-	200	
	Office supplies	600	600	600	1,800	
	Commodities	1,200	1,200	1,200	3,600	
	Transportation	1,070	1,000	1,070	3,140	
	Communication	720	720	720	2,160	Estimate. USD 60/month
	Inception workshop	9,500	-	-	9,500	
	Steering committee meeting	2,000	2,000	2,000	6,000	
	Final audit	-	-	10,000	10,000	
	Mid-term evaluation	-	3,000	-	3,000	
	Final evaluation	-	-	7,500	7,500	
	<b>Total Project Execution</b>	<b>43,280</b>	<b>30,320</b>	<b>44,690</b>	<b>118,290</b>	

**c) Budget on the Implementing Entity management fee (CSE)**

**Table 16: Output budget**

COMPONENT	ACTIVITIES	Year 1	Year 2	Year 3	TOTAL	Notes
<b>Management fees</b>						
	CSE staff allowances	14,200	19,200	20,200	<b>53,600</b>	
	Field supervisions (contribution to M&E)	10,000	8,000	6,000	<b>24,000</b>	
	Control of works	5,000	5,000	5,000	<b>15,000</b>	
	Inception workshop (Contribution to execution resources)	6,039	-	-	<b>6,039</b>	
	Financial fees	2,000	2,000	3,200	<b>7,200</b>	
	<b>Total Project Management</b>	<b>37,239</b>	<b>34,200</b>	<b>34,400</b>	<b>105,839</b>	



## H. Disbursement schedule

Table 17: Disbursement schedule

	Upon signature of Agreement	One Year after Project Start	Year 2	Year 3	Total
Scheduled Date	July 2016	July 2017	July 2018	July 2019	
Project Funds	534,603	534,602	105,516	70,440	1,245,161
Implementing Entity Fees	18,620	18,619	34,200	34,400	105,839
<b>Total</b>	<b>553,223</b>	<b>553,221</b>	<b>139,716</b>	<b>104,840</b>	<b>1,351,000</b>

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

**A. Record of endorsement on behalf of the government<sup>2</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:

*Mrs. Ndeye Fatou Diaw Guene*

Date: 02/03/2015

*Designated National Authority for the  
Adaptation Fund*

*Technical Advisor  
Directorate of Environment and Classified  
Establishments  
Ministry of Environment and Sustainable  
Development*



<sup>2</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.

**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 (Senegalese National Adaptation programmes of Actions on climate change; Senegalese National Climate Change Adaptation Strategy; National Strategy for Economic and Social Development; Senegalese Five-year Agricultural Programme; Emerging Senegal Plan) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Dr Assize Touré  
 General Manager  
 Centre de Suivi Ecologique  
 Implementing Entity Coordinator



Date: 02/03/2015

Tel. and email: +221 338258066  
 assize@cse.sn

Project Contact Person: Dethie Soumare NDIAYE

Tel. and Email: dethie@cse.sn

## BIBLIOGRAPHY

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# ANNEXES

## LIST OF PERSONS AND INSTITUTIONS CONSULTED

N°	Name	Position	Contact
<b>Niodior Prefecture, January 15 2016</b>			
1	Amadou Lamine SY	Sub-prefect	77 529 06 73
<b>Municipal Council of Dionewar, January 15 2016</b>			
2	Ansoumana SARR	Mayor	77 318 01 84
3	Abdoulaye NDIAYE	Secretary	77 525 99 35
4	Lamine THIARE	Mayor's 1st assistant	77 412 43 37
5	Abdou FAYE	Municipal Councillor	77 113 55 10
6	Mata DIENE	Municipal Councillor	77 604 37 61
7	Fatou BAKHOUM	Municipal Councillor	77 329 61 20
8	Aminata NDONG	Municipal Councillor	77 268 77 13
9	EI H Ismaïla SARR	Municipal Councillor	77 921 66 62
10	Sophie SARR	Municipal Councillor	77 893 47 39
11	Lamine SARR	Municipal Councillor	77 316 22 64
12	Ibrahima NDIAYE	Municipal Councillor	77 507 11 08
13	Ibrahima DIOP	Municipal Councillor	77 518 90 32
14	Marie SARR	Municipal Councillor	77 316 23 92
15	Faback SALL	Municipal Councillor	77 415 84 96
<b>Local federation of the Economic Interested Groups (FELOGIE) de Dionewar, January 16 2016</b>			
16	Moussa SARR	Association for the Development of Dionewar (ADD)	77 566 21 85
17	Mariama THIOR	FELOGIE	77 521 61 38
18	Fatou NDONG	FELOGIE	
19	Fatou SARR	FELOGIE	77 449 35 42
20	Assane SARR	ADD	77 563 64 88
21	Djibril DIOP	ADD	77 552 33 95
22	Mahamadou Lamine NDONG	Village Chairman	77 521 54 28
<b>Public consultation of Dionewar, January 17 2016</b>			
23	Lamine THIARE	Mayor's 1st assistant	77 412 43 37
24	Arfang NDOUR	Fisherman	77 202 02 00
25	Adama NDIAYE	Fisherman	77 358 23 01
26	Mamadou DIOUF	Fisherman	77 320 83 23
27	Djibril SARR	Teacher	77 457 17 60
28	Aïcha DIOP	Housewife	77 903 29 72
29	Assane SARR	Health Committee President	77 309 47 22
30	Fatou SARR	GIE President	77 449 35 42
31	Salimata SARR	Midwife	77 375 28 37
32	Fatou NDONG	Housewife	
33	Gnima DIOUF	Housewife	

34	Mary SARR	Municipal Councillor	77 316 23 92
35	Ndèye Doko SENHOR	Housewife	77 876 02 50
36	Mariama THIOR	GPF President	77 522 62 38
37	Mariama SARR	Housewife	77 191 64 47
38	Idrissa DIOP	Fisherman	77 734 48 94
39	Mouhamadou S SARR	Student	77 066 44 51
40	Bakary SARR	Student	78 315 88 79
41	Astou NDIAYE	Student	77 737 04 41
42	Khady NDIAYE	Student	78 397 04 96
43	Fodé SARR	Fisherman	77 784 29 68
44	Boubacar DIENG	Fisherman	77 520 99 15
45	Sékou NDIAYE	Fisherman	77 453 57 23
46	Faback SARR	Retiree Sailor/Fisherman	77 363 61 55
47	EI H NDIAYE	Retiree Sailor/Fisherman	77 433 36 99
48	Birama NDONG	Fisherman	77 045 36 83
49	Abdou DIOUF	Fisherman	77 179 21 90
50	Ousmane NDONG	Retiree Sailor/Fisherman	
51	Babacar SARR	Carpenter	77 255 53 05
52	Omar NDONG	Fisherman	77 785 48 77
53	Moustapha NDOUR	Retiree	77 127 02 11
54	Mamadou SOW	Student	78 230 66 73
55	Mbagnick NGOM	Student	77 994 33 25
56	Abdou SENHOR	Student	78 215 50 08
57	Abdou DIOUF	Teacher	77 443 11 58
58	Lamine DIOP	Fisherman	77 425 65 06
59	Assane DIOP	Fisherman	77 798 47 41
60	Mamadou NDOUR	Fisherman	77 229 82 94
61	Abdou NDIAYE	Fisherman	77 666 27 17
62	Yamaty MANE	Housewife	77 609 92 44
63	Sophie SARR	Municipal Councillor	77 893 47 39
64	Aminata NDONG	Municipal Councillor	77 268 77 13
65	Seynabou DIENE	Teacher	77 237 12 46
66	Sophie DIOUF	Post officer	77 428 52 43
67	Rokhy DIOUF	Housewife	77 030 79 86
68	Abdou SARR	Mason	77 316 24 46
69	Mama Lamine NDIAYE	Eco tour guide	77 370 55 09
70	Mamadou NDIAYE	Student	78 358 14 16
71	Bakary NDONG	Student	77 378 51 30
72	Abdoulaye DIOP	Teacher	77 378 51 30
73	Ansou DIOUF	Teacher	77 456 61 87
74	Soumaïla NDIAYE	Carpenter	77 367 09 46

75	Mady SARR	Teacher	77 532 17 34
76	Ibrahima NDIAYE	Municipal Councillor	77 507 11 08
77	EI H Faby DIOUF	Teacher	77 435 87 85
78	Mamadou THIAW	Merchant	77 906 94 28
79	Lamine Séla FAYE	Fisherman	77 989 78 29
80	Ibrahima DIOP	Municipal Councillor	77 518 90 32
81	Mamady DIOUF	Fisherman	77 438 78 99
82	Djibril Passy NDONG	Teacher	77 451 71 58
83	Lamine DIOUF	Local development agent	77 406 31 82
84	Ousmane THIOR	Carpenter	77 105 56 67
85	Assane NDIAYE	Retiree	77 534 47 10
86	Haby NDONG	Housewife	
87	Babacar NDIAYE	Carpenter	77 646 75 47
88	Aliou NDIAYE	Fishmonger	77 605 76 37
89	Ousmane SARR	Carpenter	77 916 90 27
90	Mouhamadou Lamine NDONG	Chef de village	77 521 54 18
91	Diatou DIOUF	Housewife	
92	Maïmouna DIAME	Housewife	
93	Bakary SARR	Carpenter	77 570 97 50
94	Dioba SARR	Maçon	77 986 88 00
95	Lamine TOURE	Maçon	77 230 18 98
96	Adama NDIAYE	Fisherman	77 678 53 97
97	Bineta DIOUF	Housewife	77 820 21 51
98	Djibril DIOP	ADD	77 566 21 85
99	Birama SARR	ADD	77 649 21 49
100	Souleymane DIOUF	Fisherman	77 175 57 92
101	Adama Sy SARR	Teacher	77 241 21 24
<b>Technical services, January 18 and 19 2016</b>			
102	Mamadou WADE	Foundiougne fishery department, Head of office	77 737 59 51
103	Victor Toupane	Foundiougne Rural development, Head of office	77 572 20 74
104	Papa Diogomaye DIOUF	APIL Coordinator	77 362 53 98
105	Ousseynou DIOUF	APIL leader	77 573 21 79
106	Adama DIALLO	Foundiougne Forestry Department Assistant Director	77 209 03 35
107	Abdallah L. CAMARA	Fatick Environment and Classified Establishments Department Head of Office	77 671 82 97
108	Omar BADIANE	Fatick Environment and Classified Establishments Department Head of Office's Assistant	77 441 51 70
109	Ousmane FALL	Fatick Forestry Department Head of Office	77 630 75 43
110	Mamadou Hamdiatou BA	Regional development Agency of Fatick's M&E Officer	77 657 77 33
111	Boubacar DIALLO	Fatick Rural Development Director	77 363 67 45
112	Ibrahima LO	Fatick Fishery Department Head of Office	77 649 01 45



## INTERVIEW GUIDE

Actors categories	Topics covered
<b>Technical Services</b>	<i>Point of view on the project for "Reducing vulnerability and increasing resilience of coastal communities in the Saloum Island".</i>
	<i>Roles and missions of the structure in the implementation of this type of project.</i>
	<i>Fears and concerns about the project.</i>
	<i>Past experiences in the implementation of such projects.</i>
	<i>Constraints identified in the implementation of such projects.</i>
	<i>Point on the capacity of technical services to support the CSE, the ANA, the CONAF (technical, human and material resources).</i>
	<i>Identification of capacity building needs.</i>
	<i>Expectations and recommendations.</i>
<b>Populations/Municipalities</b>	<i>Point of view on the project.</i>
	<i>Fears and concerns about the project.</i>
	<i>Existence of similar project in the area.</i>
	<i>Land tenure situation in the locality.</i>
	<i>Identification of capacity building needs (training, etc.)</i>
	<i>Expectations and recommendations.</i>



ADAPTATION FUND

REPUBLIQUE DU SENEGAL  
Un Peuple - Un But - Une Foi

MINISTRE DE L'ENVIRONNEMENT  
ET DU DEVELOPPEMENT DURABLE

-----  
Direction de l'Environnement et  
des Etablissements classés



0783

N°

MEDD/ DEEC. AND/AF

Date

08 AVR. 2016

To: The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: Secretariat@Adaptation-Fund.org  
Fax: 202 522 3240/5

**Subject: Endorsement for Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar)**

In my capacity as designated authority for the Adaptation Fund in Senegal, I confirm that the above national 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 Senegal.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by "Centre de Suivi Ecologique (CSE)" and executed by "Comité National pour l'Alphabétisation et la Formation (CONAF), Agence Nationale pour l'Aquaculture (ANA).

Sincerely,



Mrs. Ndèye Fatou Diaw GUENE

Designated National Authority for the Adaptation Fund  
Technical Advisor  
Directorate of Environment and Classified Establishments

**REPUBLIC OF SENEGAL  
REGION OF FATICK  
DEPARTMENT OF FOUNDIIOUGNE  
DISTRICT OF NIODIOR  
MUNICIPALITY OF DIONEWAR**

Dionewar, January 14th 2015

**Object: Commitment letter**

The Municipal Council of Dionewar through its Mayor, was informed and consulted about the project initiative named “***Reducing vulnerability and increasing resilience of coastal communities in Dionewar***” initiated by the National Committee for Literacy and Training (CONAF in French) and the Dionewar Development Association. The CONAF and the National Aquaculture Agency (ANA in French) are the executing entities with support from the Centre de Suivi Ecologique (CSE) which is the national implementing entity accredited by the Adaptation Fund.

To this end, the Mayor, while acknowledging that the project is in line with the objectives and priorities of the municipality’s development plan, has expressed his needs and the local development concerns, giving orientations, priorities and share the requirements for transparent, rigorous and efficient use of funds which will be allocated to the project.

On behalf of the Municipal Council of Dionewar, the Mayor is committed to contribute financially or in kind in the amount of 5 to 10% by monitoring and maintenance of structures and infrastructures in place, if the project is approved in order to help and support the achievement of expected results in the component of the project and maintain infrastructures’ lifespan.

In witness whereof, this commitment letter is established to serve and assert, that right.

We wish good reception and please accept our best feelings of frank cooperation.

M. Ansoumane SARR

Mayor of Dionewar

REPUBLIQUE DU SENEGAL  
REGION DE FATICK  
DEPARTEMENT DE FOUNDIOUGNE  
ARRONDISSEMENT DE NIODIOR  
COMMUNE DE DIONEWAR

Dionewar, le 15 Janvier 2015

**Objet : Lettre d'engagement**

Le Conseil Municipal de la Commune de Dionewar à travers son Maire, a été informé et consulté sur l'initiative d'élaboration du projet « *Réduction de la vulnérabilité et renforcement de la résilience des communautés côtières dans la commune de Dionewar* » par le Comité National pour l'Alphabétisation et la Formation (CONAF) et l'Agence Nationale pour l'Aquaculture (ANA) avec l'appui du Centre de Suivi Ecologique (CSE), entité nationale d'exécution accréditée par le Fonds d'Adaptation.

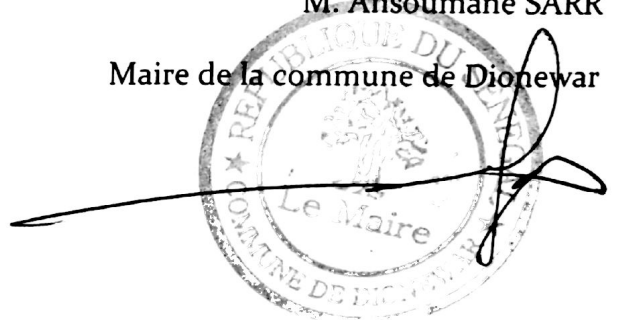
A cet effet, le Maire, tout en reconnaissant que le projet est en adéquation avec les objectifs et les priorités du plan de développement de la commune à moyen terme, a eu à exprimer ses besoins et préoccupations de développement local, à donner ses orientations, ses priorités et partager les exigences en matière de gestion transparente, rigoureuse et efficiente des fonds qui seront alloués au dit projet.

Au nom du Conseil Municipal de la commune de Dionewar, le Maire s'engage à apporter une contribution financière ou en nature à hauteur de 5 à 10% du projet en assurant le suivi et la maintenance des ouvrages et infrastructures mis en place, si le projet est approuvé dans le but d'aider et d'accompagner à l'atteinte des résultats attendus dans les composantes du projet et à maintenir la durée de vie des ouvrages.

En foi de quoi, cette lettre d'engagement est établie pour servir et valoir ce que de droit.

Nous souhaitons une bonne réception aux destinataires et prions d'agréer, nos meilleurs sentiments de franche collaboration.

M. Ansoumane SARR  
Maire de la commune de Dionewar



**REPUBLIC OF SENEGAL**  
**(One People-One Goal-One Faith)**

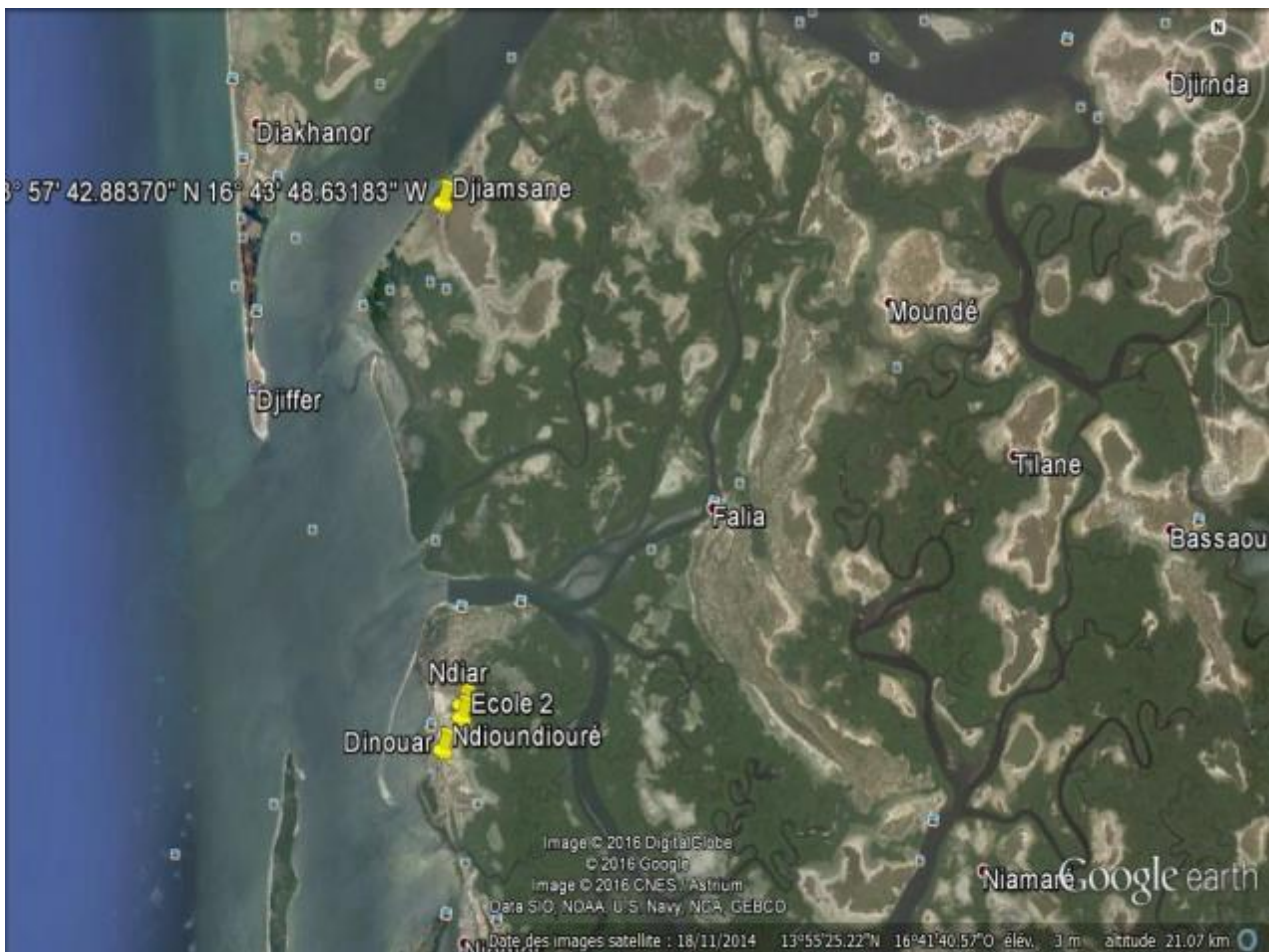


**Centre de Suivi Ecologique**



**Feasibility Report of the Project entitled "Reducing vulnerability  
and increasing resilience of coastal communities  
in the Saloum Islands (Dionewar)"**

*Final/ revised version*



Saloum Delta Map

**February 2016**

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

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AF : Adaptation Fund

ANA : National Agency for Aquaculture

ANCAR : National Agency for Agricultural Consultancy

ANIDA : National Agency for Professional Integration and Agricultural Development

APD : Detailed Design

BARVAFOR : Water retention and well valuation project

CES/DRS : Water and Soil Conservation and Soil Protection and Restoration

CSE : Centre de Suivi Ecologique

DBRLA : Directorate of Retention Basins and Artificial Lakes

DEEC : Directorate of Environment and Classified Establishments

DH : Height difference between sea level and the highest point of the island

DRDR : Regional Directorate for Rural Development

DREEC : Regional Directorate of Environment and Classified Establishments (Direction de L'Environnement et des Etablissements Classés)

EIA : Environmental Impact Assessment

ESMP : Environmental and Social Management Plan

GDERST : Sustainable Management of Runoff Waters and Land Salinization

INP : Institut National de Pédologie (National Institute of Pedology)

ISRA : Institut Sénégalais de Recherche Agronomique (Senegalese Institute of Agricultural Research )

MAER : Ministry of Agriculture and Rural equipment

NGO : Non-Governmental Organization

PADAER : Agricultural Development and Rural Entrepreneurship Support Program

PADERCA : Rural Development Support Project in Casamance

PAFA : Agricultural Sector Value Chains Support Project

PAPIL : Project to Support Local Small-Scale Irrigation

PAPSEN : Program to Support the National Agricultural Investment Program of Senegal

PNAR : National Program for Rice Self-sufficiency

PNDIL : National Program for Small Irrigation Development

PO : Producers Organization

PRODULAS : Anti-salt Emergency Program

PSE : Plan Senegal Emergent

SNGDERST : National Strategy for Sustainable Management of Runoff Waters and Land Salinization

WFP : World Food Program





## Introduction

The Senegalese coastline and low estuary areas including the Saloum Delta islands are very sensitive to climate change impacts, with increased risks of floods and erosion due to the rising sea level and increased aggressiveness of swells. The Saloum Delta is characterized by the confluence of Sine and Saloum rivers and presence of inlets.

This geomorphological situation explains the exposure level of these islands to climate variability and water level rise in particular. The existence of two types of tides (high and low) causing eustatic movements (ebb/flow, high/low tide) is noted. The highest risk periods are those of high tide during the rainy seasons causing the flooding of Saloum Delta island villages.

Faced with the constant threat of advanced marine waters, vulnerable island areas often try to implement control methods at local level but these remain often inappropriate and inadequate. The populations of the village tried to set up sand beads sometimes reinforced with wooden stakes to control flood phenomena. These solutions only served to limit the advance of waters during low water periods and sometimes constituted obstacles to storm water during the rainy season.

The Centre de Suivi Ecologique (CSE), sponsor of this feasibility study is a National Implementing Entity (NIE) of the Adaptation Fund (AF). As such, CSE supports the formulation and submission of project and program documents to benefit from the Fund's resources. The actions considered by the project will help protect the village against flooding, improve the living environment of populations and, among others, safeguard community assets (public buildings, cultural sites) and dwellings.

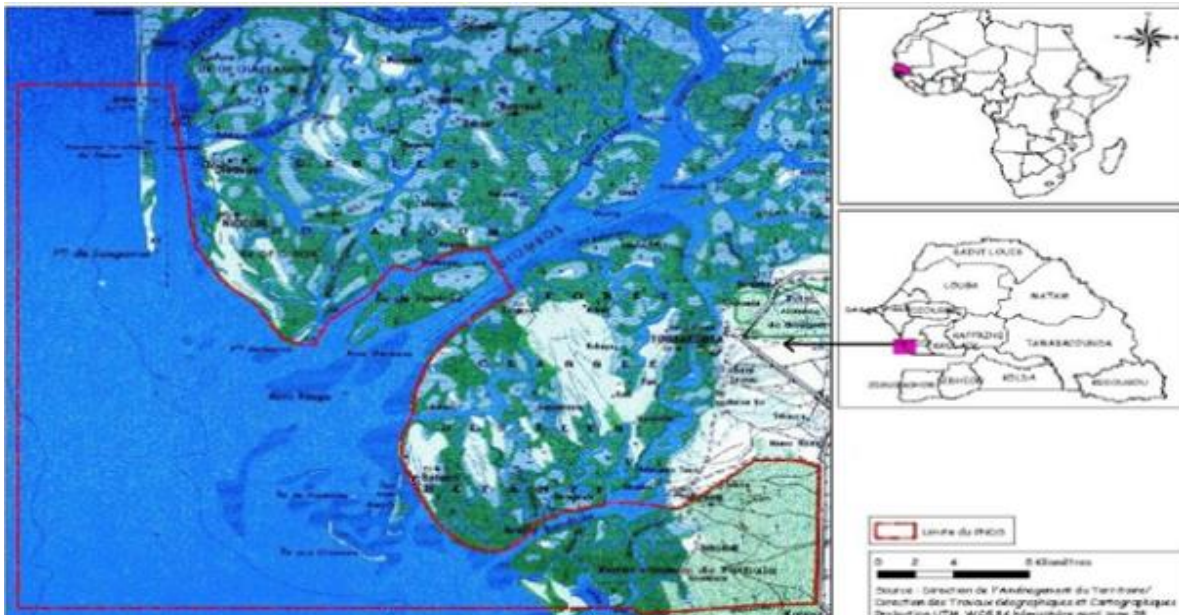


Figure 1: Saloum Delta area localization

The project concept entitled “*Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar)*” was approved by the AF Board at its twenty-sixth meeting held in October 2015. Thus, CSE during the full proposal development

phase decided to engage the services of a civil engineering consultant to conduct a feasibility study of facilities and infrastructures planned under the project.

The reflection requested in the feasibility study focuses on Ndiar, Ndioundiouré and Ecole 2 dikes, all located in the village of Dionewar, and also located on the satellite island of Djimsane. The bulk of the work will deal with the following key items:

- reporting on the current situation of the different above-mentioned dikes;
- conduct of a technical design study for resurfacing, compaction and shaping of existing dikes' structure as well as the finalization of the remaining and not completed structure;
- prospecting of materials;
- development of a program for infrastructure operation and management;
- development of requirements specification;
- proposal of a confidential pricing calculation.

This document is an implementation study report on the technical feasibility of the project for reducing the vulnerability of Dionewar village with regards to flooding and sea encroachment, to which it has been exposed for several years.

## I- Resources and Methodology

### 1.1- Resources

For its smooth running and success according to objectives, the mission mobilized the following resources:

#### In terms of staff:

- Head of mission: A Rural Engineer;
- A topographer and a surveyor helper;
- Contact for each island
- 



#### In terms of materials:

- A car;
- A rental motorized canoe;
- Materials for topography team
- Total station, Tripods, Rods, Stakes, Hammers, Chisels, Paintbrushes, Iron Stakes, paint buckets, etc.
- 50 m-long Chain
- 100 m-long Rope
- Camera
- GPS unit



### 1.2- Methodology

The methodology consisted in dividing the available time fifteen days (15 days) into three phases:

- ✓ A first phase of three (3) days dedicated to literature review of the intervention sites,
- ✓ A second phase called field work phase, a period of five (5) days, during which resources are mobilized for the collection of data related to the characterization of the sites. These data essentially focused on:
  - ***Topographic data:*** It consisted in calculating a random point DTM along and across the structures. With the software Auto-Cad and the GPS, the data will enable to establish longitudinal and transversal profiles of existing dikes and determine the dimensions of the structure along the shoreline. They will also allow resizing the different structures for rainwater drainage into the sea and quantification of backfill recharge volumes, with COVADIS software.
  - ***Geotechnical data:*** prospecting of existing materials and any quarries in sufficient quantity and quality that will allow building protective structures.
  - ***Photographic data:*** A digital camera and **Google Earth** software were used to illustrate and materialize the current situation of the sites.

✓ A third phase of seven (07) days, dedicated, on the one hand, to the data processor of topographic survey using the above-mentioned tools, the geo-hydrological analysis with **DIARPA** software and, on the other hand, to the design of structures using **ORSTOM** method (*RODDIER and AUBREY*) and the writing of progress and draft reports that will be submitted to CSE for review before editing the final report.

## II- Monograph of the insular area

### 2.1 - Presentation of the Saloum Delta

Located in the northern part of the RBDS (Saloum Delta Biosphere Reserve), the Saloum islands (Gandoun islands) have a particular place in the country. Indeed, with an area of 234,000 hectares, the RBDS is a vast estuary, marine and coastal wetland. It consists of mudflats, sand bars, intertidal salty lands, mangrove, sandy islets and seagrass beds.

The Saloum Delta is an archipelago composed of 36 islands of which 21 are inhabited. These 21 inhabited islands are mainly located on the left bank (16 of 21 islands) of the Saloum inlet. This archipelago consists in a geomorphological and geological unit, which “recent” establishment occurs during the Subtropical Quaternary (Holocene period, Upper era of the quaternary period) after a long dynamic process leading to their configuration and current form.

This phenomenon continues to shape them, by constantly changing their shoreline, through the interaction with other hydro geological phenomena such as the different marine currents, including “El Niño” which greatly affect the pace and size of tides. This dynamic and continuous process predisposes the islands to unstable morphology tending towards their possible disappearance or consolidation.

These islands are located in a transition area between the Sudano-Guinean zone in the South and the Sudano-Sahelian zone in the north.

Additionally, they are located in the Saloum Delta, with a singular ecosystem conferred by mangroves (*Avicennia germinans, Rhizophora mangle, etc.*) constituting the main vegetation of submersible areas and their borders.

It provides firewood and construction wood, and is an ideal habitat for many fish species (oysters, crustaceans, ark shells, etc.), some fauna and birds. By contrast, the inland is marked by a Sudanian-type vegetation *Elaeis guineensis* (oil palm trees), *Cocos nucifera* (coconut trees).

The rainfall of the last three years is as follows:

**Table 1: Rainfall in Dionewar during the last three years**

Year	2013		2014		2015		Inter-annual average	
	Cumulation	NRD	Cumulation	NRD	Cumulation	NRD	Rainfall	NRD
Niodior	977	35	446.3	22	958	36	<b>860</b>	<b>30</b>

Bassoul	900	15	826	30	1034	32		
Djirnda/Dionewar	<b>989</b>	<b>24</b>	<b>649</b>	<b>37</b>	<b>955</b>	<b>38</b>		

Source: Regional Weather Service of Fatick (2013 – 2015)

## 2.2- Morphological configuration of Saloum islands

From the perspective of the relief, the islands can be divided into three (03) zones according to DH value representing the *difference between the sea level (0) and the highest point of the island*.

- The first area where the DH value is less than one (01) meter is characteristic of type I islands and is located furthest upstream to the Saloum mouth. This area covers the islands of Fambine, Féfir, Rofangué Maya, Vélingara, Djirnda, and Diamniadio.
- The second area relates to type II islands where the DH value is between one (1) meter and three (3) meters. This consists mainly of islands located downstream of Type I islands relative to the mouth. This is essentially composed of Islands such as Bassar, Moundé, Diogane, and Thialane.
- The third area concerns the Type III islands where the DH value is above three (3) meters. This area includes islands as Niodior and Dionewar. In these types of islands, the present formations indicate a mainly marine influence due to the presence of littoral currents that have regulated the coasts. This study focuses specifically on Dionewar Island.



Figure 2: Types of island in the Saloum Delta

## 2.3 Presentation of Dionewar Island

### ✓ Geomorphology of Dionewar

Dionewar Island is located on the left bank of the Saloum inlet; it is one of type III islands and is therefore characterized by a DH value above three (3) meters. It is one of the largest islands located on the left bank of the Saloum. The houses are built on a bare and flat area called “tanne,” just after the tidal fluctuation area. The vulnerability of the village is due to the following endogenous and exogenous factors:

- The extreme weakness of the height difference between the zero sea level (0 IGN) and the highest point of the village (type 1: DH <1m) and the clay soil nature allowing only a low infiltration of rainwater; the latter follows a gentle slope and flows into the sea.
- The high tides during the rainy season often cause flooding and seawater invasion on most of the village.

The belongingness of Dionewar to type III Island allows it to be protected from any flooding of maritime origin. The presence of sandbars constitutes a natural shield to dissipate marine wave movements during tidal periods in low-water time.

This regulation function is, however, very limited during high water periods.

### ✓ Vulnerability level

The island is still very vulnerable to eustatic movements whose erosive effects erode and gradually move the sandbars. In addition to these marine erosion phenomena, the succession of sandbars has created depression corridors that encourage the flooding of some parts of the village during high tides. This situation worsens during high water periods coinciding with the rainy season.



Figure 3: Flood-prone areas in Dionewar village

### ✓ Local initiatives

To cope with tide movements and fight against the coastal erosion of the village, people had undertaken some measures in Ndioundiouré.



**Picture 1: Ndioundiouré dike**

Thus, in depression areas, an improvised small dike was built to limit seawater intrusions.

The latter could not withstand the water pressure during the rainy season of 2013 and underwent two breaches. For the rehabilitation of the dike of Ndioundiouré, the Directorate of Civil Protection supported local people with plastic bags and PVC pipes to serve as nozzles. In parallel to this initiative, people were also mobilized to close a second gap opened during the rainy season of 2013 and causing inconvenience to residents.

**Picture 2: Dike located in front of the village**



Thanks to the solidarity of the island inhabitants, the young workers were able to build a protective low wall over a distance of about hundred meters to reduce the pressure of the water on the most sensitive areas.

**Picture 3: Low wall located before the village**





All these initiatives undertaken by the local community, demonstrate the commitment of the populations to take control of their own destiny. Unfortunately, they do not have the required technical capacity to establish adequate structures for flood risk and coastal erosion reduction. Appropriate works to fight against the encroachment of the sea require, along with technical capacity, a significant financial effort.

#### **2.4- Island protection experiences of some partners**

NGOs or projects like PAPIL operated in five (5) island villages of Djirnda commune and Niodior district.

The different types of structures implemented allowed beneficiaries to strengthen their resilience in response to the rising level of marine waters, secure their property, recover lost land and improve their living environment.

**Picture 4: Situation of the village of Djirnda before PAPIL intervention**



The implementation of a protective infrastructure required the provision of building materials and the mobilization of local workforce.

During the first year of existence of Djirnda earthen dike, PAPIL was supported by the World Food Program (WFP) through its food-for-work program intended for highly labor-intensive (HLI) activities for the realization of the shell embankment. Thus, a strong community mobilization allowed the establishment of a compacted earthen dike with a length of 900 meters which suffered a breakdown after heavy rains. With the help and supervision of a civil engineering company, the surfacing of the dike with reinforced concrete allowed the consolidation.

The rural council was a part of the project, as it provided teams with canoes and fuel for the extraction and transportation of the sand needed for the construction of build parts. The local community also brought shells for the composition of the dike surfacing concrete.



**Picture 5: Compacted Earthen Dike Surfaced With Shell Concrete**

This single dike was not enough to support the entire part of the village which is exposed to eustatic movements. The construction of a second dike on the whole southern part of the village was needed to protect it properly. The technical characteristics of this second infrastructure were improved to better take into account stability and sustainability aspects. To this end, it was decided, instead of a compacted earthen dike to build a reinforced concrete low wall made of casted plates and poles made on site. The total length of this second dike is 967 meters. The whole low wall was made locally without any machines' intervention. The working equipment and building materials were partly available at locally or easily transported by canoes.

In order to take account of the village socio-cultural realities, ramps allowing each neighborhood to access easily to the sea have been built on the dike. In addition to these social considerations, the dike has been equipped with structures for rainwater drainage during the rainy season. The success of this achievement is due to the commitment of all stakeholders namely the project, water and forestry services, WFP and the community.



### Picture 6: Reinforced Concrete dikes and access Ramps

Thus, the reinforced concrete dike (with single or dual screen) with a simple technique, built in other island sites seems to be suitable and ensures good mobilization of local people to carry out useful infrastructures. The immediate effects of the infrastructure on the village were felt from the completion of the work through the recovery and protection of more than 10 ha of land once submerged by sea waters, the protection of public buildings (school, community center, etc.), and the improvement of people's living environment.

## III. Diagnostic analysis of existing structures of Dionewar

### 3.1. Inventory of existing dikes and spillways

Based on following GPS points statements on sites transferred to Google Earth, the actual location of the four Dionewar dikes can be illustrated by the ground plane below.

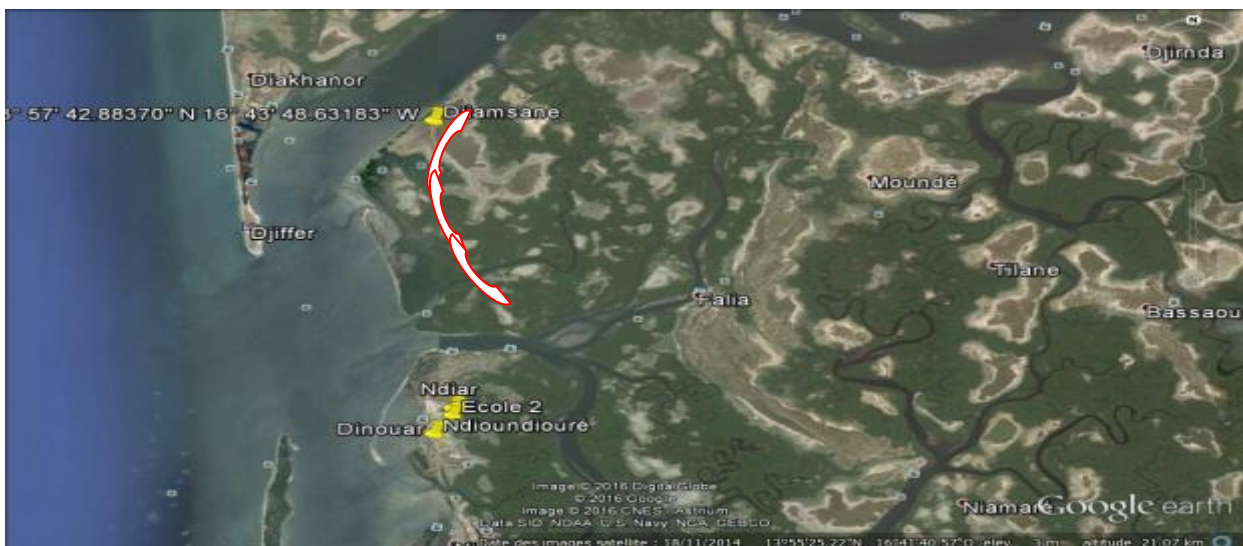


Figure 4: Ground plane of the four dikes of the survey

Based on topographic surveys, field observations and interviews with people (see *Sheet attached to this document*), the four existing dikes are characterized as follows:

#### ➤ Ndiar dike

The Ndiar dike, with a length of 266.74 meters is degraded, the trapezoidal-shaped shell embankment has collapsed in some places all along the dike and the PVC spillway is at the low point geo-referenced pk10 as follows:

**13° 53' 17.49" N; 16° 43' 36.37" W** with 19.70 above the sea level.

The foundation depth is less than 30 cm. The building material of the dike consists of still resistant and friable shell. The compactness is low justifying the wooden stakes for support as shown in the pictures below.

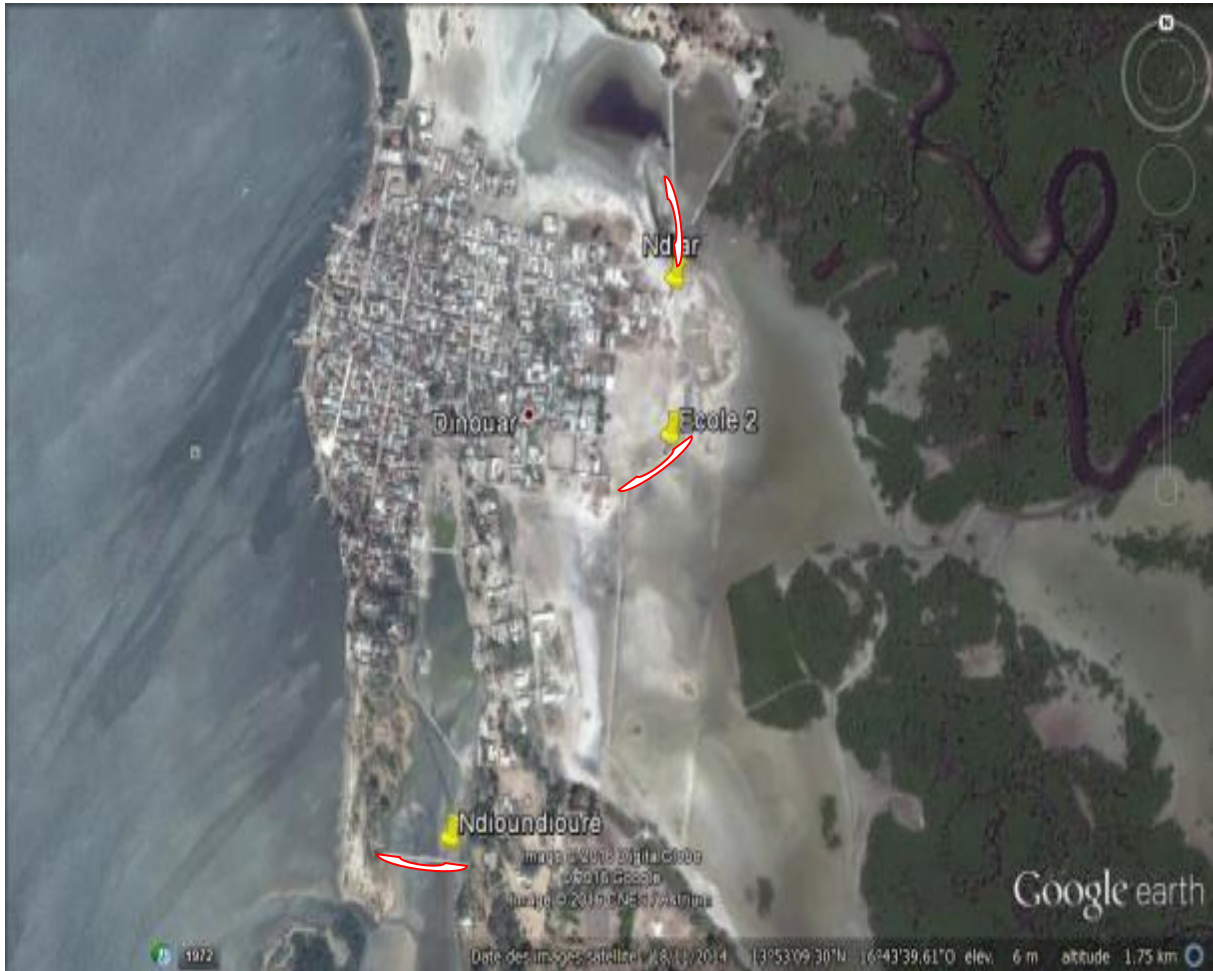


**Picture 7: Ndiar dike with a shell embankment**



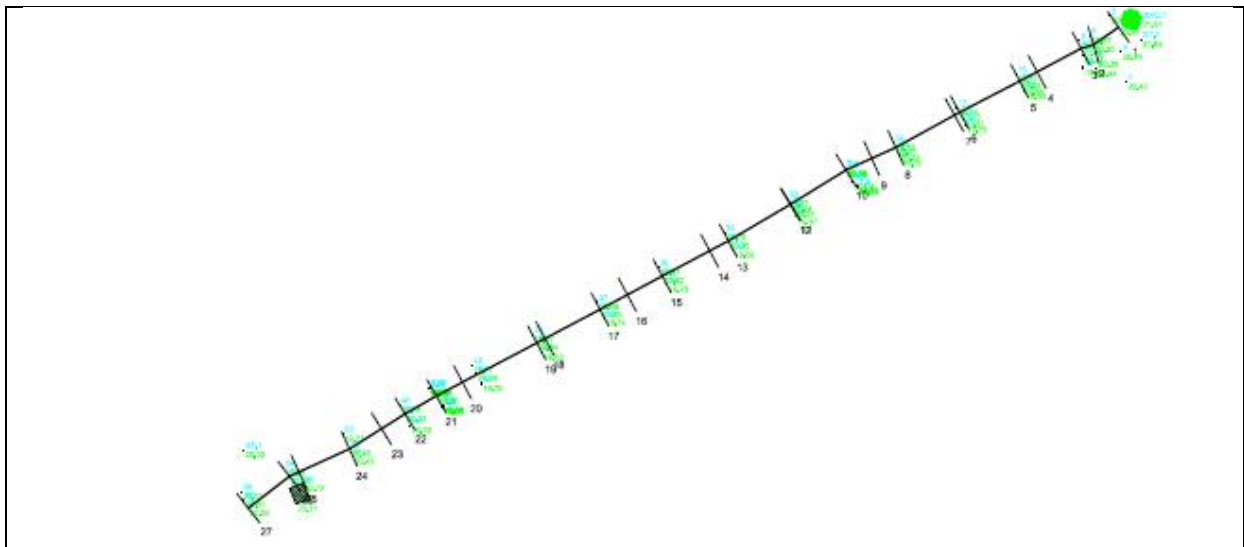
**Picture 8: Ndiar dike equipped with discharge nozzles**

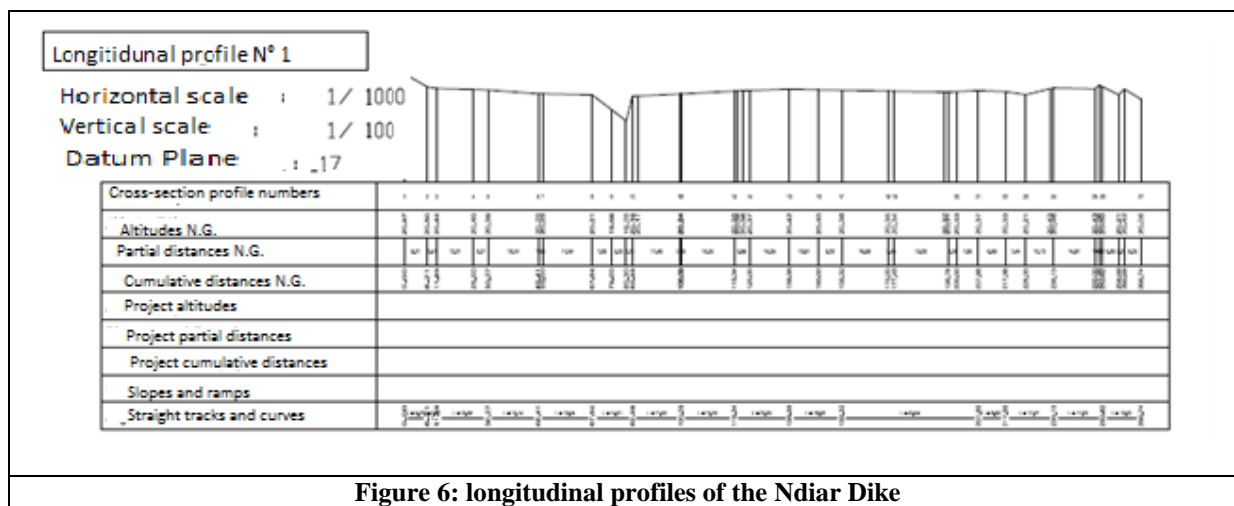
Ndiar watershed has an estimated surface area of 0.054 km<sup>2</sup>. The dike covers the entire distance of the right-of-way and has a good anchorage on the ridge lines with a natural terrain ground of 20.80 avoiding bypasses. It is not necessary to extend the Ndiar dike.



**Figure 5: Ground plane of the three dikes of Dionewar**

Longitudinal and transversal profiles, in outliner mode attached hereto are presented as follows:





**Figure 6: longitudinal profiles of the Ndiar Dike**

Upon analysis of the damage level noted on Ndiar compared to appropriate corrective options, it is necessary to (i) reshape the embankment to 2 meters with dual screen reinforced concrete (RC) plates over a length of 266.74 meters on an altitude of 19.90 (ii) backfill with a mixture of seashells and compacted clay to enhance the gauge on a 30 to 40 cm descent (iii) resize and build a rectilinear spillway with 02 fiberglass valves on the flow axis of pk 10.

With years of hydraulic compaction, there is a need to use the surface line of the previous dike as foundation, through the rehabilitation of slumped sections. This scheme will help contain the upwelling of high tides, facilitate rainwater drainage and control upstream washout for the protection of 5.40 ha of land.

The prospecting of materials mainly focuses on local materials, seashells, borrow materials from excavation or shingle spit during the works.

➤ **Ndioundiouré dike**

The Ndioundiouré dike, with a length of 137.65 meters, is in a very advanced state of degradation with a high hydromorphic level in some places, the embankment consisting of a mixture of sand and trapezoidal shell has completely collapsed with two gaps closed and the PVC 400 spillway is at the low point geo-referenced PK8 as follows:

**13° 52' 5,352,056''N ;      16° 43' 4,877,735'' W** with 19.30 above the sea level.

The foundation depth is less than 50 cm. The building material of the dike consists of smoothed shell system and an embankment composed of a mixture of sand and shell, the compactness is low as illustrated by the pictures below.



**Picture 9: Ndioundiouré dike made up with shell wall, left bank**



**Picture 10: Ndioundiouré dike with two gaps closed with sand bags, right bank**

The catchment basin of Ndioundiouré has an estimated surface area of 0.126 km<sup>2</sup>. The dike covers the entire distance of the right of way and has a good anchorage on ridge lines with a natural ground altitude of 20.40 avoiding bypasses. It is not necessary to extend the Ndioundiouré dike. Longitudinal and transversal profiles, in map view attached hereto are presented as follows:

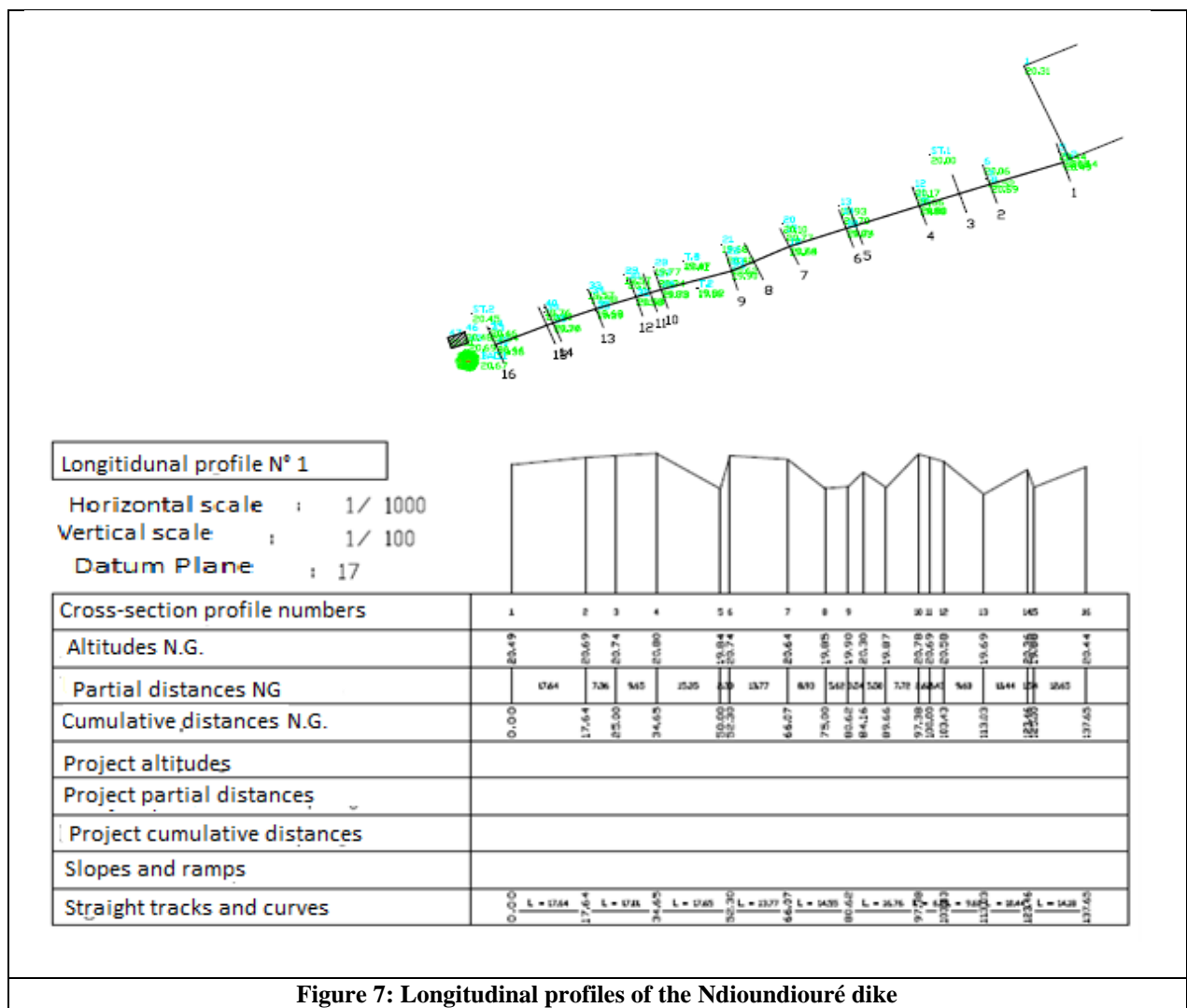


Figure 7: Longitudinal profiles of the Ndioundiouré dike

Upon analysis of the damage level noted on Ndioundiouré and soil hydromorphy with regard to the relevant corrective options, it is necessary to (i) reshape the embankment to three (03) meters with dual screen RC plates over a length of 137.65 meters to be anchored on an altitude of 19.50 with demolition of nozzles, bags and the low wall in place, (ii) backfill with a mixture of compacted shell and clay to enhance the gauge on a 30 to 40 cm descent, (iii) resize and build a rectilinear spillway equipped with a fiberglass valve, on the flow axis of pk8.

With years of hydraulic compaction, there is a need to use the surface line of the former dike as foundation through the rehabilitation of the slumped sections. This scheme will help contain the upwelling of high tides, facilitate rain water drainage and control upstream washout for the protection of 12.60 ha of lands.

Prospecting for materials is directed towards local materials mainly shell and borrowed excavations or strings during works.



➤ **Ecole 2 dike**

Ecole 2 dike, with a length of 767.20 meters, is damaged, the trapezoidal-shaped shell embankment has collapsed on the right bank and the PVC 200 spillway is located in the geo-referenced low point pk28 as follows:

**13° 53' 10.78659"N; 16° 43' 36.64871" W** with an altitude of 19.81

In high tide period, water bypasses the dike at the level of crest junction. Foundations are 30 cm deep. The building material of the dike is made up of damped shell; compactness is low especially on the right bank as shown by pictures below. It is required to make an extension of Ecole 2 dike on the right bank.



**Picture 11 : Ecole 2 dike in damaged shell embankment, left bank**



**Picture 12 : Ecole 2 dike in shell embankment, right bank, with exhaust nozzles**

The watershed of Ecole 2 has a area estimated at 0.051 km<sup>2</sup>. The dike covers the distance of the right-of-way and has a good anchoring on the right crest line with an altitude of 20.85, contrary to the left side with water circumventing. It is necessary to make an extension of



➤ **Djimsane island dike**

The Djimsane dike, with a length of 1754.00 meters, is damaged, the trapezoidal-shaped clay embankment starts collapsing, being eroded and the rectilinear spillway in RC is beginning to be deteriorated, the rusty valve is located in the low geo-referenced point *pk28* as follows:

**13° 57' 42.88370" N; 16° 43' 48.63183" W** with an altitude of 19.85

Foundations are 20 cm deep. The building material of the dike is made of clay; the compactness is relatively acceptable as shown by the pictures hereinafter.

The catchment of Djimsane, the biggest one, has a surface estimated at 11.84 km<sup>2</sup>. The dike covers all the distance of the right-of way and has a good anchoring with the crest lines of the natural field on an altitude of 20.90 avoiding bypasses.



**Picture 13 : Djimsane dike, clay backfill in left bank without crown, eroded**

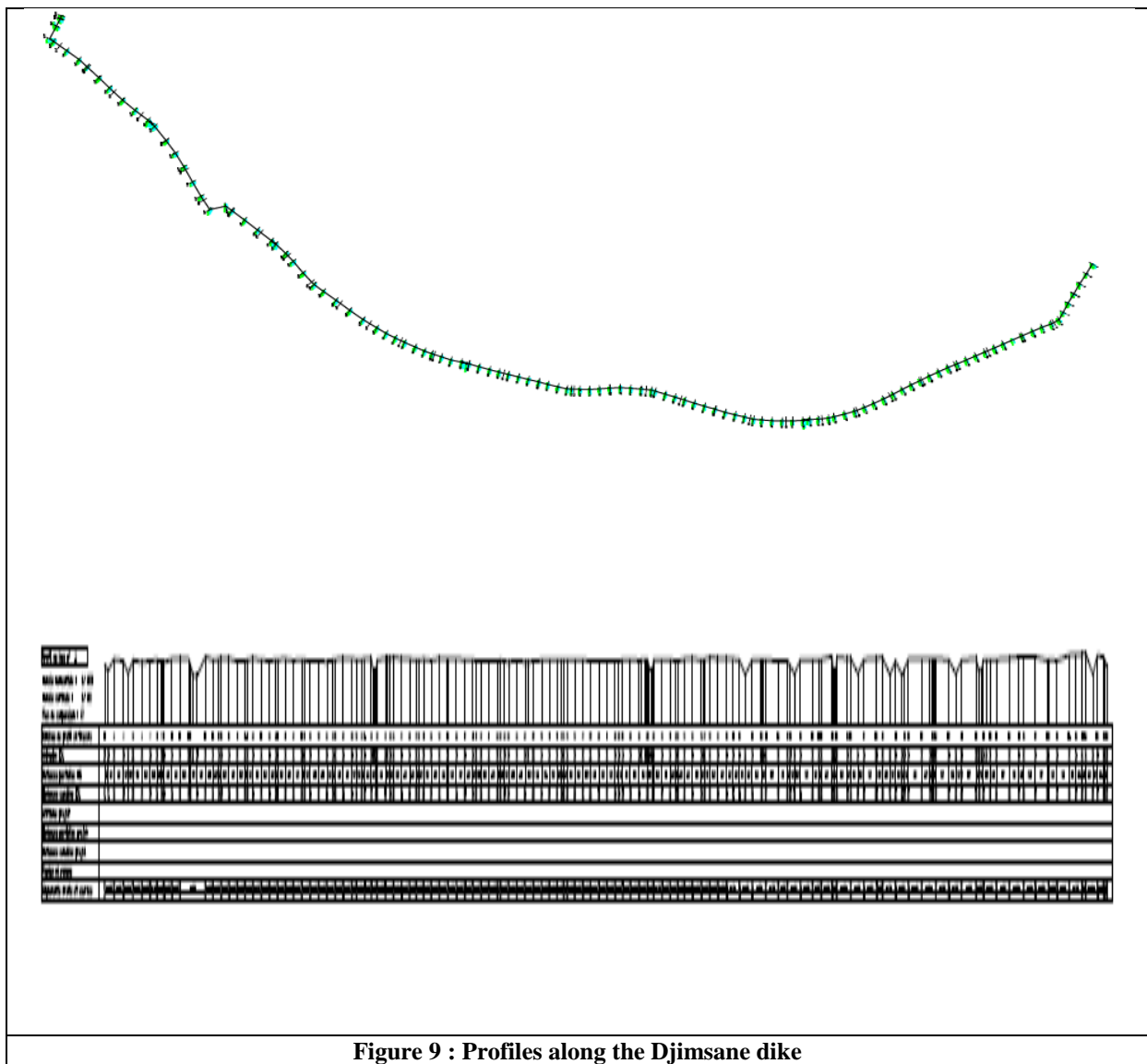


**Picture 14 : Djimsane dike, clay backfill in right bank, without crown, and washouts at the base of the spillway**



**Picture 15 : Djimsane dike, which rudimentary spillway, equipped with a rusty metal valve, without rockfill makes it prone to washouts**

The lengthwise and crosswise profiles, detailed herein, are outlined as follows:



**Figure 9 : Profiles along the Djimsane dike**

Upon analysis of the level of damage noted on Ecole 2 with regard to the relevant corrective options, it is necessary to (i) consolidate the coating of the spillway, (ii) build upstream/downstream rockfills and walled connection rip-rap, (iii) replace the metal valve by glass fiber, (iv) reshape over the stretch of 1754.00 meters and reload clay backfills to two (02) meters with a RC trapezoidal-shaped crown for a crest on an altitude of 21.10 for a 60 to 70 cm descent.

Let us specify that contrary to the three other dikes, the clay embankment of the existing dike records gullyng of the upstream slope which shall be subject to filling in compacted clay prior to the establishment of the crown in RC.

With years of hydraulic compaction, there is a need to use the surface line of the former dike as foundation through the rehabilitation of the slumped sections. This scheme will help contain the upwelling of high tides, to facilitate rain water drainage and control upstream washout for the protection of 118.40 ha of lands.

### 3.2. Descriptive analysis of options and types of insular protection scheme

Considering the geomorphology of the island, eustatic movements, the different threats and socio-economic realities, the protection system which seems to be more efficient must be the combination of different types of works. Thus, according to specificities of the relevant sections, two types of works will be necessary. Their choice is guided by the simplicity of the building technique, their stability, the easy management and maintenance by beneficiaries and above all it addresses the accessibility of islands.

Working out a sustainable solution would mean also selecting a type of protection relevant to the identified threats. Following the particularity of the area which is located in a hard to access environment but also where finding the material that can be part of the erection of works can turn out to be a difficult task we might choose either:

- An earthen dike;
- A work with recessed gabions;
- A simple or dual screen RC slabs dike.

#### ✓ **The earthen dike**

The selection of the earthen dike is based on two key criteria;

1) ensuring the availability of the material with the geo-technical qualities capable of building a dike. According to populations and after visiting the surrounding area of the village, there is no borrow site that may supply such a material in the village and even beyond in the immediate area.

2) having the adequate equipment such as : a compactor, a grader, etc., for a good stripping and a good compaction of the infrastructure. Considering the difficulty to have this type of gear in this area, such a choice is then compromised. With regard to the results of the foregoing diagnostic analysis, **this option is then not applicable for the three sites of Ndiar, Ndioundiouré and Ecole 2.**

Nevertheless, with hand-operated gears (cultivators, harrow and hand-operated compactor), this option is **relevant to the Djimsane dike.**

The embankment will have a trapezoidal-shaped crown in reinforced concrete.

#### ✓ **A work with recessed gabions**

The establishment of such a work would not be well adapted to the area. The village of Dionewar and the island of Djimsane which belong to type III are vulnerable to see progress in high water.

Gabions play a stabilizing or hardening role of the shoreline often affected by more or less significant erosion. In some way, they will play a role of fascine and will more or less leave water penetrate in the area to protected. Such a situation would keep affecting housings and infrastructure in the village. With regard to the results of the foregoing diagnostic analysis, **this option is then not applicable for the four sites.**

✓ **A dike made up of RC plates with a spillway**

The option will focus on the RC dike by considering the almost impossibility to build physically the earthen dike and the irrelevance of the structure in gabion for this type of threat.

A work made up of a RC wall with pre-manufactured slabs. The purpose is to build a RC wall (screen) made up of pre-manufactured items juxtaposed the ones after the others and interconnected between them by poles.

This would be the best solution considering the difficulties to apply other systems. Slabs can be made at locally without using a gear, in addition to the basic material such as sand that may be found on site or not far from the village.

Carriage of other materials such as cement, iron rods, etc., can be done by pirogue without too much difficulty. With regard to the results of the foregoing diagnostic analysis, **this is the best possible choice for the three sites of Ndiar, Ndioundiouré and Ecole 2.**

Through interviews with beneficiaries, the choice meets the aspirations to have operational, solid, easy to maintain works that can be built using local materials and involving the populations in the implementation of the works.

**IV- Technical design study for the resizing of existing dikes**

The type of works and development patterns to be established will be realistic, easy to maintain and having proven their worth in similar contexts allowing limiting the flood phenomena, marine erosion, the intrusion of high tides while facilitating the mobility of populations throughout the whole island.

**4.1- Hydrological estimates**

The study is based on ORSTOM method (or Rodier and Auvray) as well as the findings of the studies of streaming in the area. For the respective watershed surfaces, the results of the ten-year floods are as follows:

**Table 2: Result of runoff studies**

Dimensions / settings	Dikes	Ndiar	Ndioundiouré	Ecole	Djimsane
Watershed Surface		0.054	0.126	0.051	11.84
The ten-year daily rainfall P10 in mm.		130	130	130	130
An inter-annual rainfall of P in mm		860	860	860	860
The gradient of rainfalls <b>Ca = 1 - (9 - 42. 10(-3) P + 152) 10(-3) log S</b>		<b>0.9</b>	<b>0.8</b>	<b>0.8</b>	<b>1.1</b>
The average rainfall = <b>P10 x Ca</b>		<b>117</b>	<b>104</b>	<b>104</b>	<b>143</b>
Soils are predominantly made of clay with <b>Class P2</b> shell.		-	-	-	-
Slopes in the thalweg are below 0.4 of the <b>R2 index</b>		-	-	-	-

Dimensions / settings	Dikes	Ndiar	Ndioundiouré	Ecole	Djimsane
estimation of the value of <b>Kr</b> at 40%		40%	40%	40%	40%
the volume that drains off : <b>Vr ( m3 ) = S x Kr x Ca x P10</b>		<b>252,720</b>	<b>524,160</b>	<b>212,160</b>	<b>6 772 480</b>
the base time is <b>Tb (h)</b>		15	15	15	15
the rise time <b>Tm (h)</b>		5	5	5	5
the Coefficient <b>a</b> for a constant value		2.6	2.6	2.6	2.6
the average flow of the ten-year flood: <b>Q moy = Vr / Tb en m<sup>3</sup> / s</b>		4.68	9.71	3.93	12.542
The maximum flow of the ten-year flood <b>Q max = a x Q moyen m<sup>3</sup> / s</b>		<b>12.17</b>	<b>25.24</b>	<b>10.22</b>	<b>32.60</b>

#### 4.2- Calculation of the length of spillways

To allow the drainage of streaming waters (storm waters) that may cause floods, spillways are projected in specific locations (low points). Considering the extreme climate events such as exceptional rainfalls; the spillway will be sized so as to be able to evacuate the maximum flow of the ten-year flood.

The calculation of the L length will be done without taking into account the laminating effect given the ebb and flow in insular area, the length of the spillway is established as follows:

**Table 3: Calculation of the length of spillways**

Dimensions / parameters	dikes	Ndiar	Ndioundiouré	Ecole	Djimsane
with : m=0,4 ; H=0,8 ; g=9,82					
<b>L = Qmax / (m x (2g)<sup>0,5</sup> x H<sup>3/2</sup>) in ml</b>		9.48	19.67	7.96	25,41 or two of 10 m and 15 m

#### 4.3- Sizing of slab units and dual screen slabs

The RC wall structure shows a better resistance in a transition environment between sea waters and storm waters.

Its installation is also easy; with a fairly simple slab building system, the whole work is done on site and requires less heavy machinery for its implementation.

The unit slab has the following characteristics:

- Slab thickness : **8 cm**
- Height: **90 m**.
- Length : **2 m**

Figure 10: Section of the RC wall of a dike

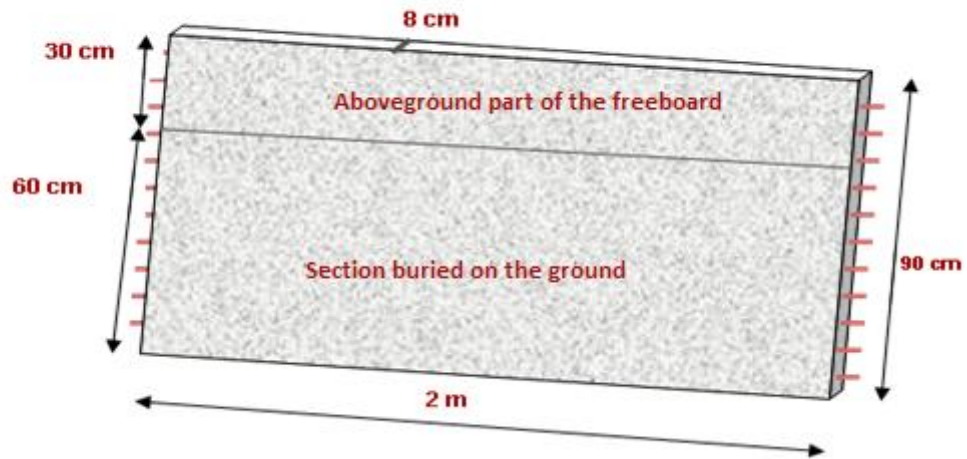


Figure 11: Simple screen plate

Length of plates (2 m) consolidated by bollards.

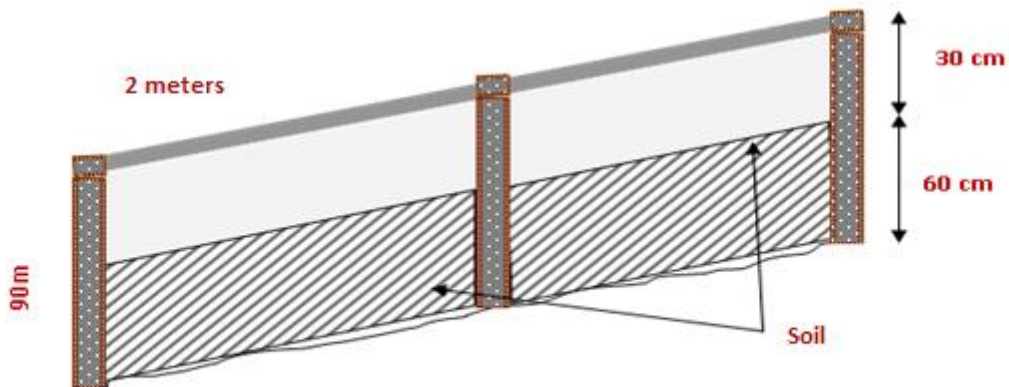


Figure 12: Perspective view of an installed plate width 8 cm

For the three dikes of Ndiar, Ndioundiouré and Ecole 2, the principle will consist in establishing a RC dual screen along the dike axis and fill it in with material from the shell remains pit mixed with clay and borrow excavations (shell and clay), to make a compacted embankment with a hand-operated Bomag 350.



Let us make it clear that the making of the material in shell mixed with clay and its implementation will be borne by the enterprise which will use valuable local labor force otherwise as a contribution of beneficiaries. Screens will be 8cm thick, be 2m long, will have a 90 cm height and will be buried at least 50 m in the ground and offer 50 to 50 cm freeboards. As for their height, it will take into account the anchor score of each profile mentioned above.

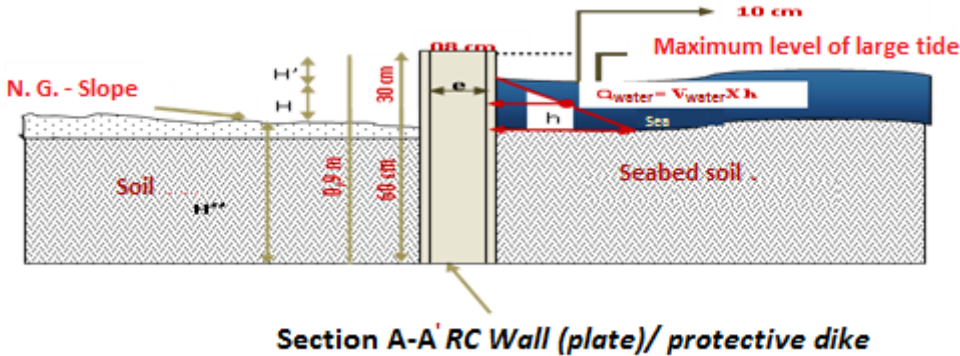
At low point (location of nozzles or existing spillways) of each section of the dike, will be built one (or two) spilling work which will be set at a safety elevation to avoid the flooding of neighboring houses.

**4.4- Evaluation of pressure forces on the dike with RC plate**

For the thickness  $e = 08 \text{ cm}$ , we know that it depends on the compression undergone on the structure in this case, the forces applied are essentially the Q water pressure. This active horizontal pressure requires the establishment of a well-anchored and waterproof RC structure. The thickness must be the minimum possible but by ensuring a good coating of steels in the concrete for this marine environment. The coating must be between 2.5 and 3 cm. For the height of the wall of  $l = 90 \text{ cm}$ , corresponding to the total height of a plate. The objective is:

- to have a good anchoring to resist to slides following the water pressure. An anchoring of **60 cm** would largely be enough;
- to have a resistant screen to stop high tide effusion in the village. With a relatively flat land, water sheet at this level cannot in any case go beyond **15 cm** in high tide, low waters and maximum of **25 cm** in exceptional tide, high waters;
- From these **25 cm**, a margin of **05 cm** is expected to take into account the freeboard, what leads to a total of **30 cm** for the protective screen combined with the spillway will play a regulation role of rainwater speed so as to avoid the fairly strong water erosion in the village.

The sum of backfill heights **60 cm** plus 30 cm of screen equals **90 cm**, corresponding to the total height of the slab for the simple screen after its installation.



**Figure 13: Section of the RC wall of a protection dike**

Water action appears through the pressure it exercised directly on the flange downstream the work (in front of the sea). At a depth **h**, the hydrostatic pressure is:

$$\text{Active earth pressure } P = \frac{1}{2} d h^2 \text{tg}^2 \left( 45 - \frac{\phi}{2} \right); \text{ Passive earth pressure } R = \frac{1}{2} d f^2 \text{tg}^2 \left( 45 + \frac{\phi}{2} \right)$$

by stating :    and :

$$\begin{aligned} K &= \text{tg}^2 \left( 45 - \frac{\phi}{2} \right) & K' &= \text{tg}^2 \left( 45 + \frac{\phi}{2} \right) \\ \lambda &= dk & \lambda' &= dk' \\ b &= \lambda h & b' &= \lambda' f \end{aligned}$$

We finally have:

$$p = \frac{1}{2} bh \qquad \text{and: } R = \frac{1}{2} b'f$$

(Active pressure on the free height **h**) (Passive earth pressure on the height of card **f**)

The active and passive earth pressure can then be represented by rectangular triangles with **h** and **f** height and **b** and **b'** base. **K** and **K'** are called active and passive earth pressure coefficients.

If the ground slab is full (dual screen), we replace the height **h** by a fictitious height **H** such as:

$$H = h + \frac{\text{surchage}}{d}$$

*“Active and passive earth pressure deducted from Coulomb and Rankine theories”*

$$\mathbf{P / B = 1.27 < 1.61}$$

**P / B** is very low on the wall ; the active pressure on the abutment provides an almost null pressure ; the resistance of the RC screen is very high compared to the water pressure which is very low, by considering a water sheet of a maximum **f** 20 cm.

## **V- Scope of Work**

### **5.1- General requirements specification**

#### **✓ For the Ndiar dike**

The catchment of Ndiar has a surface area estimated at 0.054 km<sup>2</sup> (5.4 ha; 144x380 m; p 1048 m). The dike covers all the distance of the right-of-way and has a good anchoring on the ridge line on an altitude of 20.80 of the natural ground facing circumventions.

The works to be done are: (i) reshape the embankment to 2 meters framed with dual screen RC plates measuring 266.74 meters anchored to the score (ii) backfill with a mixture of compacted shell and clay to enhance the gauge with a 30 to 40 cm descent, (iii) resize and build a rectilinear spillway equipped with 02 fiberglass valves, on the flow axis of the pk8 on an altitude of 19.70.

✓ **For the Ndioundiouré dike**

The works to be done are: 0.126 km<sup>2</sup> (267x475 m; p 1484 m). The dike covers all the distance of the right-of-way and has a good anchoring on the ridge line on an altitude of 20.40 of the natural ground facing circumventions.

The works to be done are: (i) reshape the embankment to 3 meters framed with Dual screen RC plates measuring 137.65 meters anchored on an altitude of 19.50 with demolition of nozzles, bags and of the low wall in place, (ii) backfill with a mixture of compacted shell and clay to enhance the gauge with a 30 to 40 cm descent, (iii) resize and build a rectilinear spillway equipped with a fiberglass valve, on the flow axis of the pk8 at an altitude of 19.30.

✓ **For the Ecole 2 dike**

The catchment of Ndiar has a surface area estimated at 0.051 km<sup>2</sup> (206x248; p 908 m). The dike covers all the distance of the right-of-way and has a good anchoring on the ridge line at the score of 20.85 of the natural ground facing circumventions.

The works to be done are : (i) reshape the embankment to 2 meters framed with Dual screen RC plates measuring 780 meters anchored on an altitude of 19.95 with demolition of nozzles, bags and of the low wall in place, (ii) backfill with a mixture of compacted shell and clay to enhance the gauge with a 30 to 40 cm descent, (iii) resize and build a rectilinear spillway equipped with a fiberglass valve, on the flow axis of the *pk28* at an altitude of 19.81 and *pk67* at a score of 19.96.

✓ **For the Djimsane dike**

The catchment of Ndiar has a surface area estimated at 11.84 km<sup>2</sup> (3200 x 3700; p 13800 m). The dike covers all the distance of the right-of-way and has a good anchoring on the ridge line on an altitude of 19.40 of the natural ground facing circumventions.

The works to be done are: (i) consolidate the spillway coating, (ii) build upstream/downstream rockfills and walled connection rip-rap, (iii) replace the metal valve by glass fiber, (iv) reshape over the stretch of 1754.00 meters and backfill clay embankments in two meters with a RC trapezoidal-shaped crown for a crest on an altitude of 21.10 for a 60 to 70 cm descent.

## **5.2 Statements of works and implementing procedures**

The statement of works aims to establish technical standards and methods specific to the works. It sets the conditions for the implementation of works and specifies the techniques, supplies and means to use.

✓ **Characteristics of the four insular protective infrastructures**

<b>Characteristics</b>	<b>Ndiar</b>	<b>Ndioundiouré</b>	<b>Ecole</b>	<b>Djimsane</b>
Total length of the dike in meter	266.74	137.65	830	1754
width in ridge of the dike in meter	2	3	2	2
Altitude of the ridge of dual screen plates	20.80	20.40	20.85	20.90
Maximum height of the dike in meter	1.10	1.10	1.05	1.05
Altitude of the invert section of the spillway	19.70	19.30	19.81	19.85
Height of the rectilinear spillway	0.80	0.80	0.80	0.80
Freeboard of the spillway	0.30	0.30	0.30	0.30
Maximum flow of the ten-year flood in m <sup>2</sup> /s	<b>12.17</b>	<b>25.24</b>	<b>10.22</b>	<b>32.60</b>
Volume of the impoundment in m <sup>3</sup>	<b>252,720</b>	<b>524,160</b>	<b>212,160</b>	<b>6 772 480</b>
Number of fiber glass valves and locations	02 ; pk10 and pk23	01 ; pk8	01 ; pk28	02
<b>Length of the spillway in meter</b>	<b>9.48</b>	<b>19.67</b>	<b>7.96</b>	<b>25,41 or two of 10 m and 15 m</b>

➤ **Building services**

The whole works necessary for the construction of structures will include the following building services:

- ✓ **Earthwork:** works consisting in making strip excavations on plots for the installation of plates and poles for a depth of 50 to 60 centimeters on dike lines. The natural ground will be excavated whenever necessary, along the plot, according to the specifications of longitudinal and traverse profiles, and one will be projected over a width of 50 cm on each side of the longitudinal alignment. The excavation bottom will then be compacted until a dry density is obtained of at least 90% of OPM.

The obtained elevations shall not differ by more than 01 cm from the project ones.

If, during excavation or compaction operations, there is a water film through the ground, these operations would be stopped. At least a 10 cm thick buffer layer from a material approved by the Consultant Engineer will be applied and compacted until we get a dry density at least equal to 90% of the OPM.

✓ **Reinforcement (steel) :**

- For plates, will be aligned 8 cm iron rods in longitudinal direction with extensions on both sides serving to make interdependent the frame of plates with connecting poles. In the width direction, will be aligned iron rods of 10. The crossing of these iron rods will produce 15 cm x 15 cm meshes.
- For poles, iron rods of 10 will be aligned with iron stirrups of 6.

✓ **Structural work**

- Evacuators : it is the building of straight-lined spillways with passes
- Compacted shell embankments mixed with clay in the right-of-way of the dual screen dike.

✓ **Making of poles**

The building of walls requires connecting poles between pre-manufactured plates.

Considering the water pressure on walls that may bring about washouts and / or a swing; two types of poles are planned:

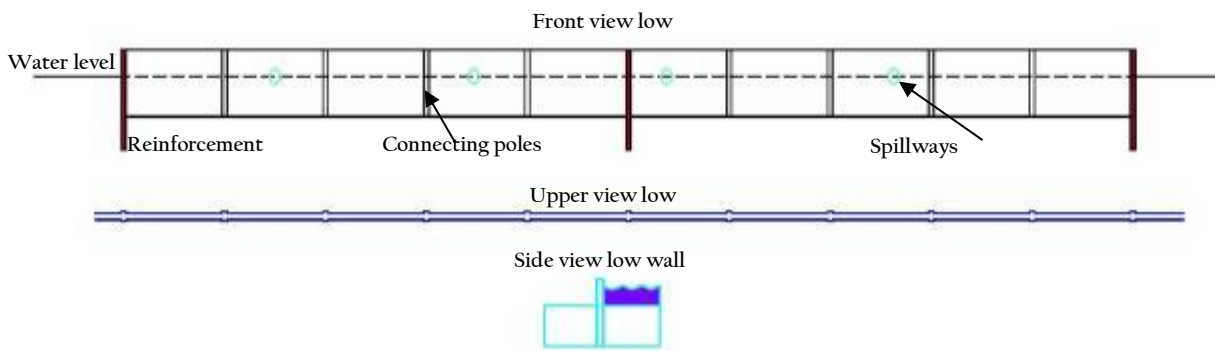
- Reinforcement or fastening poles against swing; these poles will at the same time serve as connecting device between plates. The proposed dimensions are: 150x15x10 cm.
- Connecting poles between plates; the proposed dimensions are: 100x15x10 cm.

Poles will be sized according to the thickness of plates ( $e = 0.8$  cm) and according to the partition between plates ( $c = 10$  cm) meaning  $0.8 \times 10$ .



The reinforcement of poles will follow the preceding scheme with posts or vertical iron rods of 10 and stirrups of 0.8 with a 10 cm track what gives:  $0.8 \times 10 / 10$ .

	Height (cm)	Length (cm)	Thickness (cm)
Reinforcement poles	150	10	15
Connecting poles	100	10	15



Upper view dual screen



### ✓ Dosage of reinforced concrete

An appropriate dosage of **400 kg/m<sup>3</sup>** of gravel, cement, iron rods, sand, additives and water) to take into account the insular environment will be agreed, with **basaltic** gravel from the ground.

It is needed to reinforce the cohesion with additives such as **Sika** or **water stop** in the concrete dosage.

Considering the nature and complexity of the insular area, the costs and various fees related to transportation and other inputs are included in the pricing items of the different headings of the estimated cost.

#### a- Steel

Reinforcement / for a plate of **L = 2 m; H = 0.9 m ; e = 0.08 m**

- to the longitudinal direction (horizontal iron rods) will be aligned iron rods of 8 which will presented on a 10 cm length on both sides which will serve to make interdependent the frame of plates with connecting poles.

In the width direction, will be aligned iron rods of 10. The crossing of these iron rods will produce 15 cm x 15 cm meshes.

#### ➤ Quality of materials and special provisions

- ✓ The concrete must be perfectly homogeneous, carefully molded and well mixed. The mixing place must be as close as possible to the molding place of plates and casting of poles.
- ✓ A very good quality sand must be used and without any plant residues.
- ✓ A very good quality basaltic nature gravel must also be used.
- ✓ For the mixing water: water used in the making of concrete must not contain substances dissolved, suspended particles, sediments likely to alter the hardening and resistance of the concrete.
- ✓ The verticality and horizontality of works must be complied with so as to make it pleasant to see.
- ✓ Finished angles will be perfectly squared.
- ✓ The works must be built according to the code of practice.

A good quality of building will require the application of a call for tender procedure so as to hire a qualified construction company having a similar experience and monitored by a mission or consultant to ensure the technical control in collaboration with beneficiaries.

The works will then have on average 30 years of civil engineering duration.

### 5.3- Plans and sketches of developments to be made

The building plans and sketches are as follows:

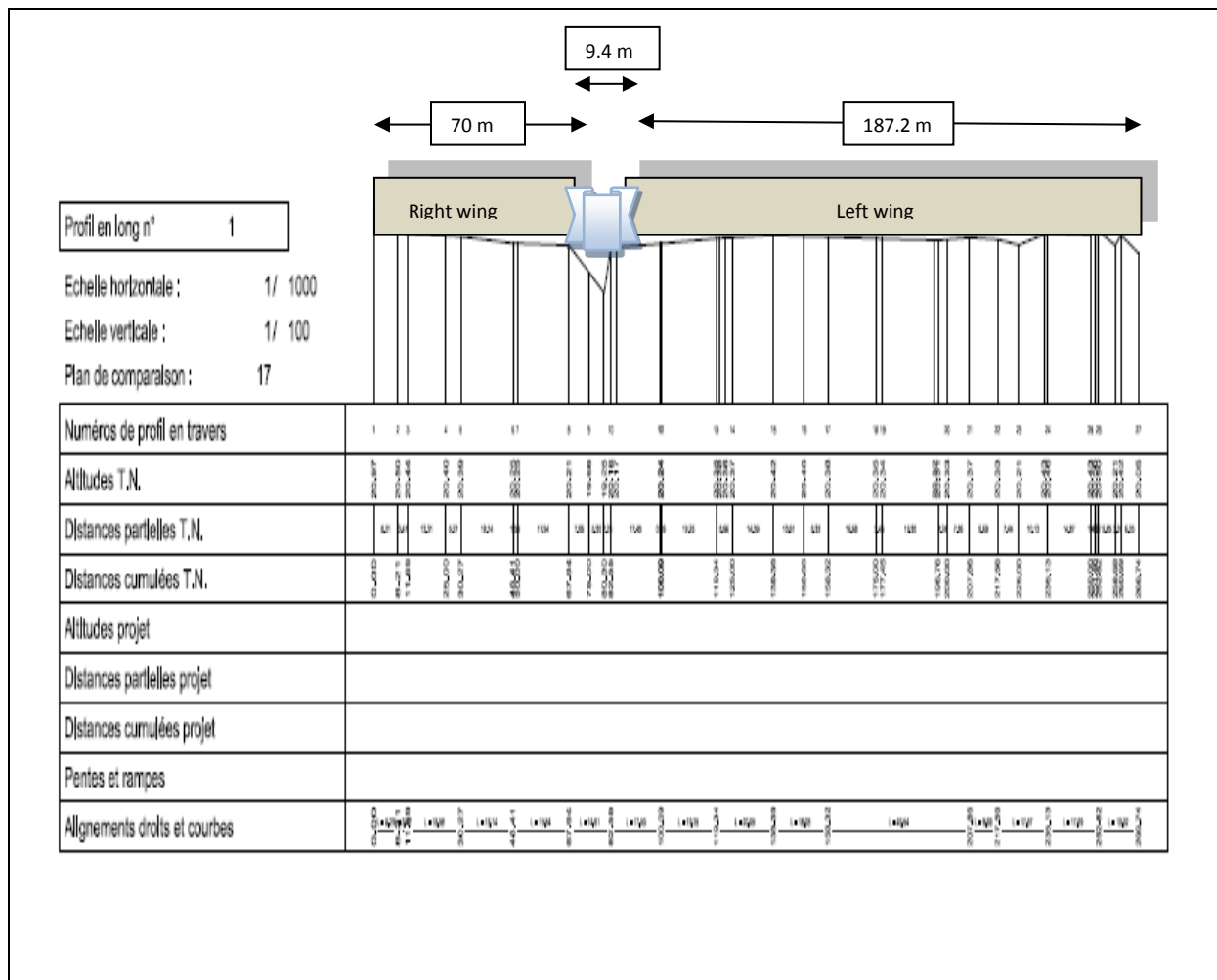


Figure 14 : Front view of the dike over the profile along the dike of Ndiar

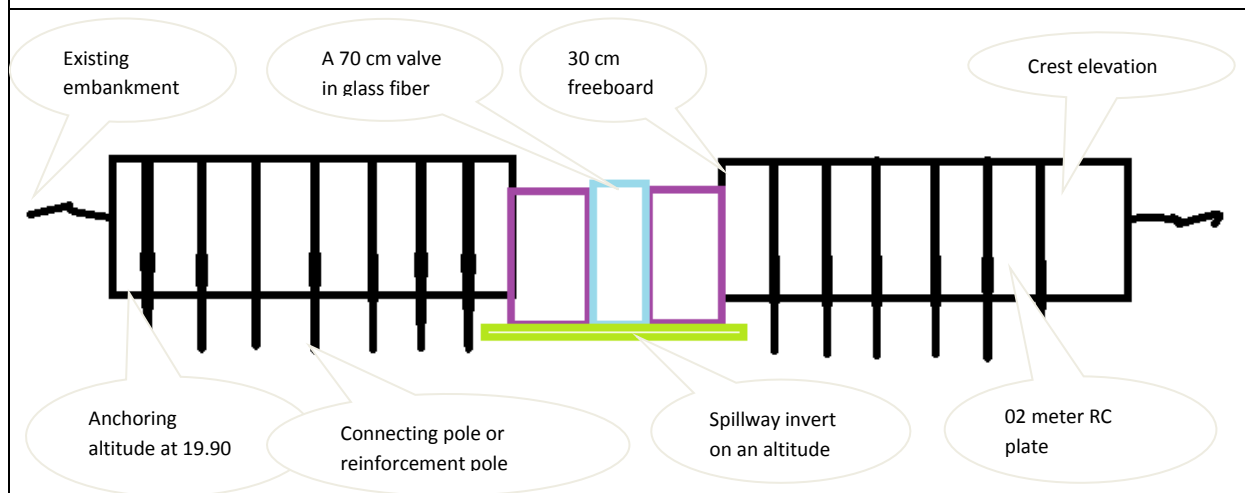
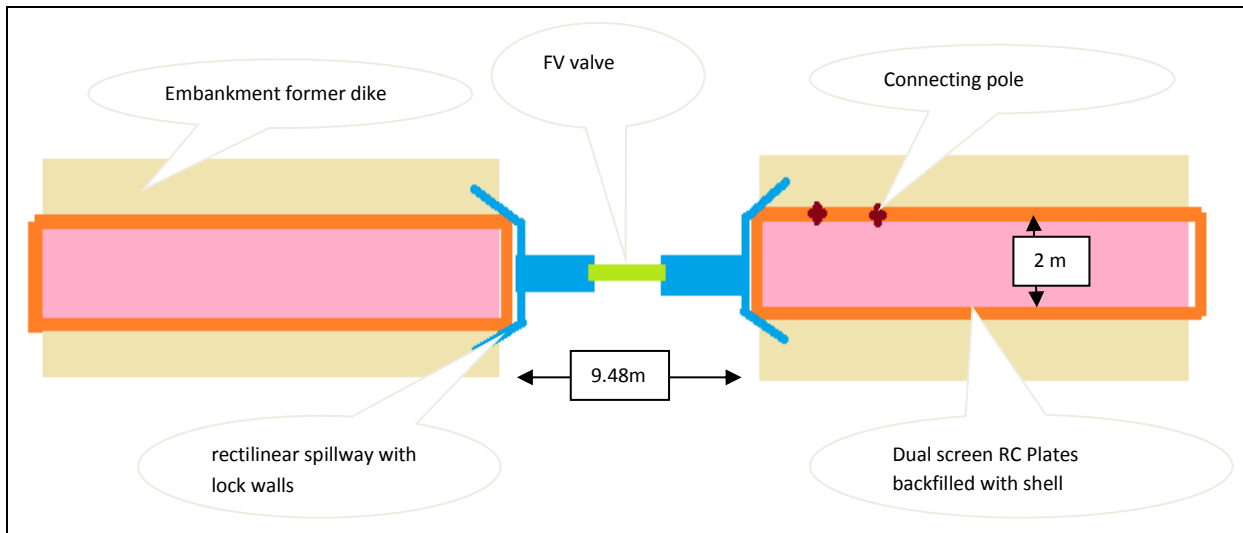
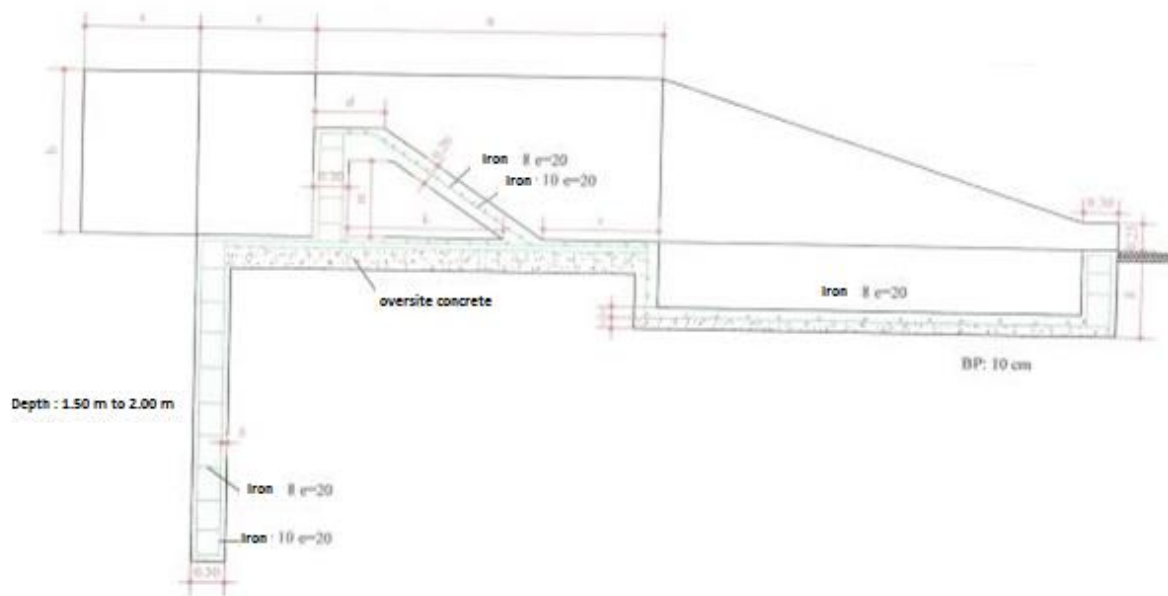


Figure 15 : Front view sketch of the development of the Ndiar dike

These sketches illustrate the operational arrangements meant to be made to build the dikes of Ndiar, Ndioundiouré and Ecole 2.



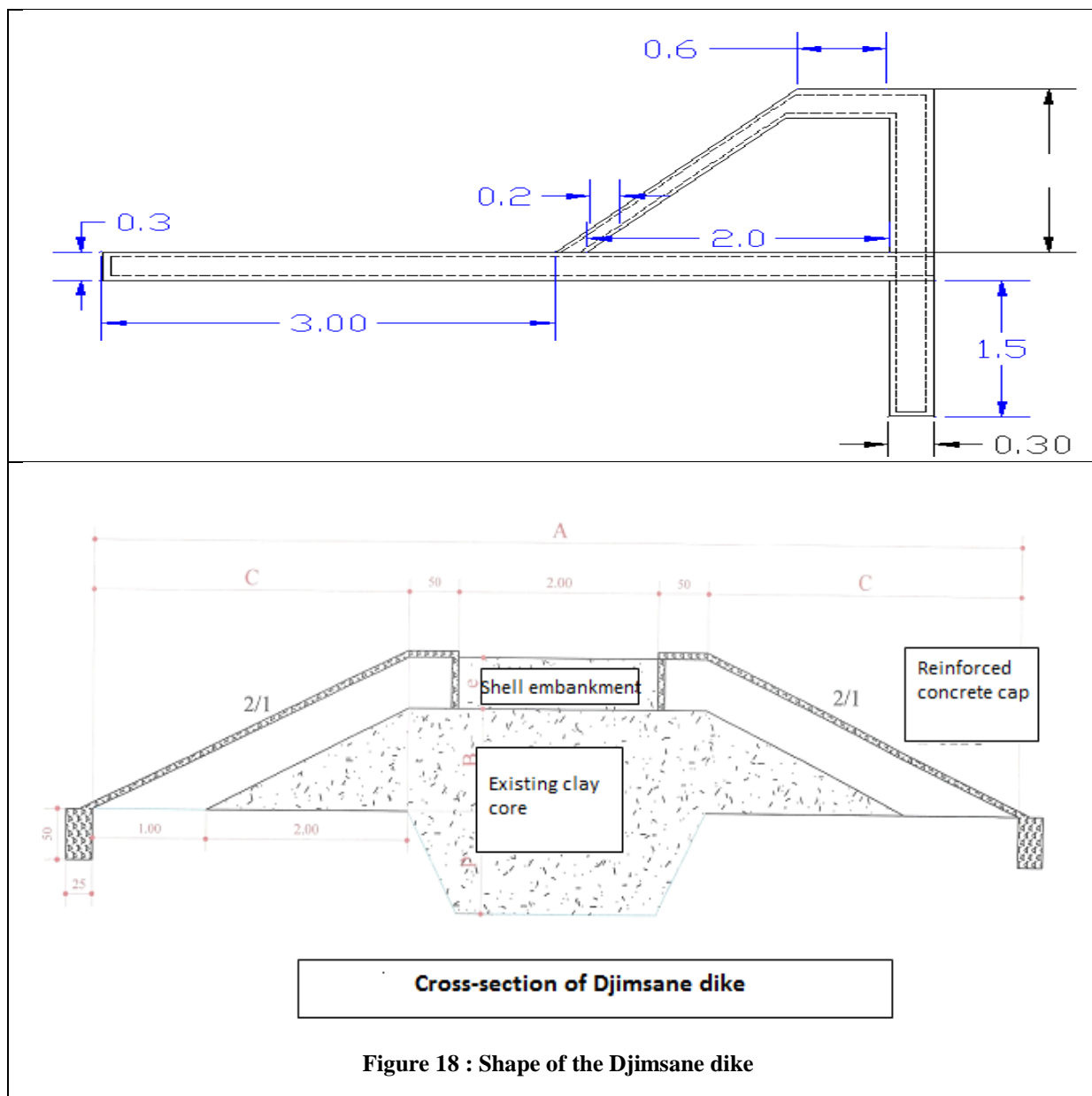
**Figure 16 : Upper view sketch of the development of the Ndiar dike**



**Standard Diagram : Drainage Structure**

**Figure 17 : Evacuator**





#### 5.4- Bill of quantities and estimated costs

##### Ndiar dike

DESCRIPTION WORKS	Unit	Qty	UP	Total Price (XOF)	Total Price (USD)
Site preparation	FF	FF	500000	500000	
Strip excavation on the dike	ml	520	1000	520000	
Excavation for spillway	m3	13.5	1000	13500	
Oversite concrete calibrated at 150 kg/m3	m3	20	90000	1800000	
Reinforced concrete calibrated at 350 kg/m3 for spillway	m3	30	165000	4950000	

Plates calibrated at 400 kg/m3	U	260	70000	18200000	
Reinforcement poles calibrated at 400 kg/m3	U	260	25000	6500000	
Shell and clay embankment on dual screens	m <sup>3</sup>	312	3500	1092000	
Glass fiber valve	u	2	200000	400000	
<b>TOTAL</b>				<b>33 975 500</b>	

- **Ndioundiouré dike**

<b>DESCRIPTION OF WORKS</b>	<b>Unit</b>	<b>Qty</b>	<b>UP</b>	<b>Total Price</b>
Site preparation	FF	FF	500000	500000
Strip excavations on the dike	ml	260	1000	260000
Excavation for spillway	m3	28.5	1000	28500
Oversite concrete calibrated at 150 kg/m3	m3	40	90000	3600000
Reinforced concrete calibrated at 350 kg/m3 for spillway	m3	50	165000	8250000
Plates calibrated at 400 kg/m3	U	130	70000	9100000
Reinforcement poles calibrated at 400 kg/m3	U	130	25000	3250000
Shell and clay embankments on dual screens	m <sup>3</sup>	234	3500	819000
Glass fiber valve	u	1	200000	200000
<b>TOTAL</b>				<b>26 007 500</b>

- **Ecole 2 dike**

<b>DESCRIPTION OF WORKS</b>	<b>Unit</b>	<b>Qty</b>	<b>UP</b>	<b>Total Price</b>
Site preparation	FF	FF	500000	500000
Strip excavations on the dike	ml	1540	1000	1540000
Excavation for spillway	m3	12	1000	12000
Oversite concrete calibrated at 150 kg/m3	m3	25	90000	2250000
Reinforced concrete calibrated at 350 kg/m3 for 02 spillways	m3	40	165000	5775000
Plates calibrated at 400 kg/m3	U	770	70000	53900000
Reinforcement poles calibrated at 400 kg/m3	U	770	25000	19250000
Shell and clay embankments on dual screens	m <sup>3</sup>	1386	3500	4851000
Vanne en fibre de verre	u	2	200000	400000
<b>TOTAL</b>				<b>89 959250</b>

- **Djimsane dike**

<b>DESCRIPTION OF WORKS</b>	<b>Unit</b>	<b>Qty</b>	<b>UP</b>	<b>Total Price</b>
Site preparation	FF	FF	500000	500000
Strip excavations on the dike	m1	3460	1000	3460000
Stabilization clay embankment	m3	865	12000	10380000
Oversite concrete calibrated at 150 kg/m3	m3	50	75000	3750000
Mortar calibrated at 250 kg/m3 for renovation of spillway	m3	10	130000	1300000
Reinforced concrete calibrated at 350 kg/m3 for crown	U	1141.8	150000	171270000
Masoned rip-raps	m2	10	30000	300000
Rip-rap upstream/downstream the spillway	m <sup>3</sup>	15	15000	225000
Fiber glass valve	u	1	200000	200000
<b>TOTAL</b>				<b>191385000</b>

### **5.5- Prospecting materials**

The needed volume of compacted shell embankments mixed with clay is **8 411 m<sup>3</sup>**. The prospecting of materials is directed towards local ones essentially in the form of shell mixed with clay and excavation borrows or strings during works to evaluate at 5 834 m<sup>3</sup>. The **2 577 m<sup>3</sup>** gap is available in the shell quarry in Ndiar and Ecole 2 which qualities go beyond 10 000 m<sup>3</sup> with a valuable quality.

### **5.6- Organizational Aspects**

The establishment of an organization fits into local stakeholders involvement process, particularly in the coordination and supervision of all activities carried out on site. Thus, its establishment requires the compliance with four major steps:

- Information and awareness raising of stakeholders;
- Support to the selection of representatives for the management committee;
- Support to the development of a draft by-law;
- Support to the organization of statutory meetings.

A management committee will be established for each structure. It will be responsible for:

- the upkeep and maintenance of the infrastructure;
- the application of the local agreement;
- the interaction with shallow users;
- the direct monitoring of some environmental parameters;
- the management of water spaces;
- the management of conflicts;
- the management of funds, etc.

This committee shall work under the supervision of the municipal council, whose tasks is to manage the natural resources of community lands. The municipal council is supported by a proximity operator. The management committee must be trained and monitored at least during the first two years on infrastructure management.

Other accompanying measures will include, among others:

- the development and application of a local agreement for each site to reduce the different conflicts related to the exploitation of natural resources on that area, particularly those caused by stray livestock ;
- the establishment of a dynamic management committee ;
- the establishment of a fund to upkeep and maintain infrastructures ;
- the fight against the proliferation of aquatic plants in thalwegs;
- the facilitation of tillage for newly conquered lands ;
- the enhancement of the technical and organizational capacity of operators ;
- the support to the marketing of products ;
- the conservation and transformation of products ;
- etc.

### **5.3- Environmental aspects**

In accordance with Senegal regulatory requirements, particularly in Article L48 of the Environmental Code, *“any development or activity likely to affect the environment as well as policies, plans, programs, regional and sector-based studies will require an environmental assessment before any authorization for their completion.*

*Environmental assessment is a systematic process to assess the possibilities, capabilities and functions of resources, natural and human systems to facilitate sustainable development planning and decision making in general, as well as to provide and manage the negative impacts and consequences of particular development proposals; it includes environmental impact studies, strategic environmental assessment and environmental audits”.*

As part of this project, a diagnostic study of environmental and social impacts has been performed. This study takes into account all the positive and negative environmental and social impacts resulting from the implementation of certain activities of the project.

In summary, these developments should allow:

- Protecting the islands (dwellings, cults and agricultural lands) against sea encroachment and floods,
- Recovering salty lands and improving water management by building anti-salt dikes and water storage facilities to secure and increase agricultural and livestock production and replenish the water table,
- Defending and restoring soil through erosion control measures, Rehabilitating the vegetation cover,
- Restoring degraded ecosystems and improving biodiversity,
- Building the technical capacity of users,
- Increasing the income of people concerned,
- Changing the behaviors of operators for a good management of low lands,
- Improving social cohesion, users’ organization and the institutional framework.

## Conclusion

This study conducted as part of the project entitled “*Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar)*” reflects a detailed project proposal and demonstrates that the implementation of the four dikes is feasible and will induce significant positive impact in Dionewar and its satellite island of Djimsane.

The different types of structures and facilities offered will enable beneficiaries to enhance their resilience in response to the rising level of marine waters, to secure their assets, recover lost land areas and improve their living conditions.

With years of hydraulic compaction, there is a need to use the surface line of the previous dike as foundation, by rehabilitating slumped sections. This development will help contain the upwelling of high tides, facilitate rainwater drainage and control upstream for the protection of at least **1,206.5 ha** of salty lands.

For agricultural uses upstream of the structures after washout, the amount of stored water that can be mobilized is **7,761,520 m<sup>3</sup>**. Given the nature and complexity of the island area, the different transportation costs and fees and other inputs are included in price items under the various headings of the cost estimate. The overall cost for the building of the four dikes is 341 327 250F.

A good quality of execution will require a bidding documents preparation process to recruit a qualified construction company with similar experience, monitored by a mission or consultant for technical control in collaboration with the beneficiaries.

The proposed technical option of the island protection facility has considerable impacts at lower cost and is easy to replicate in other sites, considering (ii) the availability of the materials and equipment for the realization of dikes, (iii) the facility to convince other technical and financial partners on the feasibility and (iv) the commitment of local authorities to support the local community.

ANNEXES:

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**1- Interview guide**

<p><b>Other information to be collected on the ground/sites</b></p> <p><b>Four dikes: Ndiar, Ndioundiouré, Ecole 2 and Djimsane</b></p>
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- 1. GPS coordinates.....
- 2. Current situation of the various dikes: .....
- 3. Current lengths of the dikes: .....
- 4. Assessing dike construction materials:.....
- 5. Assessing their consistency: .....
- 6. Shaping existing dike stretch: .....
- 7. Foundation depth.....
- 8. Identifying and characterizing existing spillways: .....
- 9. Distance of the degradations to be backfilled: .....
- 10. Level of compaction:.....
- 11. Remaining and non-executed stretches, if applicable: .....
- 12. Finalization of the remaining and non-executed stretch:.....
- 13. Prospecting of materials:.....
- 14. Other observations or problems found: .....
- 15. Recommendations from populations:.....

**2- Topographic surveys and profiles (see attached documents)**

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### **3. Topographic data (see attached documents)**

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COMPONENTS/OUTPUTS	ACTIVITIES	YEAR 1	YEAR 2	YEAR 3	TOTAL
<b>Component 1: Enhancing resilience of main ecosystems in Dionewar island</b>					
<b>Output 1.1: Development of fish and oyster farms</b>					
	Logistic	10,000			10,000
	Fixed asset	13,060			13,060
	Working capital	12,965			12,965
	Operating expenses	5,895	5,895	5,895	17,685
	Implementation of mitigation measures (Inform and conduct awareness campaign to fight against waterborne diseases)	6,667	6,667	6,666	20,000
	Oversight activity (waste management, application of environmental clauses - , etc.)		596	596	1,192
	Monitoring activity (physicochemical and bacteriological parameters, selection of beneficiaries, etc.)	4,393	4,393	4,394	13,180
<b>TOTAL OUTPUT 1.1</b>		<b>52,980</b>	<b>17,551</b>	<b>17,551</b>	<b>88,082</b>
<b>Output 1.2: Reforestation of 6ha of trees and 5ha of mangrove</b>					
	Laying out	10,000			10,000
	Equipment	49,833			49,833
	Ecoguards training		5,000		5,000
	Ecoguards equipments		4,500		4,500
	Inputs	2,849	2,449	2,849	8,148
	Labour	23,734	23,734	23,734	71,202
	Logistic	600	600	600	1,800
	Social labor	500	500	500	1,500
<b>TOTAL OUTPUT 1.2</b>		<b>87,516</b>	<b>36,783</b>	<b>27,683</b>	<b>151,983</b>
<b>Output 1.3: At least 18 women economic interest groupings and natural resources management committee trained to improve their technical performance</b>					
	Consultancy services	5,000	5,000	5,000	15,000
	Workshop	1,800	1,800	1,800	5,400
	Consultancy services	5,000	5,000	5,000	15,000
	Workshop	1,800	1,800	1,800	5,400
	Oversight activity (integration of gender and vulnerable groups principles during the setting up of committees, application of environmental clauses - waste and water management - during training sessions, etc.)	561	561	561	1,683
<b>TOTAL OUTPUT 1.3</b>		<b>14,161</b>	<b>14,161</b>	<b>14,161</b>	<b>42,483</b>
<b>Output 1.4: A management plan is developed for the fish and oyster farms</b>					
	Consultancy services		7,000		7,000
	Validation workshop		700		700
	Consultancy services		7,000		7,000
	Validation workshop		700		700
	Oversight activity (Integration of environmental clauses into the management plan, etc.)		700		700
	Monitoring the integration of environmental clauses into management plan			2,450	2,450
<b>TOTAL OUTPUT 1.4</b>		<b>0</b>	<b>16,100</b>	<b>2,450</b>	<b>18,550</b>
<b>TOTAL COMPONENT 1</b>		<b>154,657</b>	<b>84,595</b>	<b>61,845</b>	<b>301,098</b>
<b>Component 2: Protection against flooding, coastal erosion and salinization in Dionewar</b>					
<b>Output 2.1: Rehabilitation and extension of dikes to protect against flooding</b>					
	Surveying	35,000			35,000
	Shell storage	527,000			527,000
	Contract services	62,000			62,000
	Implementation of mitigation measures (anti-contamination plan, waste management, etc.)			2,500	2,500
	Oversight activity (involvement of vulnerable groups in the works, respect of labour right, especially with regard to child work, etc.)			1,050	1,050
<b>TOTAL OUTPUT 2.1</b>		<b>624,000</b>	<b>0</b>	<b>3,550</b>	<b>627,550</b>
<b>Output 2.2: Development of ridges around rice plots in satellite island of Djimsane</b>					
	Rice areas mapping	10,000			10,000
	Purchase of equipment	10,000			10,000
	Social mobilization actions	8,000			8,000
	Multipurpose units	1,699			1,699
	Tiller	4,138			4,138
	Consultation producers	3,000			3,000



	Implementation of mitigation measures (Pest and Pesticide management plan)	10,000	10,000	10,000	30,000
	Oversight activity (gender aspects into the committees, integration of environmental clauses, etc.)		1,225	1,225	2,450
	Monitoring activity (Physicochemical parameters, etc.)		12,870	12,870	25,740
<b>TOTAL OUTPUT 2.2</b>		<b>46,837</b>	<b>24,095</b>	<b>24,095</b>	<b>95,027</b>
<b>Output 2.3: A maintenance plan of coastal infrastructures developed, including key stakeholders</b>					
	Maintenance guide	15,000			15,000
	Management committee	3,000			3,000
	Report back session	3,000			3,000
<b>TOTAL OUTPUT 2.3</b>		<b>21,000</b>	<b>0</b>	<b>0</b>	<b>21,000</b>
<b>TOTAL COMPONENT 2</b>		<b>691,837</b>	<b>24,095</b>	<b>27,645</b>	<b>743,577</b>
<b>Component 3: Strategic planning and knowledge management</b>					
<b>Output 3.1: The Local Development Plan (PLD) is reviewed / updated in order to integrate climate change adaptation options &amp; costs benefits.</b>					
	Update PLD and PLAE	7,000			7,000
	Training (1) local representatives		5,000		5,000
	Training (2) local representatives	2,600	2,600	2,600	7,800
	Workshops	400	400	400	1,200
<b>TOTAL OUTPUT 3.1</b>		<b>10,000</b>	<b>8,000</b>	<b>3,000</b>	<b>21,000</b>
<b>Output 3.2: Preparation of a Local Convention to better regulate the use of forest products and the biological rest</b>					
	Diagnostic RN natural resources	3,000			3,000
	Drafting local convention	1,400			1,400
	Validation workshop		600		600
	Deliberation session		600		600
	Edition duplication LC		2,346		2,346
	Oversight activity (application of alternatives measures proposed to vulnerable groups e.g. creation of apiculture activity, etc.)	1,493	1,493	1,494	4,480
	Monitoring the effectiveness of the application of the mitigation measures proposed to vulnerable groups			3,220	3,220
<b>TOTAL OUTPUT 3.2</b>		<b>5,893</b>	<b>5,039</b>	<b>4,714</b>	<b>15,646</b>
<b>Output 3.3: Project's lessons learned documented and shared</b>					
	Annual reports production	2,500	2,500	2,500	7,500
	Audio et television broadcasting		1,000		1,000
	Posters production	2,500			2,500
	Workshop participation	1,050	2,050	2,050	5,150
<b>TOTAL OUTPUT 3.3</b>		<b>6,050</b>	<b>5,550</b>	<b>4,550</b>	<b>16,150</b>
<b>Output 3.4: Installation of a meteorological station at Dionewar</b>					
	Meteo station	22,000			22,000
	Identification mission	2,500			2,500
	Installation mission	1,000			1,000
	Securisation work	2,500			2,500
	Maintenance	1,400			1,400
<b>TOTAL OUTPUT 3.4</b>		<b>29,400</b>	<b>0</b>	<b>0</b>	<b>29,400</b>
<b>TOTAL COMPONENT 3</b>		<b>51,343</b>	<b>18,589</b>	<b>12,264</b>	<b>82,196</b>
<b>Project execution</b>					
<b>Staff salaries and allowances</b>					
	M&E specialist salary	7,200	7,200	7,200	21,600
	Local coordinator salary	6,000	6,000	6,000	18,000
	Admin and fin assistant salary	3,600	3,600	3,600	10,800
	Allowances of CADL technical staff	4,800	4,800	4,800	14,400
<b>Refection and equipment of office</b>					
	Refection of former rural community premisses	3,290			3,290
	Office furniture	900			900
	Computing equipement	2,400			2,400
	Maintenance		200		200
	Office supplies	600	600	600	1,800
	Commodities	1,200	1,200	1,200	3,600
	Transportation	1,070	1,000	1,070	3,140
	Communication	720	720	720	2,160
	Inception workshop	9,500			9,500
	Steering committee meeting	2,000	2,000	2,000	6,000
	Final audit			10,000	10,000
	Mid-term evaluation		3,000		3,000

	Final evaluation			7,500	7,500
<b>TOTAL Project execution</b>		<b>43,280</b>	<b>30,320</b>	<b>44,690</b>	<b>118,290</b>
<b>Management fees</b>					
	CSE staff allowances	14,200	19,200	20,200	53,600
	Control of works	5,000	5,000	5,000	15,000
	Field supervisions (Contribution to M&E activities)	10,000	8,000	6,000	24,000
	Inception workshop (Contribution to execution resources)	6,039			6,039
	Financial fees	2,000	2,000	3,200	7,200
<b>TOTAL Project Management</b>		<b>37,239</b>	<b>34,200</b>	<b>34,400</b>	<b>105,839</b>
<b>TOTAL PROJECT</b>		<b>978,356</b>	<b>191,799</b>	<b>180,844</b>	<b>1,351,000</b>

## EXPLANATORY NOTE

As part of the project to reduce the vulnerability and enhance the resilience of coastal communities, an economic analysis has been conducted in order to have a better understanding of the economic impacts on populations and of the project profitability.

In this document, the costs are equivalent to the expected budget, which are the investments that will be made and the benefits are equivalent to revenues taken from the production activities (e.g. Fish farming or oyster farming, revenues taken from the coconuts sales, etc.). The benefits are also corresponding to the avoided costs (such as rehabilitation or repairs cost, etc.).

The project budget is \$ 1,351,000 of which \$ 978,356 for the first year, \$ 191,799 the second year and \$ 180,844 the last year of activity.

The first component of the project requires \$ 301,098, the component 2 requires \$ 743,577 and the third component requires a budget of \$ 82,196.

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### **1. COMPONENT 1: ENHANCING RESILIENCE FOR PRODUCTIVE SECTORS IN DIONEWAR ISLAND**

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#### *1.1. ACTIVITY 1.1: DEVELOPMENT OF FISH AND OYSTER FARMS*

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The project seeks to develop fish and oyster farms. Those farms will improve the populations' livelihoods.

The fish and oyster farming activity production is relatively low during the first year which corresponds to the installation phase. However, the investment take place only the first year, therefore the following years, investments are almost zero.

The tables below shows the annual production during the fish and oyster farms exploitation.

**Table 1: Annual expected production from the fish farms**

Annual production in kgs	21,375	
Cost price of the kg of fish	950 XOF	\$1.9
Sell price of the kg of fish	1300 XOF	\$ 2.6
Gain	27,787,500	\$ 55,575

**Table 2: Annual expected production from the oyster farms**

Annual production in kg	21,560	
Sell price of the dozen of oyster	1500 XOF	\$ 3
Gain	32,340,000 XOF	\$ 64,680

## 1.2. ACTIVITY 1.2: ENRICHMENT PLANTING WITH 6 HA OF TREES AND 5 HA OF MANGROVE

The second activity is reforestation. The planned reforestation will be made using coconut trees, palm oil trees and mangrove.

### 1.2.1. Coconut trees and palm oil trees

It is planned the reforestation of 6ha with coconut trees and palm oil trees. The coconut tree is the more profitable of the two species in the village. To this end, 4 hectares of coconut trees and 2 hectares of palm oil trees will be planted.

The table below shows the technical parameters and costs for planting the two species.

**Table 3: Costs and parameters**

Species	Cost of the young plant		Production start	Density (plant/ha)	Annual production	Selling price		Lifespan (year)
	(XOF)	(\$)				(XOF)	(\$)	
Coconut tree	15.000	30	After 3 or 4 years	100 - 124	40 – 60 nuts	100/nut	0.2/nut	30
Palm oil tree (nuts)	2,000	4	Between 2 or 4 years (but at the 3rd year the production can start)	120 – 140	8 – 14 tons	-	-	30
Palm oil					4 – 5 tons <sup>1</sup>	1.100/liter	2.2/liter	

The reforestation of these species will require the use of phytosanitary products. Its estimated costs are around 100.000 XOF/year (\$200 per year) for the entire 6 hectares.

A staff responsible of the maintenance of the plantation will be needed. The maintenance is mainly made of the following activities:

- Application of fertilizers and pesticides;
- Weeding and pruning after the rainy season especially;
- Watering for 2 years:
  - 20 persons during 8 months (salary: \$80 per month per person);
  - 1 safeguard (salary: \$100 per month).

### **Young plant transportation (coconuts and palm oil trees) : \$1000**

For the maintenance Investment :

#### - Small equipment :

Naming	Quantity	Lifespan (year)	Unit price (XOF)	Unit price (\$)
12 litres watering can	40	5	7000	14
Wheelbarrow	5	10	12.000	24

<sup>1</sup> Density of palm oil : 0.91kg/l

Rake	20	2	2.000	4
Hoe	20	2	3.000	6
Bucket + rope	20	1	1.000	2
Secateurs	10	10	2.500	5
Spray	10	5	45.000	90

– Large equipment :

Naming	Quantity	Lifespan (year)	Unit price (XOF)	Unit price (\$)
Well (2 wells per ha)	12	15	500.000	1000
Fence (400m/ha) + pickets	2400 m	10	6000/m	12/m

### 1.2.2. Mangrove

For the mangrove restoration, the community can be mobilized. This activity mainly concerns the collection and planting of propagules. A flat fee of \$500 per year can be used to organize meals for example, the gasoil for the canoe used during the collection of propagules.

After three years, the oysters' production can start.

The working capital will be necessary at least for four years, the time it takes to get the production started.

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## **2. COMPONENT 2: PROTECTION AGAINST FLOODING AND SALINIZATION IN DIONEWAR**

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### 2.1. *ACTIVITY 2.1: REHABILITATION AND EXTENSION OF DIKES TO PROTECT AGAINST FLOODING*

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The dikes will be rehabilitated in order to protect housing and buildings against flooding.

In the area exposed to the rising floodwaters in case of dike failure, there are about a hundred buildings (houses, schools, etc.). The cost considered is the one for rehabilitating these buildings after a flood during the rainy season.

The estimated cost for the repairs or the rehabilitation is \$ 100 per building. The number of buildings damaged or requiring rehabilitation is estimated at 20 per year.

#### **Others avoided costs**

The absence of the seawall could also lead to other humanitarian costs (availability of provisions, food insecurity, health issues). The schools occupied by the victims and / or flooded is an obstacle to the success of children education.

Also, risks of proliferation of water diseases require the purchase of phytosanitary product to struggle against the proliferation of mosquitoes and the associated risks

linked to water diseases (diarrhea, cholera). Populations cannot afford to buy them to ensure their hygiene in this situation.

The isolation will increase the vulnerability of populations, causing inaccessibility to basic services (health, drinking water, electricity, waste management), promiscuity in sites or temporary shelters and relocation of populations. This will result in significant socioeconomic costs (loss of arable land and increase in unemployment rate) related to:

- the search of resettlement sites;
- the Housing construction;
- the displacement of affected populations to new accommodation;
- etc.

The resulting benefits of these avoided costs campaigning for the establishment of the dike. Indeed, the island is endangered by the advance of the sea and the junction between the sea water and the river. Dike construction will protect the island. The profits corresponding to avoided costs related to the rehabilitation (100 USD) of homes after a flood, should add to these different hazard, the cost of the extreme scenario that would be a total disappearance of the island.

This dike to prevent the total disappearance of the island will therefore avoid the costs that would have resulted in the total displacement of the population, the construction of new homes and new socio-economic infrastructure (schools, health case-processing unit, etc.). This threat hangs over a horizon of 10 to 15 years if no action is taken in the short term. But the process will start from the 4th year of inaction. The following table provides information on the costs of infrastructure whose replacement would be required and the costs avoided by the erection of the dike.

Table 4: Avoided costs

Designation	Unit cost	Number	Total cost	Year 4	Year 5	Year 6	Year 7	Year 8 & remaining years
	FCFA		FCFA	FCFA	FCFA	FCFA	FCFA	FCFA
Houses	4 000 000	451	1 804 000 000	120 266 667	120 266 667	120 266 667	120 266 667	120 266 667
Women's complex	20 000 000	1	20 000 000			10 000 000		
Health-care facility	20 000 000	1	20 000 000	1 333 333	1 333 333	1 333 333	1 333 333	1 333 333
Primary School	4 500 000	24	108 000 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000
High School	4 500 000	16	72 000 000	4 800 000	4 800 000	4 800 000	4 800 000	4 800 000
Poste office	5 000 000	1	5 000 000			-	5 000 000	
<b>TOTAL</b>			<b>2 029 000 000</b>	<b>133 600 000</b>	<b>133 600 000</b>	<b>143 600 000</b>	<b>138 600 000</b>	<b>133 600 000</b>
<b>AVOIDED COST (USD)</b>				<b>267 200</b>	<b>267 200</b>	<b>287 200</b>	<b>277 200</b>	<b>267 200</b>

The choice of a sustainable work in the light of past experiences of other projects being implemented and the importance of direct and indirect costs determined, involve a high investment cost for a longer life (15 years) of the work, in order to ensure a long term impact on the protection of the village and its infrastructure.

*2.2. ACTIVITY 2.2: DEVELOPMENT OF RIDGES AROUND RICE PLOTS IN THE SATELLITE ISLAND OF DJIMSANE*

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In the Djimsane Island where the rice fields are located, there is an anti-salt dike built by a GEF funded project. Thanks to this dike, Dionewar's women have been able to grow rice during the last rainy season (2015) and generate about 500 kg of rice.

Given the remoteness of houses compared to the growing areas, a multipurpose warehouse will be built to store the equipment and the crops. A tiller will also be purchased in order to fully take advantage of the land areas reclaimed or protected.

*Investissements pour la riziculture*

<b>Naming</b>	<b>Quantity</b>	<b>Lifespan (year)</b>	<b>Unit price (XOF)</b>	<b>Unit price (\$)</b>
Multipurpose warehouse (storage capacity 30 to 40t)	01	20	1.000.000	2.000
Tiller and harrow	01	15	2.436.052	4.872

The efficiency of the rice production is around 2.5t per hectare.

**Profitability analysis**

The working capital, the operating expenses and the others costs assess the profitability of the project. During the first 6 years, the revenues taken from the activities are estimated between 25 and 75% of the production capacity and the cruising speed will be reached at the 7<sup>th</sup> year.







COMPONENTS	OUTPUT	ACTIVITIES	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
		Oversight activity (involvement and vulnerable groups in the works, respect of labour right specially on child work, etc.)			1050												
		<b>Investment cost</b>	624000														
		<b>Production cost</b>			3550	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
		<b>Benefits (coûts évitées)</b>		1699	1699	1699	228650	228650	245638	228650	254131	228650	228650	228650	228650	228650	228650
<b>Output 2.2: Development of ridges around rice plots in satellite island of Djimsane</b>																	
		Rice areas mapping	10000														
		Purchase of equipment	10000														
		Social mobilization actions	8000														
		Multipurpose unit	1699						1699								
		Tiller	4138										4138				
		Consultation producers	3000														
		Implementation of mitigation measures (Pest and Pesticide management plan)	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
		Oversight activity (gender aspects into the committes, integration of environmental clauses, etc.)		1225	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225
		Monitoring activity (Physicochemical parameters, etc.)		12870	12870	12870	12870	12870	12870	12870	12870	12870	12870	12870	12870	12870	12870
		<b>Investment cost</b>	36837	0	0	0	0	0	1699	0	0	0	4138	0	0	0	0
		<b>Benefits</b>		27605	27605	55209	82814	82814	110418	110418	110418	110418	110418	110418	110418	110418	110418
<b>Output 2.3: A maintenance plan of coastal infrastructures developed, including key stakeholders</b>																	
		Maintenance guide	15000														
		Management committee	3000														
		Report back session	3000														
		<b>Investment cost</b>	21000														
		<b>Benefit Component 2</b>	0	29303	29303	56908	311464	311464	356056	339068	364549	339068	339068	339068	339068	339068	339068
		<b>Production cost Component 2</b>	10000	24095	27645	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
		<b>Investment cost Component 2</b>	681837	0	0	0	0	0	1699	0	0	0	4138	0	0	0	0
		<b>Cash Flow component 2</b>	691837	5208	1658	54408	308964	308964	351857	336568	362049	336568	332430	336568	336568	336568	336568
<b>Component 3: Strategic planning and knowledge management</b>																	





COMPONENTS	OUTPUT	ACTIVITIES	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
<b>Total Production cost</b>			70292	100683	94204	63902	63902	63902	63902	63902	63902	63902	63902	63902	63902	63902	63902
<b>Total Investment cost</b>			827544	26596	7550	0	0	0	1699	0	0	0	4138	0	0	0	0
<b>EXECUTION COST</b>			80519	64520	79090	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Cash Flow</b>			978356	224667	235622	767333	1030879	1030879	1469926	1454638	1867282	1841801	1837663	1841801	1841801	1841801	1841801

YEAR	YEAR 1	YEAR 2	YEAR 3	TOTAL
<b>BUDGET</b>	<b>978356</b>	<b>191799</b>	<b>180844</b>	<b>1351000</b>

The 58% Investment Return Rate (IRR) allows to make the investment. Indeed, the project's IRR is higher than the bank rates.

The actual IRR is higher than the discount rate (which is at 12%), the net present value of the project is positive (USD 5 723 437), meaning that the project is profitable.

**Centre de Suivi Ecologique**

*National Implementing Entity (NIE) of the Adaptation Fund (AF) and the Green Climate Fund (GCF)*



**"REDUCING VULNERABILITY AND INCREASING RESILIENCE OF  
COASTAL COMMUNITIES IN DIONEWAR"**



**ENVIRONMENTAL AND SOCIAL DIAGNOSTIC STUDY**

**FINAL REPORT**



**Centre de Suivi Ecologique**

CSE, BP : 15.532, Dakar-Fann (Sénégal)

Tél : (221) 33 825 80 66 / 33 825 80 67 Fax : (221) 33 825 81 68

Site web : <http://www.cse.sn>

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## DEFINITIONS

For a common understanding, we recall the following definitions of certain key concepts. These definitions are for the most part taken from the Environmental Code of the Republic of Senegal and various official documents of the United Nations.

**Adaption to climate change:** All initiatives and measures to reduce the vulnerability of natural and human systems to the actual or expected impacts of climate change (IPCC 2007: 1). The adjustment of natural or human systems in response to actual or expected climatic conditions or their impacts to mitigate harmful effects or exploit beneficial opportunities. Adaptation is also understood as the efforts by social groups, individuals and countries to adapt to the current and potential impacts of climate change.

**Climate change:** Slow variations of climate characteristics in a given location over time. Climate change may cause significant damage: rising sea levels, accentuation of extreme weather events (droughts, floods, cyclones, etc.), destabilization of forests, threats to freshwater resources, agricultural problems, desertification, biodiversity reduction, etc.

**Waste:** Any solid, liquid, gaseous substance or residue from a process of production, processing, or use of other substances disposed, meant to be disposed or disposed of under the laws and regulations in force.

**Ecological damage:** Ecological damage: Any damage to the natural environment, people and property that affects the ecological balance. This may be:

- Pollution damage caused by man and suffered by identifiable assets and individuals;
- Damage suffered by inappropriate elements of the natural environment;
- Damage to crops and property by game.

**Ecological balance:** The relatively stable relationship between man, fauna and flora, and their interaction with the conditions of the natural environment in which they live.

**Environmental issue:** Refers to the importance of a use, function, territory or natural environment in terms of environmental concerns, heritage, landscape, sociological, health considerations or quality of life.

**Environment:** All natural and artificial elements as well as economic, social and cultural factors that promote the existence, transformation and development of the natural world, living organisms and human activities.

**Human settlements:** All urban and rural areas, regardless of their types and sizes and all the facilities they must have in order to ensure that their inhabitants enjoy a healthy and decent life.

**Environmental impact:** Refers to the set of qualitative, quantitative and functional changes in the environment caused by a project, process, method, one or more organizations and one or more products from design to "end of life".

**Public participation:** The involvement of the populations in decision making. Public participation involves three stages, namely, information, consultation and public hearing.

**Pollution:** Any contamination or direct or indirect modification of the environment caused by any act:

- likely to adversely affect a use of the environment that is beneficial to man;
- that causes or is likely to cause a situation prejudicial to the health, safety, well-being of people, flora, fauna, atmosphere, water and collective and individual property.

**Atmospheric pollution:** The emission in the atmosphere of gases, smoke or substances likely to inconvenience the people, endanger public health or safety or harm agricultural production, preservation of buildings and monuments or alter the nature of natural sites and ecosystems.

**Water pollution:** The introduction into the aquatic environment of any substance that can modify the physical, chemical and biological characteristics of the water and jeopardize human health, harm the aquatic flora and fauna, affecting facilities or interfering with any other normal water use.

**Resilience:** In ecology, resilience is the ability of an ecosystem to recover its functions after a disturbance. Applied to human systems, factors that build resilience may include diversification of resources and agricultural production systems, disaster management systems, insurance schemes, food and monetary reserves or wise infrastructure investments, etc.

**Environmental sensitivity:** The degree of the impact of climate variability on assets of recognized value. It may be considered as the extent to which national and local economies depend on a given sector and are, therefore, sensitive to any changes in that sector.

**Sustainable use:** The use of the components of biological diversity in a way and at a rate that does not lead to their long-term decline, thereby maintaining their potential to meet the needs and aspirations of present and future generations.

**Vulnerability:** The impact level where humans and/or natural systems are sensitive to or unable to cope with the adverse effects of climate change. It depends on the magnitude of the variation in climate, exposure, sensitivity and adaptive capacity.



## **ABBREVIATIONS AND ACRONYMS**

<b>ADF:</b>	African Development Fund
<b>AF:</b>	Adaptation Fund
<b>AFDS:</b>	Agency for Social Development Fund
<b>ANA:</b>	National Agency for Aquaculture
<b>ANSD:</b>	National Agency of Statistics and Demography
<b>ARD:</b>	Regional Development Agency
<b>CADL:</b>	Support Centre for Local Development
<b>CC:</b>	Climate change
<b>COGER:</b>	Natural Resources Management Committee
<b>CONAF:</b>	National Committee for Literacy and Training
<b>CSE:</b>	Centre de Suivi Ecologique
<b>DAMP:</b>	Directorate for the Protected Marine Areas
<b>DEEC :</b>	Directorate of Environment and Classified Establishment
<b>DRDR:</b>	Regional Directorate of Rural Department
<b>DREEC:</b>	Directorate of Environment and Classified Establishment
<b>DRP:</b>	Regional Directorate of Fisheries
<b>EDF:</b>	Environmental Development Fund (EDF)
<b>EFA:</b>	Education for All
<b>EIG:</b>	Economic Interest Group
<b>EVE:</b>	Eau Vie Environnement
<b>FELOGIE:</b>	Local Federation of GIE
<b>GPF:</b>	Female Groupment
<b>IGA:</b>	Income Generating Activity
<b>IREF:</b>	Forestry Department
<b>IUCN:</b>	International Union for Conservation of Nature and Natural Resources
<b>LA:</b>	Local authorities

**PAPA-SUD:** Support Programme for Artisanal Fisheries in Southern Senegal

**PERACOD:** Program for the promotion of renewable energy, rural electrification and a sustainable supply of domestic fuels

**PCD:** Communal Development Plan

**PNAT:** National Plan of Regional Development

**PNDL:** Local Development National Program

**PODES:** Orientation Plan for Economic and Social Development

**PRECEMA:** Project Restoration and Ecosystem Mangrove Conservation in the Delta Biosphere Reserve Saloum

**PRODDEL:** Support Programme for Decentralization and Local Development

**SEF:** Forestry Department of the District

**SRP:** Regional Service of Fisheries

**STD:** Sexually Transmitted Disease

**WAAME:** West African Association for Marine Environment

**WULA NAFA:** Agriculture Programme/Natural resources management

## EXECUTIVE SUMMARY

Dionewar communities have suffered for decades from the adverse effects of climate change, triggered most significantly by the widening of the passage in the narrow sandpit called 'la Pointe de Sangomar' in February 1987 following an exceptionally strong swell. This mainly affected the productive systems.

The major environmental problems encountered by the population of Dionewar are: (i) the coastal erosion that threatens the existence of some settlements of the island; (ii) recurrent floods; (iii) the degradation of plant cover; (iv) the threat of salinization of the Djimsane rice fields; (v) the mangrove degradation and loss of fisheries resources. These environmental problems have, among other effects on populations, caused a decline in the income of the population derived from the exploitation of fisheries and forest resources.

In the face of these challenges, the adaptation strategy developed by the population is to create conditions that ensure the protection of the island through the building of dykes, sustainable management of forest resources and the development of fisheries resources through processing.

The village people have welcomed the project with great hope in the many opportunities it can provide. This is the case for rice farming, a cultural activity that women want to revive. The rehabilitation of the dykes will better protect the village against floods, but also help reclaim dozens of hectares of land affected by salinization. Reforestation through tree planting, beyond the restoration of forest ecosystems, will provide many non-timber forest products which when processed will contribute to local development. The promotion of aquaculture will generate additional income through the development of fisheries products.

The environmental and social diagnosis helped identify the impacts the implementation of the project will have.

The impact analysis shows that the activities envisaged in the project to reduce the vulnerability and enhance the resilience of the coastal communities of Dionewar are generally positive in that they have the potential to: (i) reverse the current trends of the degradation of natural resources and biodiversity (erosion and salinization); (ii) revitalize the mangroves, coconut and oil palm trees; (iii) increase the potential of the arable lands; (iv) enhance the quality of the landscape; (v) improve the nutritional status by ensuring the availability of forest fruits, fish and oysters for most of the year; (vi) create jobs in order to curb the rural exodus and increase the income of the populations, particularly young people and women; (vii) promote the establishment of organizations capable of managing the facilities.

However, some activities are associated with negative effects that should be prevented or mitigated in order to maximize the benefits of the project. That is the case of the earthworks including the Djimsane dyke, the extraction of shells from shell middens used as building materials, the excavations for the low protection walls planned for the dykes of Ndiar, Ecole 2 and Ndioundiouré, the mining and transportation of materials, moving of machinery, the presence of laborers on project sites, and finally the presence of dams and their use.

❖ Thus, during the project implementation phase, these activities will affect:

The biophysical environment by generating: dust, gases and noise; oil product spill risks on the sites; solid wastes consisting of construction material residues and other materials (plastic bags, packaging); a reduction of plant cover and wildlife habitat, erosion risk at the extraction sites of the different building materials (shell middens) and soil degradation through compaction.

These disruptions will have a low impact on air quality because they are very localized and temporary. For the plant cover, the effects will be minor because they are largely preventable. As for the soil, the disruptions will somewhat worsen the erosion, at least temporarily.

Regarding the human environment, the project's impacts will consist of: the generation of dust and noise in the project site as well as in the nearby human settlements; social tensions related to the recruitment of workers; the risk of the spreading of STDs due to the arrival in the village of people from diverse backgrounds. All these risks can be controlled by establishing an environmental monitoring and surveillance programme.

❖ During the operation phase

Regarding the biophysical environment, the activities of intensification of agricultural production, fish farming, oyster farming and the construction of a plant nursery could cause potential contamination of water resources and wildlife (aquatic and avian) by chemical inputs.

For the human environment, there is a risk of the possible misuse of pesticides on the health of farmers.

Specific mitigation measures have been proposed to protect the most sensitive elements of the environment, reduce the negative impacts and enhance the positive impacts of the project and compensate for the residual impacts due to the implementation of the project.

❖ During the construction phase, appropriate environmental management and project organization measures will help mitigate the negative impacts resulting from various construction works. Thus, the harmful effects and risks caused by the project construction activities will be addressed in special technical requirements to be respected by those who will conduct the work. These will generally cover site management measures (sensitizing workers about the need to protect the environment respect for hygiene and safety regulations, site restoration, etc.).

❖ During the operation phase, mitigation measures will consist of: preventing water pollution by chemical inputs, training farmers in the proper use of chemical fertilizers and pesticides. Conflicts between farmers and herders over use of the space will be avoided by the development of integrated management plans in the relevant developed areas.

Regarding the specific measures for enhancing the impacts, the project provides genuine opportunities for the development of the site, but the latter's fragility calls for the rational use

of integrated facilities with environmental protection in mind. The environmental and social management plan for the site must contribute to the protection of the ecosystems and the integration of both traditional activities and those induced or enhanced by the project.

The following measures are proposed to ensure more enhanced and effective site development, conservation of the environment and ecosystems, and integration of the project site:

- watershed protection against erosion and silting;
- restoration of mangrove ecosystems;
- training management committees in water management techniques, pesticide use and maintenance of the facilities;
- organizational and material capacity building for the facility management committees;
- improving the living conditions of the beneficiary populations by promoting the creation of favourable conditions for women's access to appropriate knowledge and technology such as the processing of fishery products and fruits; capacity building for the facility management committees.

## INTRODUCTION

Dionewar Island (13° 54'N, 16° 44'W) is located between the Diomboss and Saloum inlets in Niodior borough in the district of Foundiougne (Fatick region). Its population is composed of Serere Niominka Muslims, numbering about 5,000 inhabitants and mainly engaged in maritime activities (fishing, fish processing).

In February 1987, following an exceptional swell the foremost tip of the Sangomar sandspit opened, causing considerable disruption of the hydrodynamic and ecological balance of the archipelago, particularly on the island of Dionewar. The populations, now exposed to the effects of the tides and floods, are adopting measures to not only protect the village with dykes, but also diversify their sources of income by processing fish and forest fruits.

It is with a view to supporting these community efforts that the ecosystem-based adaptation project was initiated to help reduce the vulnerability and enhance the resilience of these coastal communities.

This document, an environmental and social diagnosis of the project entitled "Reducing the Vulnerability and Improving the Resilience of the Coastal Communities of Dionewar", is outlined as follows:

- A description of the project and its different components;
- The scope and objectives of the environmental and social diagnosis;
- The main environmental and social issues of the project.
- The environmental and social diagnosis;
- The main findings and measures proposed.

## I. PROJECT RATIONALE

Dionewar Island has in recent decades encountered a number of problems related to climate change. Following the widening of the gap in the Sangomar sandspit, the island has become exposed to the combined problems of coastal erosion and silting along its coastline. This is compounded by the now recurrent floods. Meanwhile, the mangrove ecosystem is subjected to the effects of climate hazards as well as the wasteful cutting by the population for their energy and construction needs.

Indeed, with the combined effects of climate change and (anthropogenic) economic activities, the mangrove ecosystems in the Saloum estuary have markedly deteriorated in recent years resulting in a significant decline in ecological and economic functions, notably including the widening of the passage at the tip of the Sangomar sandspit. The Dionewar communities are thus exposed to the disappearance of their settlements in the long term. They have become vulnerable.

Indeed, the studies<sup>1</sup> conducted on the coastline and the Saloum estuary indicate that recent climate variations (from 1971 to 2010) are reflected in many ways in the mangrove ecosystem of the Saloum estuary and that rainfall has been the critical factor. The succession of dry years has significantly pushed back the tidal limits, and the salinity fronts have moved at times far upstream. Thus, borderline cases of hypersalinity have been reported in the Saloum estuaries, while it is established that salinity has a major effect on the metabolic efficiency of plant species, particularly on mangrove productivity which decreases as salinity increases. These hydrological and ecological conditions explain the small size of the mangrove in the Saloum estuary, but also its density, species composition and productivity.

The mangrove is also subject to intensive economic exploitation by the communities: oyster harvesting, firewood, timber, among others.

The receding of the mangrove has a direct influence on the sediment dynamics that ensures the stability of the sandspit commonly known as the "pointe de Sangomar". Indeed, when the mangrove recedes, it leads to reduced sediment supply. Thus, in 1987, a gap was created in 'pointe de Sangomar', causing major ecological upheavals due to the acceleration and worsening of the marine coastal erosion.

The stimulus package for rice farming in Senegal was hailed by the women of Dionewar. They pledged in 2015 to resume rice production on the island of Djimsane, jointly with the

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<sup>1</sup> UEMOA, IUCN, 2010: Programme de lutte contre l'érosion côtière de l'UEMOA. "**Etude régionale pour le suivi du trait de côte et l'élaboration d'un schéma directeur du littoral de l'Afrique de l'Ouest**; Schéma directeur, prescriptions générales".

EL Hadji Balla Dieye, Amadou Tahirou Diaw, Tidiane Sané et Ngor Ndour, « **Dynamique de la mangrove de l'estuaire du Saloum (Sénégal)** entre 1972 et 2010 », *Cybergeo : European Journal of Geography* [Online], Environment, Nature, Landscape, Document 629, posted January 9, 2013, accessed 19 December 2015. URL : <http://cybergeo.revues.org/25671> ; DOI : 10.4000/cybergeo.25671

population of the nearby village of Niodior. The resumption of rice farming in Djimsane was facilitated in 2014 by GEF/SGP support for the construction of a 1.5 km long dyke to stop the salt front.

With the difficulties in the fisheries sector (declining landings in particular) in recent years, the populations have developed other income generating activities. The women of the Local EIG Federation (*Fédération Locale des GIE*, or FELOGIE) of Dionewar have thus started processing forest fruits (*Detarium senegalensis*, *Tamarindus indica*, *Adansonia digitata* etc.). These activities have been added to the processing of fishery products and the commitment and performance of the womenfolk in this area have resulted in the construction of a modern processing centre.

These initiatives, while laudable, are unfortunately not enough to fully address the island's vulnerability issues. Floods have become recurrent and cause a lot of damage. Meanwhile the sea continues to advance, threatening each year all infrastructure along the coast.

It is in this context of vulnerability of coastal communities, including those of Dionewar who are the most vulnerable, that the project was initiated as a response to:

- the declining ecological and economic functions of the mangrove due to climate variations. This is significantly reflected in the dwindling productivity of the estuary ecosystems on which the livelihoods of the populations largely depend;
- the recurrent floods;
- the risks that coastal erosion poses to human settlements and ecosystems of the estuary;
- the climate data gap, which hampers the establishment of good local development policies and strategies, which results in a rather weak legal and regulatory framework, notably characterized by the poor integration of climate change issues into local development strategies.

Faced with this situation, the local people have undertaken a number of initiatives, the most important of which are the protection of the island against the tides and floods by a system of dykes.

It is in this context that the islanders, through the Dionewar Development Association (*l'Association pour le Développement de Dionewar*, or ADD) and the national literacy and training committee (*Comité National pour l'Alphabétisation et la Formation*, or CONAF), proposed the idea of a project to address the numerous climate change challenges.

The concept that arose from this project idea entitled "***Reducing vulnerability and Increasing Resilience of Coastal Communities in the Saloum islands (Dionewar)***" was submitted and approved by the Board of the Adaptation Fund at the end of its 26<sup>th</sup> meeting held from 8 to 9 October 2015. It is in this context that the project entitled "***Reducing vulnerability and improving the resilience of coastal communities in Dionewar***" which is the subject of this social and environmental diagnostic study was initiated.



The purpose of this diagnosis at this stage of the project formulation is to help its promoters to conduct an early identification of the environmental and social issues in the various implementation phases. It is not intended to replace an Environmental and Social Management Plan following an environmental assessment whose format will be determined by the competent national authority depending on the category in which it will classify the project. This report seeks to clarify the issues as comprehensively as possible.

## II. THE PROJECT DESIGN AND FORMULATION CONTEXT

### 2.1. The institutional background

The idea of the project emanated from the Dionewar Forum held in November 2009. The purpose of the forum, which brought together all the social classes of the village, was to conduct a diagnosis of the socio-economic and environmental issues of the island in order to identify concrete rehabilitation or restoration measures and actions. One of the key players of the forum was the Association for the Development of Dionewar (ADD) established by the inhabitants of Dionewar to promote the economic and social development of the island. The association provides support in different areas: education (school supplies, renovation of class rooms, etc.), health (supply of medicines to the community pharmacy and medical equipment). At the end of this forum, several priorities were identified, each of which were expected to end up as projects to be promoted mainly by the ADD. Thus, in response to a call for proposals issued by the CSE and the designated authority of Senegal for the Adaptation Fund, ADD, in collaboration with CONAF, submitted a concept note based on the priorities identified by the Dionewar forum.

In the project development phase, the CSE and promoters agreed to involve the National Aquaculture Agency (*Agence Nationale pour l'Aquaculture*, or ANA) to provide support on aspects related to aquaculture. The aim of this institutional arrangement is to involve, as early as the project development phase, a national institution duly mandated to promote aquaculture. This will facilitate the maintenance and management of the facilities in the post-project stage.

The collaboration between ADD, CONAF, ANA and CSE thus led to the formulation of the project entitled "Reducing vulnerability and improving the resilience of coastal communities in Dionewar".

### 2.2. The geographic and administrative context

The project intervention area is the village of Dionewar which is also the provincial capital of the municipality of the same name. Together with the villages of Niodior and Falia, they form three localities that make up the municipality of Dionewar.

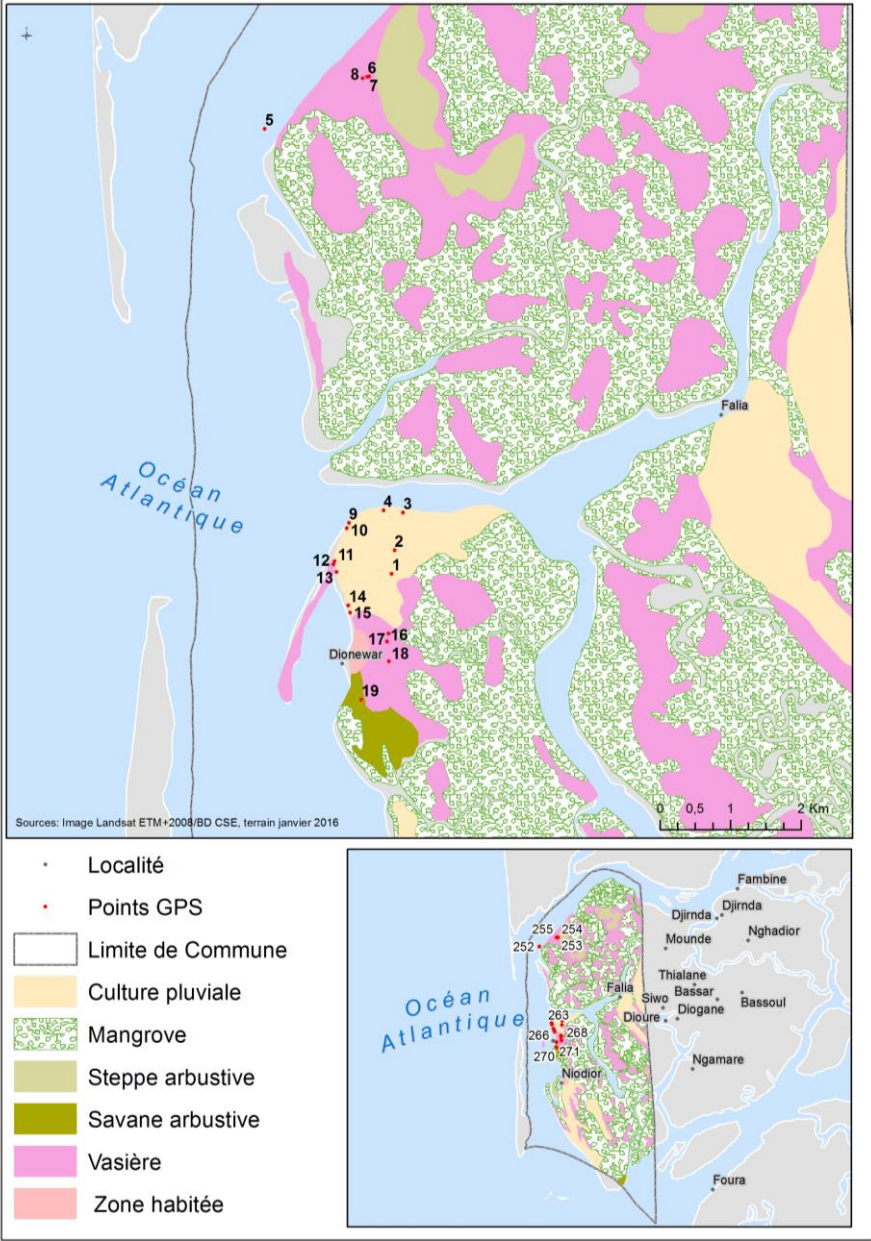
Geographically, the municipality of Dionewar is located in the western part of Senegal, in the coastal area of Sine-Saloum and covers an area of 316 km<sup>2</sup>. In the North, the nearest municipality is Fimela, and in the south, Toubacouta. In the west the municipality of Dionewar is bounded by the Atlantic Ocean and in the east the closest municipalities are Djirnda and Bassoul.

Administratively, Dionewar is located in the borough of Niodior in the district of Foundiougne in the Fatick region.

The population of the municipality was estimated at 12,988 inhabitants in 2011, and is

expected to reach 14,525 by 2015 according to estimates by the National Demography and Statistics Agency (*Agence Nationale de la Démographie et de la Statistique*, or ANSD).

Dionewar village is part of the archipelago of the *Saloum* islands whose geographical area is bounded by the *Diombos* and *Saloum* inlets. These *Niominka*, islands, historically referred to as *Gandoun*, are characterized by a strong presence of mangroves, tributaries and swamps. They are composed of nineteen (19) islands some of which are uninhabited. The uninhabited islands are often used for rice farming by the inhabitants of nearby islands. This is the case of the island of Djimsane farmed by the villages of Dionewar and Niodior.



**Graph 1: The village of Dionewar and surroundings (CSE, 2015)**

The climate of the locality is oceanic, strongly characterized by the maritime trade wind. It has two seasons: a dry season of eight (8) months from October to June and a rainy season of four (4) months from July to September. During the dry season, the regular combination of

maritime trade winds and harmattan helps maintain a relatively cool climate with an average temperature of 27° C. The extremes are 17° C in January and 37° C in June.

Rainfall is irregular, though it has increased marginally in the last two decades. Indeed, the ten-year average from 2001 - 2010 in the district of Dionewar was 756.94 mm of rain for 42 days, while that of 2006 to 2015 is 870.24 mm for 38 days. These two averages are greater than that of the isohyet of the area, which is 400 to 600mm.

The rainfall irregularity has implications for the agro-pastoral sector, which depends mainly on rainfall, and increases the vulnerability of the island. The islanders are increasingly aware of the evidence of climate change. This perception of the population is physically supported on the ground by environmental changes such as the progress of the salt intrusion and coastal erosion.

## **2.3. The project**

### **2.3.1. The objectives of the project**

The general objective of the project for reducing the vulnerability and improving the resilience of the coastal communities of Dionewar is to reduce the vulnerability of the populations in the Saloum islands in the face of the harmful effects of climate change: floods, coastal erosion and food insecurity.

More specifically, the project aims to: (i) enhance the resilience of the fisheries, aquaculture and forestry sectors to natural disasters; (ii) reduce the vulnerability of the populations and natural habitats through the construction of protective devices against floods, coastal erosion and land salinization; (iii) improve local development planning by mainstreaming climate change issues in policies, developing local agreements and taking advantage of the lessons learned.

### **2.3.2. The project components**

The main activities of the project are listed in the following table.

**Table 1: Summary of the project activities**

<b>PROJECT ACTIVITIES</b>				
<b>COMPONENT 1: Increasing the resilience of the productive sectors in Dionewar island</b>				
	<b>Activities 1.</b>	<b>Activities 2.</b>	<b>Activities 3.</b>	<b>Activities 4.</b>
	Development of fish and oyster farms	Reforestation	training and improving the technical skills of 19 women's groups and management committees	developing a management plan for fish and oyster farms
<b>Sub-activities</b>	Development of fish and oyster farms	Establishment of a nursery for forest species.	Training 270 women in new oyster and fish farming techniques (making garlands, transferring juveniles, quality monitoring, fish feeding techniques and water quality maintenance)	Facility management plan: maintenance, monitoring, etc.
	Installation of 20 floating cages for fish production	Protective measures	Construction of parks around the villages for the management of fishery resources such as cymbium, etc.	
	Installing 200 spat collectors	Planting of 6 ha (enrichment) of coconut and oil palm trees and 5 ha of mangrove  The establishment of committees to monitor tree planting	Capacity building for the monitoring committee and women processors on the assessment of non-wood forest products	
<b>COMPONENT 2: Protection against floods, coastal erosion and soil salinization</b>				
	<b>Activity 3.</b>	<b>Activity 2.</b>	<b>Activity 3.</b>	<b>Activity 4.</b>
	Protection of the village against floods	Rehabilitation and extension of dykes (against flooding)	Development of rice farming plots around Dionewar	Setting up a maintenance plan for all the facilities
<b>Sub-activities</b>	Rehabilitation and extension of the dykes in Ndiar, Ndioundiouré, Ecole 2 and Djimsane		Ridging the rice farms in the island of Djimsane	Preparation of a maintenance guide for all categories of infrastructure
			Rehabilitation of the anti-salt dam in Djimsane	Setting up a management committee
<b>COMPONENT 3: STRATEGIC PLANNING AND KNOWLEDGE MANAGEMENT</b>				

PROJECT ACTIVITIES			
	<b>Activity 1.</b> Reviewing and updating the LDP for mainstreaming CC	<b>Activity 2.</b> Preparing a local agreement for better regulation and use of forest products and observance of the biological rest period.	<b>Activity 3.</b> Documenting and sharing the lessons learned from the project

### 2.3.2.1. Component 1: Increasing the resilience of the productive sectors in Dionewar Island

This component aims to boost the fisheries sector currently affected by dwindling fishery products. Fishermen are forced to travel long distances to catch quality fish, implying an increase in the fishing effort. The project will therefore help enhance income-generating activities undertaken by the populations in order to cope with increasingly difficult living conditions. These activities are: (i) aquaculture, particularly fish and oyster farming and the development of the relevant management plans; (ii) the establishment of a village forest nursery, reforestation, coconut, oil palm trees and mangrove; (iii) training and improving the technical skills of 19 women's promotion groups (*Groupements de Promotion Féminine*, or GPF).

The project will draw on the success stories of Missirah, Sandicolý and Betenty supported by PISA, FAO, IRD, ENDA, as well as WAAME-CIADEL and ANA. The oldest experience in oyster farming is that of the women of Joal and Sokone organized in the form of EIGs. For several years now, they have been producing, processing and selling fresh oysters up to Dakar.

#### 2.3.2.1.1. Fish farming

##### Installation sites

Four sites with high aquaculture potential were identified and selected by specialists of the National Aquaculture Agency (*Agence Nationale de l'Aquaculture*, or ANA) following several field missions. They are the Dionewar belong between the village of Dionewar itself and Niodior near the bridge connecting the two villages; the site of Ndiar located between the dyke and the middle school of the village; the site of Ndioundiouré in the southwest of the village, and salt flats of Djimsane island located 1 hour 30 minutes away from the village by canoe.



**Photo 1: Dionewar Bridge - Niodior, close to the future site of the fish farm.**

(Photo CSE, January 2016)



**Photo 2: Tilapia**

The species selected for the development of fish farming in the island of Dionewar. This fish is locally caught. (Photo CSE, January 2016)

The project involves growing to size the brackish water tilapia (*Sarotherodon melanotheron*) in floating cages in the water in the vicinity of the Dionewar-Niodior bridge. This activity could contribute eventually to the emergence of several projects that promote food self-sufficiency and fight against poverty in the area. The project's core activities are mainly tilapia farming, training producers in fish farming techniques and marketing of their annual production.

#### **✚ Technical characteristics of the installations**

The fish are cultured in floating cages. A floating cage is a form of cubic device whose top is protected by a cover (fishing net) to facilitate the monitoring of the fish and guard against the introduction of undesirable species. It is immersed in the water at a depth of at least 1.5 m and has a volume of 10 m<sup>3</sup> (2.5 x 2.5 x 2m). The pockets are made of 14 mm diameter Nortene net and held rigid by a 26/34 galvanized steel frame tube. The device is held afloat in the water by floats consisting of 4 160l plastic containers per cage. Weights are used to keep the cage floating upright.

Regarding production, each cage can hold up to 3,000 fish and produce at least 900 kg of fish in 6 months. 20g fry provided by the ANA will be transported and placed in the cages. It is expected that the fish will be grown to size for a period of six months in 30 10 m<sup>3</sup> size cages. The stocking density is 300 fish per m<sup>3</sup> and the harvest weight will be 250g. The fish will be fed 3 times a day with food containing at least 30% protein (artificial granules composed of agro-industrial by-products amounting to 4% of their biomass).

For the 30 floating cages, the estimated budget is 13,585 USD, and the operating costs 29,475 USD, or a total investment of 43,061 USD.

### **2.3.2.1.2. Oyster farming**

The selected species is the mangrove oyster *Crassostera gassar* farmed by the population and thus already quite plentiful in the project area. The oyster culture will be in four stages: collection with garlands, growing to size in lantern nets, conditioning and marketing.

#### **+ Collection**

Collection involves installing the spat collectors or cultches in order to have the maximum quantity of seed. These cultches will be made by the women with garlands.

Garlands are strings of empty oyster shells that allow the spat to cling to the shells and grow directly on them.

#### **+ Growing to size**

To grow them out in lanterns, the oysters extracted from the cultches will be sorted and enclosed in lantern nets hanging from primary lines. The growing lanterns provide better quality oysters, thus reducing siltation and predation. Moreover, the yield is higher because the losses are limited.

#### **+ Conditioning**

Conditioning is putting the oysters in conditioning devices to harden them, giving them a healthier quality and better taste. Areas of very clear water that will serve as conditioning points have been identified in the mangrove where the oysters ready for market are kept in crates.

#### **+ Marketing**

The marketing of the products will be performed by the village women who have had experience for many years. They will be supported by ANA to sell these products in local markets, hotels and restaurants. The oysters will be sold fresh. The dried, cooked, or smoked form is not recommended because it devalues the product.

The investment necessary for the implementation of the oyster farming component of the project is estimated at 36,025 USD.

For each of the oyster and fish farming project components, the populations will be supported to establish a management committee. The committee will be responsible, among other things, for surveillance and infrastructure maintenance to ensure sustainability. Infrastructure management plans will be developed for this purpose. Committee members will receive the training necessary to better perform their duties.

The necessary equipment (boots, gloves, fishing gear, life jackets, etc.) will be purchased by the project and made available to the beneficiaries.

The activities also include the implementation of specific environmental and social managements actions such as information and awareness campaign; oversight of management of waste measures and application of environmental clauses; monitoring of physicochemical and bacteriological parameters and selection of beneficiaries.



### 2.3.2.1.3. Reforestation

The following activities are planned as part of the reforestation component of the project: (i) creating a nursery of forest species; (ii) the planting of 6 ha of coconut palm trees (*Cocos nucifera*) and oil palm trees (*Elaeis guineensis*) as a form of enrichment; and (iii) the planting of 5 ha of mangrove. It should be noted that at this stage the actual sites of these activities have not yet been identified.



Photo 3: Some oil palm trees near the beach in Dionewar.

(Photo CSE, January 2016)

Photo 4: Mangrove and its many uses.

Bundles of mangrove firewood. (Photo CSE, January 2016)



Consultations with the populations and stakeholders in Dionewar village have shown the relevance of these activities. However, they made a number of comments. In the case of the mangroves, because of the multiplicity of actors in this area, people overwhelmingly prefer that the resources available for this activity be used to improve the planting of *Detarium senegalensis* (Ditakh) and other species with high economic value that currently provide them with significant income.

Our observations allow us to confirm that their proposals are relevant and deserve to be supported. Regarding coconut and oil palm trees, people are now developing interesting initiatives by planting them in their homes. The project would benefit from moving in this direction in addition to establishing village woodlots.

For the mangrove, it is advisable to ensure its protection through a special agreement. Ecosystems upstream of the Ndiar and Ndioundiouré dykes could be used as the starting point for such an initiative.

#### ***2.3.2.1.4. Training and improving the technical skills of 18 women's groups and management committees***

The women of Dionewar village are very active in the processing of fish and forest fruits (ditakh, tamarind, bouy, etc.). For fishery products, they now have an operational centre for processing these products with modern facilities. This centre was funded by PAPASUD and inaugurated in 2002. Ovens for smoking fish are under construction in the centre. The processors have requested for assistance to build their capacity for the efficient management of the centre and marketing of the processed products.

Therefore, the measures taken by the project to improve their technical skills are highly appreciated; 270 women will benefit from capacity building in the fields of processing, packaging and marketing of fishery and forest products.





**Photo 5: From left to right, top to bottom, the fishery product processing centre, drying ovens and some processed forest and fishery products.**

*(Photo CSE, January 2016)*

The activity also includes the oversight on environmental and social management actions such as the integration of gender principles during the setting up of committees, the application of environmental clauses - waste and water management - during training sessions, etc.

#### ***2.3.2.1.5. Development of a management plan for the fish and oyster farms***

To secure, make profitable and enhance the value of all these initiatives, it is expected that fish and oyster farm management plans will be developed. Under the leadership of the ANA, the development of these plans will be conducted in a participatory manner and include aspects relating to the maintenance of the facilities and infrastructure, governance and monitoring of the physico-chemical parameters of the water. For each of the farms, a management committee will be set up and tasked with:

- managing the facilities;
- mobilizing the people for the maintenance work;
- managing potential conflicts relating to the facilities;
- developing regulations for the sustainable management of the resources;
- serving as an interface with the authorities and partners;
- providing more training;
- setting up funds for the upkeep and maintenance of the farms.

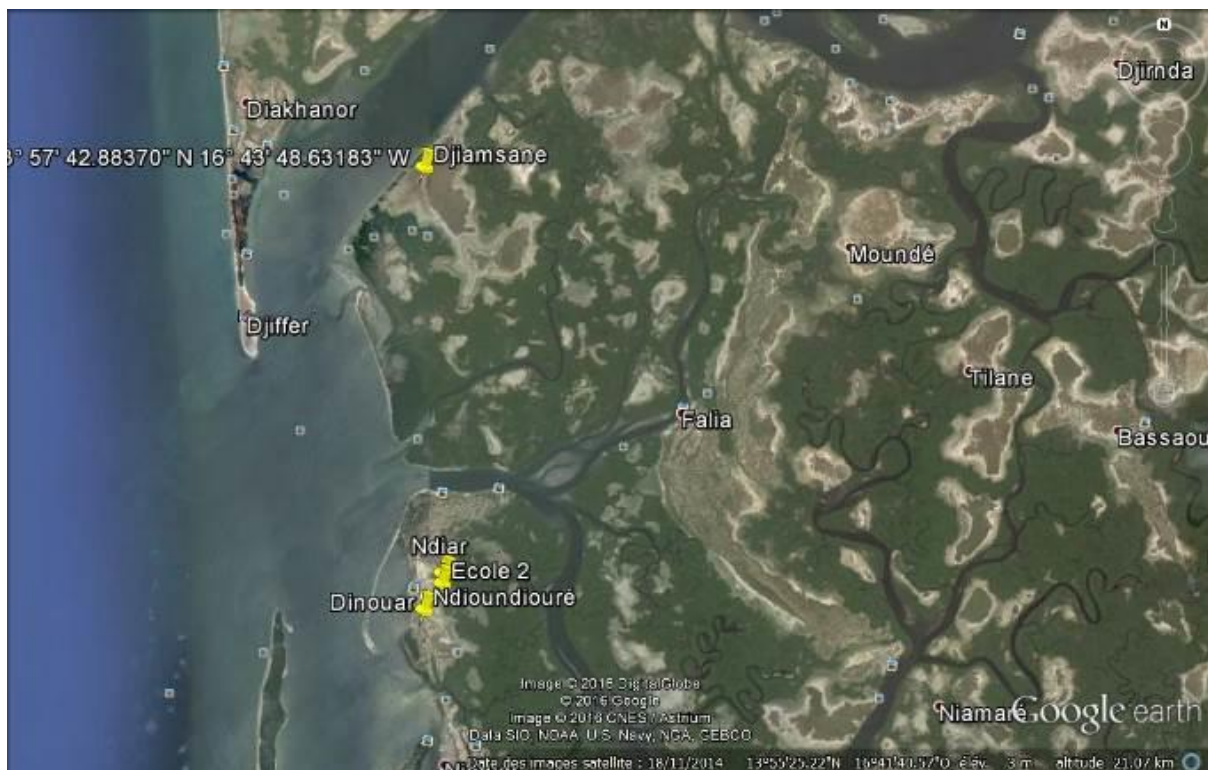
To maintain the farms, the populations will have to invest their time and labor and work with the management committees. Maintenance involves replacing the floating cages or garlands for oyster farming. The costs will be borne by the population (through funds set up for this purpose) and municipal council (financial contribution from its budget).

### 2.3.2.2. Component 2: Protection against coastal erosion, floods and land salinization.

This component aims to protect the island against coastal erosion and floods by building dykes.

#### 2.3.2.2.1. Rehabilitation and extension of dykes to fight against floods (Ndiar, Ecole 2 and Ndioundiouré dykes)

Following the recurrent floods and very high tides, people have built dykes to protect the village with the support of partners such as the Social Development Fund Agency (*Agence du Fonds de Développement Social*, or AFDS), the National Local Development Programme (*Programme National de Développement Local*, or PNDL). A dyke was also completed in 2014 with GEF/SGP support in front of the village and facing the sea.



Graph 2: Location of the four dykes (Source: Etude de faisabilité technique du projet, February 2016)

#### a. Status of the dykes

##### The Ndioundiouré dyke

The Ndioundiouré dyke, located south-west of the village, is 137.65 meters long. It is in a very poor state of repair, the hydromorphic level being high in places. The backfill mixture of sand and trapezoidal shells has completely collapsed and has two sealed gaps. The dyke

construction material consists of a rough fill seashell structure and a sand and shell mix dyke. Its compactness is low. The Ndioundiouré watershed covers an estimated area of 0,126 km<sup>2</sup>.



**Photo 6: Partial views of the Ndioundiouré dyke.**

*On the left is the low protection wall made with cement and shells that helped maintain the dyke. The unprotected opposite side is being eroded by the water. On the right, the spillway has collapsed under strong water pressure during the floods. (Photos CSE, January 2016)*



**Photo 7: Partial view of the Ndiar dyke east of the village, built with the support of the AFDS in 2005.**

*One can see the crumbling and collapse of the top of the dyke even though its main structure remains strong. Garbage is disposed on both sides of the dyke. (Photo CSE, January 2016)*

**Photo 8: View of a spillway**

*The spillways used are PVC pipes whose sizes are generally small given the flow rates during the floods. (Photo CSE, January 2016)*



**✚ The Ndiar dyke**

With a length of 266.74 meters, the dyke is in a fairly advanced state of disrepair. The trapezoidal shell embankment has collapsed along the length of the dyke. The dyke is made of seashell material that is still resistant and crumbly. Compactness is low, hence the wooden support stakes that can be seen in some parts of the dyke. The watershed covers an area of 0,054 km<sup>2</sup>.

#### **The Ecole 2 dyke**

The Ecole 2 dyke has a length of 767.20 meters. It is in a poor state of repair. The trapezoidal shell embankment has collapsed, especially on the right side. During high tides, the water bypasses the dyke at the highest connection points. Its extension is therefore necessary.

The dyke construction material consists of a rough fill seashell structure of low compactness, especially on the right bank. The watershed area is estimated at 0,051 km<sup>2</sup>.

#### *b. Status of the spillways*

For the Ndiar, Ecole 2 and Ndioundiouré dykes, the spillways are PVC pipes with diameters so small that they cannot handle the high flows during floods, resulting in the destruction of the dykes at those points. Under the Project, the spillways will be designed to address this situation. The structure that will be proposed will be equipped with an opening/closing device that can be easily operated by the populations and be able to fulfill its water management functions. The openings (passes) should be adequately sized to cope with the large water flows observed during the floods of recent years.

The main observation is that all these dykes are in a very poor state of repair. The main causes of their poor state are the recurrent flooding, the runoff and the weakness of the material used (clay and seashell).

It is in response to these many problems that the project will intervene in the rehabilitation of the dykes.

The rehabilitation of the dikes also includes the implementation of environmental and social management actions. It is related to the implementation of mitigation measures (anti-contamination plan, waste management, etc.); the oversight and the monitoring activity (effective involvement of social groups in the works; respect of labour rights, especially with regard to child work, etc.)

#### **2.3.2.2.2. *Development of rice growing plots around Dionewar***

In the past, the population of Dionewar cultivated rice in the village and surrounding islands. However, following the drought of the 1970s, this activity was virtually abandoned.

Under the programme aimed at enhancing and accelerating the pace of agricultural development in Senegal (*Programme de Renforcement et d'Accélération de la Cadence de l'Agriculture Sénégalaise*, or PRACAS), rice self-sufficiency is considered a priority. As part of this effort, the GEF/SGP in 2014 supported Dionewar in building a dyke to fight against land salinization on the island of Djimsane. This made it possible to cultivate rice on the

island in 2015 with an estimated production of 20 tonnes (Public consultation of January 17, 2016).

The development of rice growing activity will also include the implementation of environmental and social management actions: implementation of mitigation measures (pest and pesticide management plan...), oversight activity (gender aspects into the committees, integration of environmental clauses, etc.); monitoring activity (physicochemical parameters, etc.).

### **The Djimsane dyke**

The Djimsane dyke is 1,754 meters long and damaged. The trapezoidal clay backfill has begun to sag, is being eroded and its straight reinforced concrete weir has started to deteriorate. The valve that allows the closing and opening of the spillway is rusty.

The dyke is made of clay with a relatively acceptable compactness. The watershed of the dyke covers an estimated area of 11,84 km<sup>2</sup>.



**Photo 9: The Djimsane dyke**

*On the left, the clay dyke with the rice farms on the grassy side. On the right, the spillway structure. (Photos CSE, January 2016).*



**Photo 10: Rice fields on the island of Djimsane.**

*Over 20 tons of rice was produced there during the 2015 rainy season. (Photo CSE, January 2016)*

The project will involve the following activities: (i) the rehabilitation of the dyke; (ii) the ridging and preparation of a cadastral map for the rice plots; (iii) the purchase of harvesting and post-harvesting equipment (plowing, weeding, harvesting, shelling and bagging).

### **2.3.2.2.3. The borrow areas of the building materials**

Two shell midden sites have been identified. There is a shell midden a few meters from the Ndiar dyke. However, the largest midden is located about 500 meters north of the village. According to the village head, this midden is 150m by 200m with a depth of 10 meters. On this basis, its volume can be estimated at roughly 150 000 m<sup>3</sup>.



**Photo 11: Shell mounds in operation**

*The shells from these middens are used for most of the construction work in the village: housing, dykes, etc. (Photos CSE, January 2016).*

These shell mounds are the borrow sites of the materials used in the rehabilitation work on the dykes.

#### **2.3.2.2.4. The dyke management committees**

The dykes to be rehabilitated should be maintained in order to ensure their sustainability. Therefore, the project will support the setting up of a committee responsible for the management, servicing and maintenance of the dykes. The role of the committee will be to:

- manage the dykes;
- mobilize the people for the maintenance work;
- serve as an interface with the authorities and partners;
- provide more training;
- set up a fund for the upkeep and maintenance of the dykes.

The maintenance costs of the dykes are generally low. These maintenance costs require an investment in terms of time and labor on the part of the populations working with the management committees. The maintenance involves raising the parts collapsed or eroded by rainwater with small earthmoving equipment or jute bags filled with sand. These jute bags are necessary only in case of breaks in the dykes due to poor management. Every 5 years, a machine (loading shovel or bulldozer) could be used for 1-2 days to repair any damaged parts. The costs are borne by the population (through the fund set up for this purpose) and the municipal council (financial contribution from its budget).



### **2.3.2.3. Component 3: Strategic planning and knowledge management**

This component of the project summarizes all the activities related to knowledge management. It presents the support of the Communal council to: (i) review the Local Development Plan (LDP) while incorporating the adaptation options to climate change; (ii) prepare a local agreement to support the communities to sustainably manage the natural resources in their environment (timber, non-timber forest products) including the observation of a biological rest period throughout Dionewar and its territory; and, (iii) prepare the capitalization of the project activities to enable the populations and partners to make the most of the lessons learned as part of its implementation.

#### ***2.3.2.3.1. Review and update of the Local Development Plan (LDP) for mainstreaming climate change***

The LDP of Dionewar was developed for 2011-2016. Among the weaknesses identified in this document, is the low level of consideration of issues related to climate change. Thus, the future Communal Development Plan (CDP) should incorporate the forecasting of the risks related to climate change and the strategies to make the communities more resilient.

The municipal development plan should analyze the following issues in order to assess the risks they may entail. These are: (i) environmental fragility (location and infrastructure, unprotected buildings); (ii) fragility of the local economy characterized by a modest living environment and livelihoods, and the low level of income; (iii) social vulnerability reflected by the weakness of social institutions; and, (iv) public action in the context of the lack of disaster preparedness, for example.

The main risks to be considered may include submersion, groundwater salinization, floods, deforestation and reduction of soil fertility.

#### ***2.3.2.3.2. Preparation of a local agreement for better regulation and use of forest products and observance of the biological rest period.***

The advanced state of degradation of the natural resources in and around Dionewar is sufficient motivation to support the local populations to develop a local agreement on the sustainable management of natural resources. The objective is to ensure conservation and sustainable use of the environment and natural resources with a view to production of goods and services to meet the growing diverse and changing needs of the population, while preserving their productive, ecological and cultural functions for the benefit of society.

More specifically, the local agreement should help:

- consensually regulate the access and use of the natural resources of the community's territory;
- involve the populations in the sustainable management of the resources in their territory;
- cause the villagers to have a responsible attitude toward the use of natural resources;

- bring each actor (without exception) of the village to access natural resources to satisfy their essential needs without compromising the interests of others and without jeopardizing the existing potential;
- establish coordination mechanisms between the different stakeholders and ensure preventive conflict management.

### ***2.3.2.3.3. Documenting and sharing the lessons learned from the project***

This sub-component is important. It enables the capitalization of all the achievements of the project. The lessons learned will provide inspiration to the populations and allow future projects to be implemented in the best possible conditions.

Throughout the implementation of the project, data on best practices will be collected and shared at national and international level. The resulting documents will be translated into local languages to make the information accessible to the relevant communities.

### III. OPTION ANALYSIS

This section will analyze the project options in relation to each component. It will focus on the key activities that have already been the subject of a feasibility study, for instance aquaculture farms and protective dikes.

The analysis will be structured around the three following fundamental principles:

- Economic efficiency: all resources including financial must be allocated in the most effective way possible;
- Environmental protection: maintaining or reducing a certain level of environmental quality is required;
- Social equity: the impact of decisions must be socially acceptable.

The settings for the location of the home sites are not taken into consideration in the analysis. The main reason is that except for reforestation (mangrove, palm trees, coconut, nurseries), all the implantation sites for infrastructures have already been selected and validated with the populations. For example, the dikes will not be built from the ground up, but rather restored and enhanced. There are no other choices regarding locations.

#### 3.1. Component 1: Strengthening the resilience of productive sectors in Dionewar Island

##### 3.1.1. Developing aquaculture farms

###### 3.1.1.1. The 0 option or « no project » option

The 0 option or no project option relates to leaving the situation as it is, with no intervention in the aquaculture activities of Dionewar.

The fishing industry currently employs almost the workforce in the Dionewar community and remains its main source of income. This is why the Serere group (ethnicity) of the Saloum Islands, essentially composed of fishermen are also referred to as «Serere Niominka» meaning « Serere with feet in water ».

The species caught in estuaries and in the sea are by order of importance the Bonga (cobo), the mullet (tanbadiang), sardinella (yaboy), shrimp, octopus and catfish. Fishing is also a seasonal activity. Hence, during the rainy season, it is more geared towards catching shrimp, catfish, sardinella, cuttlefish, gray carp, grouper, trevally and octopus. Fish processing is growing especially through the strong determination of women members of Dionewar FELOGIE who received both in 1996 and 2003, the Head of State Grand Prize for Women Empowerment. The processing mainly concerns shellfish using drying, smoking, and fermentation processes.

The harvest of seafood such as shells is done with rudimentary tools. This activity is mainly carried out by women and done in very difficult conditions and with little security. Women use small non-motorized pirogues to move up the waters in search of richer areas. This is also significantly reducing their production capacity and therefore their revenue.

In regards to the processing of those products, the conditions have improved with the construction of a fish processing center for FELOGIE. However, commercializing processed fish products remains a serious issue for these women processors.

The performance of the fisheries sector is experiencing a downward trend since 1987 following the opening of the Sangomar breach according to the populations. Indeed, the sandy bottoms released by the rupture of the breach block the pirogues' main routes in the estuary. They also invade the biological rest and reproduction areas of fish. The main consequence is the migration to other areas.

In general, the present situation is characterized by:

- The decline of fisheries resources stocks;
- The many constraints regarding fishing activities (financial, technical, security, etc.), conservation of fresh products, processing and especially the commercialization of fishery products;
- The lack of supervision of the fisheries sector's stakeholders;
- The decline in revenues that will impact more and more the quality of life of populations.

In this component, the option analysis will focus on development of the farms (fish farming and oyster farming).

### **3.1.1.2. « Project » option:**

Option 1 consists of the actual project of developing aquaculture in Dionewar through fish farming and oyster farming for which infrastructure building is planned.

For each of these activities, different infrastructure building options, proposed by the feasibility studies will be analyzed based on technical, economic and environmental impacts.

#### ***3.1.1.2.1. Multicriteria assessment of aquaculture farms development***

##### ***a. Fish Farming***

The project plans to help support development of fish farming in Dionewar. Hence, two technologies are taken into consideration based on lessons learned from past experiences in Fatick and Ziguinchor. They are the construction of fishponds on one hand, and the development and implementation of floating cages on the other. The combination of both technologies is also an option.

#### **✚ Option 1: Installation of fish ponds**

The fish pond consist of artificial shallow water of varying size, which depends on the person responsible for drying it, filling it up and installing it in regards to his will to control fish breeding. Regarding this project, ponds will be excavated from natural earth to one meter deep (1m). The excavated soil will be used for the construction of dikes 1.5 meters high when completed. The base of the pond will be spread and compacted in accordance to the longitudinal slope of the bottom which must be between 0.5% and 1.5% to allow good drainage; the talus slopes will be internally 2/1 and 1/1 externally; the ridges and slopes will be well spread and compacted to make the dike solid hence preventing rainwater infiltration as none will be able to go through the walls of the protective dikes that must be coated with

compacted clays to ensure waterproofing. Each pond is provided with a PVC pressure power system of 200 mm diameter that will be simultaneously used for drainage.

The average cost to develop a fish farm with ponds is 28.32 million CFA (USD 56,640).

The operating equipment will consist of:

- 1 150m<sup>3</sup>/h diesel water pump and its accessories;
- Fishing Net and its accessories;
- Scale and accessories;
- Anti-bird protection net for ten ponds;
- Small scoops, for larvae;
- Plastic sorters with sieves;
- 20 liters capacity buckets ;
- 10 liters capacity buckets;
- 8 m<sup>3</sup> oxygen bottle;
- Packets of 100 transportation bags;
- PH meter;
- Oximeter;
- Portable thermometer;
- Refractometer.

Djimsane Island would be ideal for the installation of fishponds.



**Photo 12: Ponds surrounded by dikes**

*(the photo is from the ANA Office of Fatick)*

### **Advantages of Option 1**

- Relatively simple production method, especially at low density, use of the pond's natural resources ;
- Low water renewal, except to compensate evaporation and infiltration ;
- Valorization of humid areas that are of little use to agriculture ;
- Opportunities to enhance natural production through pond fertilization and agricultural subproducts distribution ;
- Does not require regular control of breeding fish when density is low ;

- Biotope close to natural habitat and favorable to reproduction and during early stages of development ;
- Rare illnesses and low mortality ;
- Theft is more difficult than in caged breeding ;
- Low maintenance costs and a relatively long amortization on investment;
- Important revenue generation for populations ;
- Socially accepted : the populations interviewed are in favor of this activity ;
- Local market available to sell the products ;
- Economic gain: ponds can generate important quantities of fish with an improvement of the community's quality of life (nutrition, generation of revenue).

### **Disadvantages of Option 1**

- High investment costs ;
- More complex technology when the breeding density increases and requires artificial feeding ;
- Requires a large area, appropriate topography. It can be challenging to combine different production stages in the same pond, with independent harvesting treatments;
- Overpopulation issues with a majority of younger fish and heterogeneity in the size of fries;
- Poor control of the consumption of artificial food;
- Difficult to control the reproduction and growth of fry (little recalibration);
- Egg and larvae losses during drainage or seine fishing;
- Difficult to control parasitic infection and illnesses when they appear;
- High staff costs during drainage, expensive investments ;
- Possible negative impacts on the environment in terms of (i) competition with other water uses; (ii) environmental pollution by water basins ; (iii) Impoverishment of local wild fish populations.

### **Multi criteria assessment of option 1**

We will be using a matrix for the assessment of activity feasibility based on three criteria: (i) technical feasibility; (ii) economic feasibility, and (iii) (negative) environmental impact

A score is given to each criteria in regards based on the matrix below:

**Table 2 : Economic and technical feasibility for the assessment of the score matrix**

Assessment	Score
Unfavorable	0
Relatively unfavorable	1
Relatively favorable	2
Favorable	3
Very favorable	4

**Table 3 : Score matrix for the assessment of impacts (negative) on the environment**

Assessment	Score
Relatively unfavorable	-1
Unfavorable	-2
Very unfavorable	-3

Hence, the assessment results of Option 1 are summarized as follows:

**Table 4 : Summary of the multicriteria assessment**

	Technical feasibility	Economic feasibility	Environmental impact	Result (Scores total)
Criteria	Relatively simple production method, especially at low density, use of the pond's natural resources ; Low maintenance costs and a relatively long investment amortization; Requires a large area, appropriate topography. It can be challenging to combine different production stages in the same pond, with independent harvesting treatments	High realization costs (USD 42 820 ) High staff costs during drainage;	Competition with other water uses Environmental pollution by water basins (fertilizers, chemicals) Impoverishment of local wild fish populations	
Score	3	2	-2	3

**🚧 Option 2 : Realization and installation of the floating cages**

The farm will consist of 30 cages, or 3 modules of 10 cages of 10m<sup>3</sup> each. The frame of each cage should be made of galvanized tubes with a square interior of 2.5m long and a square exterior of 3.5m long, using 160 liter capacity plastic containers as flotation materials belted by 10 φ cords or flat iron with a 20 diameter. The cage pockets are made of plastic mesh nets preferably in Nortene material. These nets must have the same interior dimensions as the tubes with a drop of 1.6 m or (2 x 2.5m, 5m x 1.6m) to form 10m<sup>3</sup>. A wooden handrail step made of distinct boards 30cm apart and attached to the frame by nuts and bolts of 17mm diameter, to facilitate work in the cages.

The entire system is attached to the bottom of the water body (over 2m deep ) by a minimum of 4 anchors (at least 20 kg) in addition to an engine block or another anchor over 30 kg that resists salt or water flow to avoid displacement of the module to locations different from the

original location. The welding and frame points will be coated with anti-rust paint and connected to the module by 12mm diameter ropes. The modules bags will be completely covered by a blue or green net of 26mm diameter, which serves as protection against predatory fish or the intrusion of unwanted species in the breeding system.

The total realization cost of a fish farm with 30 floating cages is 16 755 000 CFA (USD 33,510).

The equipment consists of:

- a 6 meter long wood pirogue with 2 paddles;
- 3 life jackets;
- 2 basins;
- 2 buckets;
- 2 large dipnets;
- a scale that can weigh up to 50 kg

Annual production is estimated at 21,375 kg (economic assessment). The sale price is estimated at 1,300 CFA (USD 2.6); annual revenues would reach 27,787 million CFA (USD 55,575). These additional revenues provided by the project will help improve community resilience.

### **Option 2 Advantages**

- Relatively low implementation costs;
- Faster growth of fish because the water quality is superior to the one in the ponds (key factor for growth);
- The infrastructure is easier to manage for locals;
- Easy to move or relocate;
- Higher fish production (e.g. high density and quality nutrition cause improved growth rates and a reduction in breeding time.);
- Optimal use of artificial food for growth resulting in improved food conversion values;
- Easy monitoring of rivals and predators;
- Easy to manage tilapia reproduction, reduced fish handling and fish mortality;
- Easy and manageable fish pond's harvest that can be completed and from an unique product;
- Easy to store and transport live fish;
- Relatively low initial investment;
- Adopted by the locals;
- Economically profitable.

### **Option 2: Disadvantages**

The relative importance of the disadvantages of cage farming varies from one place to another. The main problems are related to the implantation site of fish farming, quality of water, small fry diet, predation and disease, production cost and lastly, theft. The main disadvantages are listed below:



- Potential environmental impacts: increase of organic matter in the home environment's infrastructure observed in some farming communities;
- Difficult to apply when the water surface is stirred, it's thus restricted to sheltered areas. Requires structures for food storage, processing and incubation, therefore needs a strategic location;
- Adequate water exchange through the cages is necessary to get rid of metabolites and maintain a high level of oxygen. Quick fouling of the cage walls require frequent cleaning;
- Total dependency on artificial diet unless used in sewage ponds. Requires high quality and balanced food portions. Possibility of food losses through the cage walls;
- Local fish populations are potential reservoirs of disease or pests and the likelihood of spreading the disease by introducing livestock is increased;
- More difficulties to treat diseases and parasites.

### **Multicriteria assessment of Option 2**

The same process used for Option 1 will be applied. On this basis, conclusions are presented below:

**Table 5: Options summary**

	<b>Technical feasibility</b>	<b>Economic feasibility</b>	<b>Environmental Impact</b>	
<b>Criteria</b>	Easy infrastructural management Easy to move and relocate infrastructure Fish harvest Easy and manageable fish pond's harvest that can be completed and from an unique product Quick fouling of the cage walls require frequent cleaning	Relatively low realization costs (USD 33 510 ) Faster growth of fish because the water quality is superior to the one in the ponds (key factor for growth); Optimal use artificial food for growth resulting in improved food conversion values; Relatively low initial costs Economically profitable	Increase of organic matter in the home environment's infrastructure observed in some farming communities Noticed in some farming environments More difficulties to treat diseases and parasites.	<b>Result (Scores total)</b>
<b>Score</b>	<b>3</b>	<b>4</b>	<b>-1</b>	

### **Multicriteria assessment of both options**

The assessment's results are summarized in the table below:

**Table 6 : Summary of the multicriteria assessment of fish farm options**

	<b>Option 1: 1000 m<sup>2</sup> fish ponds</b>	<b>Option 2 : 10 m<sup>3</sup> floating cages</b>
Technical feasibility	Important location determination due to need in land surfaces Limited density Difficult control of competitors and predators High mortality due to handling Uncontrolled reproduction hence limiting growth	Reducing the need for earth surfaces hence conflict reduction Movement of livestock if necessary Intensification of fish production (high density and optimal nutrition) Less mortality related to handling Limited breeding hence good growth
Economic feasibility	High human investment costs Relatively heavy maintenance (frequent dike rising, frequent equipment renewal, etc.)	Low infrastructure costs Easy maintenance
Environmental Impact	Water fertilization hence minimal risk of contamination Risk of flooding	On the contrary, attracts a lot of other species therefore beneficial to capture fishing
Initial investment	1000 \$	4000 \$
Average production capacity	750 kg annually and per pond	1 000 kg annually per cage
Return on investment	Average	Good
Assessment	Best infrastructure for breeding (reproduction)	Best infrastructure for spawning

**Table 7: Summary of options' assessment for the development of fish farming facilities**

	<b>Option 1: Fish ponds</b>	<b>Option 2 : Floating cages</b>
<b>Technical feasibility</b>	3	3
<b>Economic feasibility</b>	2	4
<b>Environmental impact</b>	-2	-1
<b>Assessment</b>	3	6

Based on the multicriteria analysis, Option 2 is preferable. This analysis validates ANA's preference for floating cages over fishing ponds.

***b. Oyster farming***

** Option 0**

Option 0 describes the current situation. Oyster farming as practiced currently in the project intervention area consists of harvesting oysters on the *Rhizophora* roots. Oysters live gregarious naturally, on stilts mangrove roots at low tide. Gathering instruments are rudimentary: an old machete and a forked stick are enough. Others prefer to cut the branches out and detach oysters once they are back in the village, by putting them on the fire. Once dried, the oysters can be stored for several months.

This technique is not very productive, and the women who practice it are forced to travel longer distances due to the progressive degradation of the mangroves on which oysters develop. The other drawback is that it contributes to the degradation of mangroves because most oyster farmers cut the mangroves roots.

** Option 1**

This option corresponds to the project. For this option, only one building option is proposed. The next step will then be to raise oysters on artificial supports.

## **Technical feasibility**

The implementation process of the oyster farm includes the following phases:

*Capturing*: During this operation, spat collectors will be installed to obtain maximum seed with the help of collectors that will be made by women with ropes and empty oyster shells.

*The magnification lantern*: oysters detached from collectors will be sorted and enclosed in lanterns hanging from primary lines. The magnification lanterns provide better quality oysters reducing siltation and predation. In addition, performance is good since the losses are limited.

*Marketing*: With better quality products, there should be a bigger demand from hotels and restaurants, not to mention exportation opportunities. On the other hand, cooking and drying are not recommended as they decrease product quality.

This technique has been practiced for several years in Fatick and Ziguinchor. The last test has been undergoing in Néba Ba for the past two years with significant results.

## **Economic feasibility (initial investment cost)**

Based on a 500 lantern installation plan, the initial investment cost is estimated at 10.3 million FCFA (20 600 USD) by ANA. The expected annual production is 21,560 kg of mature oysters sold at 1 500 CFA francs (\$3) per kg. The commercialization of this production could generate 32.34 million CFA (USD 64680). This additional substantial income will improve the resilience of communities in Dionewar.

## **Environmental impacts**

Oyster farms will be built at the mangrove. Besides potential pruning, mangrove cuts are not planned. The main potential negative environmental impacts are waste material from making garlands (shells, stakes, etc.), and oysters remains during their operation.

### ***3.1.2. Reforestation and improved technical performance of 18 groups***

#### **✚ Option 0 or « no project » option**

This option refers to the situation described in the analysis section relative to the initial project state. It highlights a gradual degradation of vegetation including trees due to the combined effects of climate change and human activities.

Without intervention, this trend will continue.

#### **✚ Option 1**

Option 1 refers to the present project. We will proceed to the reforestation of 2 hectares of palm trees and 4 hectares of coconut trees in Dionewar. Palm trees are high-value species, and could thus contribute to income generation for the populations.

## **Technical feasibility**

Whether it be mangrove or other timber forest species such as palm and coconut trees, reforestation is an activity performed by local populations for several decades, under the supervision of forestry services. Every year, reforestation actions are undertaken in the area.

The forestry services have confirmed their support to the project, hence guaranteeing successful reforestation actions.

### **Economic feasibility**

The proposed dwarf coconut trees start producing from the third year of planting at an average annual production rate of 40 nuts per foot. The average density per hectare is 100 feet, the average annual income from these plantations is 1.6 million CFA (USD 3,200) if the coconut is sold at 100 CFA (USD 0.2). For palm trees, the economic analysis predicts an annual output of 4 to 5 tons, or 4395 liters of palm oil. At a 1100 CFA (USD 2.2) rate, annual production could generate an average of 4,834,500 CFA (USD 9,669) from the third year of reforestation.

These data provided by the project economic analysis show that the reforestation of palm and coconut trees, beyond the restoration ecology, contribute to improving the resilience of communities by providing fairly substantial income.

The reforestation of 6 hectares of mangrove is also planned to contribute to rebuilding the ecosystem in different locations. Mangrove plays an important role in the fight against flooding, reproduction, and the development of certain fish species, oyster development, construction wood production (poles) and wood fuel, etc.

### **Environmental impact**

The main potential negative impacts on the environment can be summarized in terms of poor management of packaging and overuse of fertilizers and pesticides for nurseries, production of solid waste (plant residues or propagules). These minor impacts can be avoided by a strategic choice of sites and the implementation of a pest and pesticide management plan.

Overall, planned reforestation actions are technically simple and socially acceptable. In addition to its economic profitability (including coconut and palm tree oil), reforestation has very few significant adverse impacts.

## **3.2. Component 2: Protection against flooding, coastal erosion and soil salinization**

For this component, the project plans the rehabilitation of existing dikes to fight flooding and coastal erosion in Dionewar on one hand, and on the other hand, the protection of Djimsane rice fields against salinization.

The option analysis based on the principles of technical and economic feasibility and environmental impact will focus on the no project choice (option 0) and the project choice (option 1). In option 1, the proposed development of alternatives will be analyzed.

### **3.2.1. The 0 option or « no project » option**

The no project option describes the current situation, meaning no intervention. It focuses on the gradual decay of dikes and water drainage structures in place (see section 2.3.2.2).

This situation led the Dionewar populations to propose this project through the DDA and CONAF.

### 3.2.2. Option 1

Option 1 is a good match for this project. It aims to rehabilitate existing dikes in order to fight floods in Dionewar and salinization of rice fields in Djimsane.

The technical feasibility study proposed three options for dike management systems. These are: (i) development of compacted earth dikes; (ii) the creation of infrastructure with built-in gabions; and, (iii) the construction of dikes in reinforced concrete plates in single screen or dual screen.

Each of these options is discussed in the following sections. The analysis will focus on different aspects of technical feasibility and environmental impact.

The scale for the assessment of the technical and economic feasibility is as follows:

**Table 8: Scale for the assessment of technical and economic feasibility**

Criteria	Score
Medium	1
High	2
Very High	3

The appreciation scale of negative environmental impacts is described below:

**Table 9: Appreciation scale of negative environmental impacts**

Assessment	Score
Minor potential impact	-1
Low potential impact	-2
Medium potential impact	-3

#### 3.2.2.1. Option 1.1: Compacted earth dikes

##### **Technical feasibility**

Building a compacted earth dike requires the availability of materials with appropriate geotechnical qualities such as sand. Surveys have shown that this material is not available in the island and its surroundings.

Carrying out the work also requires adequate equipment (compactor, grader) for stripping and compacting the dikes' structure. Dionewar being an island, it will be difficult to carry such heavy machinery there.



**Photo 13 : Compacted earth dike**

(Photo credit: Camara, M., *Feasibility study report*, February 2016)

The technical feasibility for this type of structure is high.

### **Economic feasibility**

The economic feasibility is based on the following factors:

- Borrow material is available on site (clay, shells) ;
- Job creation through hiring of locals;
- The need to use heavy machinery requiring significant investments for their transportation on the island;
- Mitigation of flooding effects.

### **Environmental impact**

The main environmental impacts relate to: (i) solid (rubble) and liquid (oil and gas may be spilled on the ground and eventually contaminate wetlands) waste generation; (ii) soil erosion as a result of pickling; (iii) pollution related to the noise produced by the machinery; (iv) dust (pickling), unfair labor practices.

With manual gear such as tillers, harrows and manual compactors, this option could be adaptable to the clay dike in Djimsane.

#### **3.2.2.2. Option 1.2: Construction with built-in gabions**

##### **Technical feasibility**

This built-in gabion technique requires a company and a skilled workforce. Gabions play a stabilizing role and cure shores affected by a more or less significant erosion. In a certain way, they will play a weir role and will more or less let water get into the protected area, and affect habitats and village infrastructure.

Putting in place such as system is not very appropriate because Dionewar is a village subject to sea encroachment during high waters. The necessary rubble is not available locally. Sindia and Khombole (in the Thies region) are the sites from which we can obtain such materials. Procurement and routing to Dionewar would be very expensive.

##### **Economic feasibility**

On the economic front, the adoption of the built-on gabion dike system is not favorable because of the very high investment costs. Indeed, this technique requires on one hand hiring a company and recruiting a skilled workforce, and on the other hand, the procurement and transportation of rubble from the Thies region.

##### **Environmental impact**

The main environmental impacts relate to: (i) solid (rubble) and liquid (oil and gas may be spilled on the ground and eventually contaminate wetlands) waste generation; (ii) soil erosion as a result of pickling; (iii) pollution related to the noise produced by the machinery; (iv) dust (pickling), unfair labor practices.

#### **3.2.2.3. Option 1.3: Reinforced concrete dikes**

##### **Technical feasibility**

A dike made out of reinforced plates is made out of a concrete wall. The wall is constituted by pre-manufactured items juxtaposed one after the other and interconnected by poles.



**Photo 14: Dike made of RC plates**

(Photo from Technical feasibility study, January 2016)

Plates can be built locally without using a machine. Moreover, sand which is the base material can be found on site or not too far from the village. The transportation of other materials like cement, steel, etc. can be done through pirogues without a lot of difficulty.

### **Economic feasibility**

The investments needed to achieve dikes made out of concrete are less important than the other options. Indeed, the material (sand) is found on site, and the work will be performed by local hire. Cement and iron will be transported by the pirogues.

### **Environmental impact**

The potential environmental impacts are summarized as follows: (i) generation of solid waste (steel reinforcement, rubble); and, (ii) unfair labor practices.

### **3.2.2.4. Multi criteria analysis of construction options**

The summary of the development options in terms of technical, economic and environmental impacts is presented in the table below.

**Table 10 : Summary of multicriteria analysis of dike construction options**

<b>Criteria</b>	<b>Compacted earth dike</b>	<b>Built-in gabions dike</b>	<b>RC plates dike</b>
Technical feasibility	High: Compacting can be done by locals if they are trained Small manual compactors will be enough Works easily achievable by local masons  <b><u>High technical feasibility</u></b>	Medium :  Requires qualified workforce  <b><u>Medium technical feasibility</u></b>	Very high : Easily achievable and does not require qualified workforce Availability of local labor Availability of required materials (cement, steel, etc.) <b><u>Very High technical feasibility</u></b>
Economic feasibility	Materials available on site (borrow areas) Shells are available Job Creation Mitigation of flooding effects <b><u>Medium Economic feasibility</u></b>	Requires a specialized company, hence high investment costs Rubble is not available onsite (to be obtained in Sindia or Khombole – Thies region) <b><u>Low Economic</u></b>	Easy construction Enhances rainwater drainage trough spillways  <b><u>High Economic feasibility</u></b>

Criteria	Compacted earth dike	Built-in gabions dike	RC plates dike
		<b>feasibility</b>	
Environmental impact	Solid (rubble) and liquid (oil and gas may be spilled on the ground and eventually contaminate wetlands) waste generation  Soil erosion as a result of pickling  Pollution (Noise from machinery)  Dust (pickling) Unfair labor practices <u><b>Medium Environmental impact</b></u>	Solid (rubble) and liquid (oil and gas may be spilled on the ground and eventually contaminate wetlands) waste generation  Pollution (Noise from machinery)  Unfair labor practices <u><b>Low Environmental impact</b></u>	Solid waste generation (steel reinforcement, rubble)  Unfair labor practices  <u><b>Minor Environmental impact</b></u>

**Table 11: Options Summary**

	Compacted earth dike	Built-in gabions dike	RC plates dike
<b>Technical feasibility</b>	3	2	4
<b>Economic feasibility</b>	2	1	3
<b>Environmental Impact</b>	-3	-2	-1
<b>Assessment</b>	2	1	6

The results of the multi-criteria analysis show that the reinforced concrete plates option is technically and economically more favorable. It has a lower potential impact on the environment.

Therefore, this option is the most favorable to achieve the rehabilitation of Dionewar dikes. However, given the fact that the material used to develop the Djimsane dike is clay, its rehabilitation can be achieved through compacting using manual compactors.

### 3.2.2.5. Selected construction option

For the three dikes, Ndiar, Ndioundiouré and Ecole 2, the plan is to make a reinforced concrete dual screen on either side of the dike axis in place and fill it up with material from the shell remains quarry mixed with clay and borrow materials from excavations (shell and clay) in order to create a compacted backfill with a manual Bomag 350.

The screens dimensions will be 8 cm, 90 cm and 2 m referring respectively to thickness, length and height. They will be embedded at least 50 cm into the ground and will offer freeboards between 40 to 50 cm. As for the height, it will take into account of the ridge line of each of the profiles mentioned above.

At the lowest point (nozzle location or existing spillways) of each dike section, there will be one or two flood drainage structures set at a level that will ensure safety and prevent flooding of nearby homes.

#### 3.2.2.5.1. Ndiar dike



The selected option is the dike made out of RC Plates. The work will consist of: (i) reshaping the backfill to 2 meters framed with dual screen RC plates for 266.74 meters to be embedded to the 19.90 line (ii) fill dike to increase the gauge by 30 and 40 cm steepness, (iii) resize and build a rectilinear spillway equipped with 02 fiberglass valves, on the flow axis of pk10.

With the years of hydraulic compaction, it is more appropriate to use the vertical surface of the old dike as basis by repairing sunken areas. This will help contain the rise of high tides, evacuate rainwater and upstream runoff for the recovery of 5.40 hectares of saline land.

#### **3.2.2.5.2. Ndioundiouré dike**

In regards to the Ndioundiouré dike, the following is required: (i) reshape the backfill to 3 meters framed with dual screen RC plates for 137.65 meters to be embedded to the 19.50 line with demolition of nozzles, bags and of the low wall in place, (ii) fill dike to increase the gauge by 30 to 40 cm steepness, (iii) resize and build a rectilinear spillway equipped with a fiberglass valve, on the flow axis of pk8.

It is more appropriate to use the vertical surface of the old dike as basis by repairing sunken areas, like the Ndiar dike. This will help contain the rise of high tides, evacuate rainwater and upstream runoff for the recovery of 12.60 hectares of saline land.

#### **3.2.2.5.3. Ecole 2 dike**

The work will be identical to the 2 previous dikes, namely: (i) reshaping the backfill to 2 meters framed with dual screen RC plates for 780 meters to be embedded to the 19.95 line with nozzle demolition, (ii) filling dike to increase the gauge by 30 to 40 cm steepness, (iii) resizing and building a rectilinear spillway equipped with a fiberglass valve, on the flow axis of pk28

For these three dikes, it will be easier to transport materials (cement, concrete, etc.) to Dionewar than the heavy equipment required for the compacted earth dike. The base material (sand and shells) is available on site.

#### **3.2.2.5.4. Djimsane dike**

For the Djimsane dike, the process will be different. Indeed, after an assessment of the degradation levels noticed on the dike with respect to the appropriate corrective options, the following will be necessary: (i) reinforce spillway coating; (ii) build upstream/downstream rockfills and walled connection rip-rap (iii) replacement of the metal valve by fiberglass; (iv) reshape over the stretch of 1754.00 meters and fill clay embankments at two meters with a RC trapezoidal-shaped crown for a crest on an altitude of 21.10 for a ridge line of 60 to 70 cm steep.

With the years of hydraulic compaction, it is more appropriate to use the vertical surface of the old dike as basis by repairing sunken areas. This will help contain the rise of high tides, evacuate rainwater and upstream runoff for the recovery of 118.40 hectares of saline land.

**Table 12: Dikes' characteristics (measurements)**

Dike	Linear (m) pre-intervention	Linear (m) with project	Catchment areas (Km <sup>2</sup> )	Number of hydraulic structures	Width of dike crest in meters	Crest elevation of dual screen plates	Dike maximum height (m)
Ndiar	266,74	266,74	0,054	2 valves	2	20,80	1,10
Ndioundiouré	137,64	137,65	0,126	1 valves	3	20,40	1,10
Ecole 2	767,20	830	0,051	1 valves	2	20,85	1,05
Djimsane	1.754	1754	11,84	1	2	20,90	1,05

*Source: Technical feasibility study report, February 2016*

The environmental and social assessment will cover this option.

#### **IV. IMPLEMENTATION SCOPE OF THE ENVIRONMENTAL AND SOCIAL ASSESSMENT**

The implementation scope of this assessment refers to all project components. It takes into consideration all the options offered for the works involved with the dike rehabilitation.

The different activities planned by the project are summarized below.

- Development of fish and oyster farms by: i) the installation of floating cages; ii) the installation of twenty spat and streamer collectors in oyster areas; (iii) the development of a culture system with magnification bags;
- Reforestation with the establishment nurseries of forest fruit species, planting for an additional 6 ha of coconut and palm trees and 5 ha of mangroves ;
- Training and technical performance improvement of 18 GPF and management committees including the areas of oyster farming and fish farming, and the development of a management plan for fish and oyster farms;
- Rehabilitation, extension and strengthening of two of the village protective dikes, namely Ndiar in the East side and Ndioundiouré located southeast of the Village;
- Rehabilitation of the anti-salt dike located on Djimsane Island to fight against land salinization and revive rice production in favor of Dionewar and Niodior villages;
- Local community support to update the PDC by integrating aspects related to climate change.

These various activities are analyzed in this assessment report.

##### **4.1. Goals of the environmental and social assessment**

The proposed assessment is an independent review to verify compliance processes and operations with respect to environmental and social norms and provide data and a baseline for developing preventive and corrective actions to address identified risks and issues.

On this basis, the environmental and social assessment aims to: (i) check the level of compliance of the interventions with national and FA norms; (ii) identify key environmental

and social issues for different types of work and the sensitivity of the receiving waters; (iii) propose corrective measures in response to the major environmental and social issues.

## 4.2. Methodological approach

The methodological approach used includes the following steps:

- Description of the legal and regulatory framework for environmental and social aspects applied in Senegal;
- Description of the initial state of the receiving environment and identification of issues, in other words, the description of the environmental and social context in the study area and the identification of key environmental and social issues;
- Diagnostic analysis of key environmental and social issues of the project;
- Introduction of key environmental and social observations related to management and operations, and presentation of the main measures to address shortcomings observed.

For the legal and regulatory framework, environmental and social requirements were identified according to the following approach:

- Identification of the national legal requirements: codes (including environmental code), all applicable laws and decrees ;
- The FA's requirements regarding environmental and social matters.

The description of the initial state of the receiver environment was achieved based on:

### ❖ Background research

The background search focused on the review of the scientific literature, study reports, study papers, action plans etc. based on the coast and the Saloum delta.

Document review has allowed to understand the overall situation of the study area and to detect missing data completed during field visits.

### ❖ Field visits

A seven-day (7) field mission for the assessment of social and environmental aspects had been organized from January 13 to 20 2016 in the project intervention area. It has allowed the verification of collected data and fill in the shortcomings identified during document review.

The following sites have been visited:

- the dikes present in the Dionewar village, namely Ndiar, Ndioundiouré, Ecole 2 and Ecole arabe ;
- Djimsane island and the anti-salt dike built for rice fields;
- The shell remains located north of the Dionewar village which allowed to simultaneously make observations on the biophysical environment;
- The Dionewar Beach to observe the sand encroachment phenomenon, coastal erosion and degradation of mangroves;

- The mangrove at different locations around the village and on Djimsane island;
- Potential sites to accommodate aquaculture infrastructure (fish farming and oyster farming);
- The fish processing center of Dionewar FELOGIE;  
Meetings have been organized with authorities and the following groups:
- The village chief who led the various visits;
- The city council led by the Mayor of the Commune;
- The Sub-Prefect of Niodior;
- The Association for the Development of Dionewar (ADD);
- The population of Dionewar as part of a large public consultation;
- The technical services of the ANA, Water and Forestry (Niodior and Fatick), the Sangomar MPA (Niodior), Environment (Fatick), Fisheries (Fatick and Foundiougne), Rural Development (Fatick and Foundiougne), ARD (Fatick) and mangrove projects (Wetlands International - based in Foundiougne), restoration and conservation of the mangrove ecosystem in the Saloum Delta (PRECEMA - Fatick).

These interviews were designed not only to introduce the project, but also to collect the views, concerns, and project expectations of the beneficiaries who were interviewed. It also helped to identify measures to reduce the adverse effects of the project on one hand, and the enhancement measures of the benefits of the project on the other hand.

### 4.3. Identification of main challenges

The main environmental and social issues have been identified based on: (i) the detailed analysis of the project; (ii) analysis of existing studies relating to the project; (iii) field visits; and (iv) a description of the initial state.

## V. LEGAL AND REGULATORY FRAMEWORK

### 5.1. Senegal legal and regulatory framework

#### 5.1.1. Environmental code

The most recent version of the legal framework regarding the environment is marked by the adoption of the Environmental Code, in particular Law No. 2001-01 of January 15, 2001 and its implementing decree No. 2001-282 of April 12, 2001.

This code was reinforced by regulations including:

- ❖ the Prime Minister circular letter No. 009 PM.SGG / SP of July 2001 reminding all structures, the need to respect the provisions of the Environmental Code which stipulates in Article L48 that "*any development project or activity likely to damage the environment, as well as policies, plans, programs, regional and sectoral studies should be subject to an environmental assessment*". The completion of an environmental impact study must be done prior to any project and must be conducted in accordance with procedures defined in the implementation decree of the law
- ❖ The five orders from November 28, 2001 organizing the implementation modalities of the Environmental Impact Assessment (EIA), which are:

- Order No. 009468 regulating public participation in the Environmental Impact Assessment;
- Order No. 009469 regarding the organization and functioning of the Technical Committee;
- Order No. 009470 establishing the conditions for issuance of the approval for the exercise of EIA activities;
- Order No. 009 471 regarding TOR content for EIA;
- Order No. 009 472 regarding EIA report content.

### **5.1.2. Forestry Code**

The Forestry Code (Law No. 98-03 of January 8, 1998 and Decree 98-164 of February 20, 1998) guarantees the integrity of artificial plantations by way of Article L11 which states that "*user rights do not apply to the perimeters of reforestation and restoration, and private forest..*" and Article R2 which classifies areas of reforestation and restoration in the forest area of the State.

Article R5 defines the perimeters of reforestation or restoration as "*non-forested or insufficiently reforested land on which is or may be exercised severe erosion, and whose reforestation and restoration is deemed necessary agronomically or environmentally. These lands are temporarily classified in order to ensure their protection, restoration or reforestation. Once these goals are achieved, they can be developed or removed from the classified forest system.*" This can promote the sustainability of reforestation carried out in the project because the plantations located in the Dionewar of village land within that area.

Senegal has a new forest policy document. It updates the Forest Code, taking into account: (i) strengthening the decentralization process with one hand, the establishment of the local community in the region and on the other hand, the transfer of the management of certain powers to communities including local environment and natural resources; (ii) ensure consistency with the different national planning documents (DSRP, PODES, PNAT, Agro-forestry-pastoral Orientation Law, MDGs, etc.); (iii) at the international level, ratification by Senegal of a number of conventions that affect directly forest management: Biodiversity, Climate Change, Fight against Desertification.

### **5.1.3. Fisheries code**

Law No. 2015-18 from July 13, 2015 regarding the Code of marine fisheries guarantee the conservation of fishery resources and their exploitation in a sustainable and rational way. Thus, in its L4 article, the code states that "*the management of fisheries resources is a prerogative of the state which defines, for this purpose, a policy to protect, maintain and provide the sustainable use in order to preserve the ecosystem*".

The state promotes the co-management of fisheries with industry professional's organizations, marine fisheries communities and all other stakeholders. The terms and conditions for implementation of fisheries co-management are determined by regulation.

The same code also promotes "*the creation of crop farms, meaning that any installation done in the sea or on the shores of marine waters under Senegalese jurisdiction and that aims conservation, farming or intensive exploitation of marine organisms and resulting in a fairly prolonged occupation of public property or, in the case of installation on private property, is fueled by the sea*" (Art. L62).

#### **5.1.4. Others applicable regulatory texts**

##### **❖ Hygiene code**

Law N° 83-71 of 5 July 1983 establishing the Hygiene Code aims to regulate personal hygiene, but mostly public or collective sanitation in order to ensure a good life development in all its aspects. The law has defined, among others, the rules in order to fight against epidemics and ensure proper management of the hygiene, construction sites, and waste packaging.

##### **❖ General code of local authorities**

**The Law n ° 2013-10 of December 28, 2013** establishing the general code of local authorities which skills transfer to local authorities: Transfer of skills to the decentralized communities, particularly in terms of environment and natural resources and public health include:

- Article 304.- The department receives the following skills:
  - the development and implementation of departmental action plans for the environment, emergency response and risk reduction;
  - the development and implementation of local action plans for the environment.
- Section 2: the skills: Article 305.- The town receives the following skills:
  - the development of municipal plans of action for the environment;
  - waste management and the fight against unhealthy.

**Table 1: Other applicable regulations**

Them	Legal texts	Reference	Measures
<b>Water</b>	Environmental Code	Article L 59	Are subject to the measures of this Act: spills, runoff, discharges, deposits, direct or indirect of any kind and generally everything that may cause or increase water degradation by modifying their physical, chemical, biological or bacteriological , whether surface water, groundwater or the sea waters within the limits of territorial waters. Special protection areas, subject to special measures shall, where necessary, be established by order of the Ministers of the Environment, Public Health, Water, Merchant Marine and Fisheries according to the observed levels of pollution and taking into account certain specific circumstances worsen the disadvantages.
<b>Noise</b>	Environmental Code	Article L 84	"Are forbidden every type of noise emissions that could harm the health, or harm the environment. Natural or legal persons responsible for these emissions must implement all appropriate measures to remove them. "
	Decree	Article R 84	"The maximum noise levels do not exceed fifty five (55) to sixty (60) decibels during the day without exposing the human body to dangerous consequences and forty (40) decibels at night."
	Labor Code / Decree 2006 - 1252 of November 15, 2006 laying down the minimum conditions to prevent certain physical environmental factors	Article 14	"The level of noise exposure received by a worker for the duration of their working day should not exceed eighty five decibels weighted eighty A (db (A)). If it is not technically possible to reduce the level of noise exposure below 85 dB (A), the employer must provide to employees personal protective equipment. He must ensure that they are actually used. This limit of 85 dB (A) required for the use of personal protective equipment may be lowered depending on the nature of the work, intellectual or otherwise, requires concentration. "
<b>Waste</b>	Environmental Code	Article L 30	"Waste must be disposed of or recycled in an environmentally sound manner in order to remove or reduce harmful effects on human health, natural resources, fauna and flora or the quality of the environment."
		Article L 31	"Anyone who produces or holds waste must ensure himself the disposal or recycling or to disposal or recycling from businesses licensed by the Minister for the Environment [...]"
<b>Prevention/Protection</b>			

Them	Legal texts	Reference	Measures
<b>Health and Safety</b>	Law No. 97-17 of December 1 <sup>st</sup> 1997 on the Labour Code	Article L 171 and Article L 172	<ul style="list-style-type: none"> <li>- The employer must ensure that the workplace, machinery, equipment, substances and work processes under its control do not present a risk to health and safety of workers through technical measures, to organization of occupational medicine, work organization</li> <li>- When the measures taken under Article L.171 are not sufficient to ensure the safety or health of workers, the personal protective measures against occupational risks must be implemented</li> </ul>
		Article L 177	<ul style="list-style-type: none"> <li>-All workers should be informed fully of occupational risks and should receive adequate instructions as to the means available, the procedures to follow to prevent those risks and protect against them</li> </ul>



## 5.2. Conventions, treaties and international agreements

Convention	Regulated sector and objectives	Implementation in the project scope
<p>African Convention on the conservation of natural environment and its resources <i>Alger, 1963</i></p>	<ul style="list-style-type: none"> <li>- Improving the protection of the environment,</li> <li>- Promoting the conservation and sustainable use of natural resources,</li> <li>- Harmonize and coordinate policies relates to environment</li> </ul>	<p>Implement actions to be undertaken individually and collectively for the conservation, use and development of land resources in waters, flora and fauna.</p>
<p>Stockholm declaration on the environment and sustainable development <i>Stockholm, 1972</i></p>	<ul style="list-style-type: none"> <li>- Acknowledgment of the need to better manage non-renewable resources, protect the environment and implement national and international governance systems to take into account the environment.</li> <li>- Give priority to capacity building in regards to the vulnerability related to sustainable development.</li> </ul>	<p>Component 3 of the project has defined support of the commune in the management of natural resources and plans to ensure the respect of biological rest and all applicable standards related to environmental and social issues. Also, in its second component, the project offers building technical and institutional capacity of beneficiaries to increase their resilience to the effects of climate change.</p>
<p>Ramsar Convention on wetland areas <i>Ramsar, 1971</i></p>	<ul style="list-style-type: none"> <li>- Stopping the degradation or loss of wetlands now and in the future;</li> <li>- Urges the signatories to take into account the conservation of wetlands in their planning;</li> <li>- Inclusion of sites on the Ramsar List and promoting their conservation;</li> <li>- Preserving wetlands included or not on the Ramsar list, support research, training, management and monitoring in the area of wetlands;</li> <li>- Cooperate with other countries, particularly to preserve or restore the transnational wetlands.</li> </ul>	<p>The project, in an effort to limit exploitation of resources such as mangroves initiated a program of reforestation and sustainable management of these resources.</p>
<p>Rio Declaration on environment and sustainable development <i>Rio, 1992</i></p>	<ul style="list-style-type: none"> <li>- Provide a clear and comprehensive definition of the concept of sustainable development;</li> <li>- Demonstrate collective ability to manage global problems;</li> <li>- Assert the need for green growth;</li> <li>- Principle 10: "<i>the best way to address environmental issues is to ensure the participation of all concerned citizens, at the relevant level [...]";</i></li> </ul>	<p>The idea of the project is part of a will to reduce the vulnerability of coastal communities and to strengthen their resilience to climate change.</p>

Convention	Regulated sector and objectives	Implementation in the project scope
	<ul style="list-style-type: none"> <li>- Principle 17: "<i>an environmental impact study [...] shall be undertaken for proposed activities that are likely to have significant adverse effects on the environment [...].</i>"</li> </ul>	
United Nations Framework Convention on Climate Change (CCNUCC) Came into effect in 1994	<ul style="list-style-type: none"> <li>- Use appropriate methods, for example impact assessments, formulated and determined nationally;</li> <li>- Minimize adverse effects on the economy, public health and the quality of the environment of projects or measures undertaken by them to mitigate climate change or adaptation.</li> </ul>	The project in its initial definition aims to reduce as much as possible the vulnerability of populations to climate change by offering protection and also income-generating activities.
Natural and Cultural World Heritage Convention Came into effect in 1972	<ul style="list-style-type: none"> <li>- The deterioration or extinction of any item of cultural and natural heritage constitutes harmful impoverishment;</li> <li>- Are considered cultural heritage: monuments, groups, sites, etc.</li> <li>- Are considered cultural heritage: natural, geological and physiographic monuments, natural sites.</li> </ul>	The objective of the assessment study of the environmental and social impacts is to identify the presence of cultural and / or natural heritage to allow the project to ensure its protection.

### 5.3. Convergence with the Adaptation Fund of the Environmental and Social Policy

The AF's environmental and social policy defines the basic principles that include among others: (i) compliance with national and international legislation; (ii) soil conservation and production capacity; (iii) fair access to project benefits; (iv) integration of vulnerable and marginalized groups; (v) respect of human rights; (vi) inclusion of gender and women's empowerment; (vii) compliance with basic labor rights; (viii) respect of indigenous rights; (ix) limitation of the involuntary resettlement of populations; (x) protection of natural habitats; (xi) conservation of biodiversity; (xii) climate change consideration ; (xiii) the fight against pollution; (xiv) public health preservation ; and (xv) protection of the physical and cultural heritage.

The project complies with the climate change Adaptation Fund policy.

### 5.4. Convergence with CSE's Environmental and Social Policy and Gender Policy

CSE sets up a social and environmental management system that includes risk and impact assessment, and the establishment of an Environmental and Social Management Plan. It will

be applied to the initial phase and must be maintained throughout the project cycle (from the design, opening, implementation, monitoring and evaluation to the closure).

The evaluation will project direct, indirect, and cumulative risks; evaluate alternatives to the project; assess possible measures to avoid, minimize and / or mitigate project risks. At the end of the evaluation, if the risk seems likely, an Environmental and Social Management shall be formulated and associated with project implementation at early stage. The ESIA of the project has been conducted regarding the following steps edited by CSE's ESMS.

The ESMP has also been defined in coherence with the following principles:

- Climate change;
- Efficiency in resource use and pollution prevention;
- Construction of infrastructure and facilities;
- Exposure to disease;
- Natural/modified or Critical habitats;
- Protected areas;
- Invasive and exotic species;
- Management of ecosystem services;
- Management of living resources;
- Soil conservation;
- Indigenous people;
- Equity and women rights;
- Cultural heritage;
- Workers right;
- Land acquisition and reinstallation.

As part of its mission to collect, capture, analysis and dissemination of data and information on the territory, natural resources to improve management of natural resources, CSE has adopted a gender policy to strengthen the institutional weight of the inclusion of the gender dimension in it and in its interventions. The main principles of this policy are:

- Coherence with national and international policies;
- Understanding the gender inequalities: analysis of equity and gender equality in all activities;
- Completeness: mainstreaming gender in all activities;
- Impartiality: application of its kind in the recruitment and assignment of roles;
- Regular updates: depending on the evolution of the internal context, national and international, the Gender Policy will be updated.

Project activities fit well within this framework.

## VI. DESCRIPTION OF THE RECEIVING ENVIRONMENT

Dionewar village is part of the Saloum islands archipelago whose geographical space is defined by the inlets of Diombos and Saloum. These Niominka islands, historically called Gandoun are composed of nineteen (19) inhabited islands and many others uninhabited islands (some of which serve as rice fields). They are, essentially, in an environment with a strong presence of riverine mangrove, multiple mudflats and bolongs.

### 6.1. Physical environment

Data and information for the characterization of the biophysical environment Dionewar's village land are drawn essentially from the 2011-2016 Dionewar LPD and the Economic and Social Forum Report of Dionewar.

#### 6.1.1. Topography

The extent of the Dionewar landform is mainly characterized by a flat relief except the bottomlands or basins located mainly in the East and North of the village. Most of the village is located below sea level, which increases its vulnerability to climate change impacts. In particular: (i) coastal erosion in the north of the village following the breakdown of Sangomar boom in 1987; and (ii) the gradual silting of tidal channels threatening mangroves and disturbing pirogue's seaworthability; (iii) floods; and, (iv) salinisation of groundwater.

#### 6.1.2. Climate

##### 6.1.2.1. Temperature

The climate is largely influenced by the maritime trade wind because of the proximity to the Atlantic Ocean and because of its insularity. It is characterized by the existence of two seasons:

- A longer dry season which lasts eight (8) months (October to June) during which a regular combination of maritime trade wind/harmattan results in the constancy of a relatively cool climate with an average temperature of 27 ° C. The maximum temperatures are 17 ° C in January and 37 ° C in June.
- A short rainy season starts after the monsoon. This hot and humid wind that blows from mid-June to mid-October brings rain. The greatest rainfall amounts are recorded during the month of August.

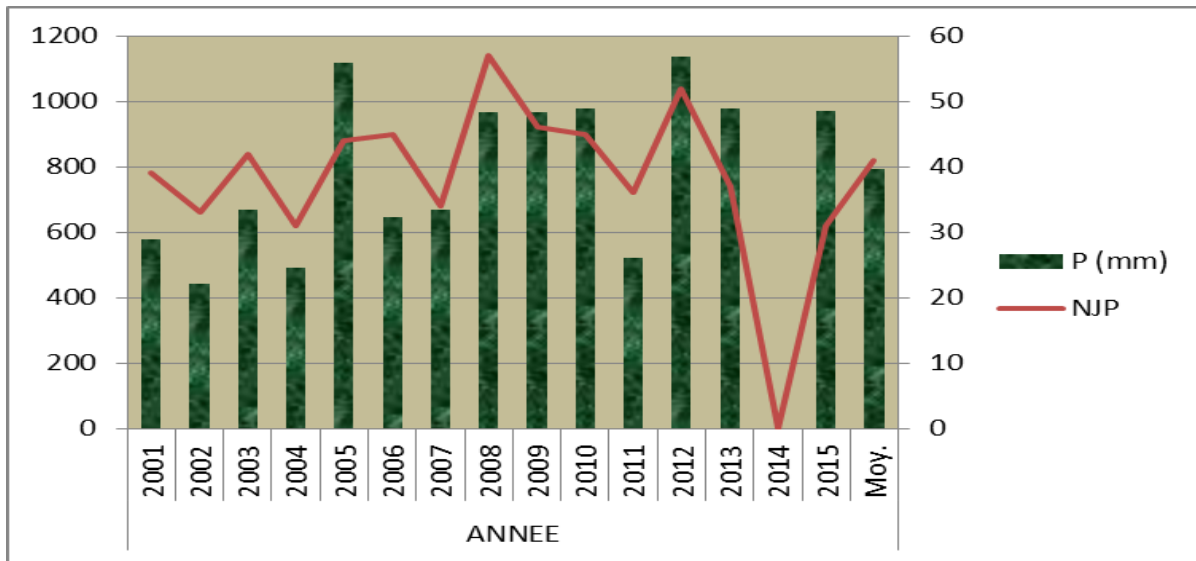
##### 6.1.2.2. Rainfall

The rainfall evolution over these last fifteen years is presented in the table below.

**Table 13: Recorded rainfall at Niodior station 2001-2015**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Moy.
P (mm)	578,5	441	666,9	489,8	1116,7	646,2	666,5	967,7	967,9	978,9	520,3	1136	977,7	ND	971	794,65
NJP	39	33	42	31	44	45	34	57	46	45	36	52	37	ND	31	41,00

**Graph 1: Rainfall evolution at Niodior station 2001-2015**



Average annual recorded rainfall in the Niodior station is 794.65 mm of rain during 41 days in the last 15 years. This average is above the area's isohyet that is between 400 to 600 mm. The rainiest years are 2005 (1116.7 mm during 44 days) and 2012 (1136 mm during 52 days) while those with less rainfall are 2002 (441 mm during 31 days) and 2011 (520.3 mm during 36 days).

### 6.1.3. Water resources

#### 6.1.3.1. Hydrography

##### 6.1.3.1.1. Surface water

Surface water in the project area is mainly from the Atlantic Ocean along the entire western part of the island, of the Saloum River that feeds several ponds and mangrove. Thus, the commonly known Bolong inlets of Falia rise at the Saloum River before splitting into two meanderings among the villages of Dionewar and Falia. The Diagne Bolong goes through the eastern part of the Niodior village after taking its source at the Saloum River from its mouth. Despite their importance, these rivers are only used for fishing, gathering of fishery products and shipping.

Temporary ponds on the other hand allow the practice of market gardening and livestock watering.

##### 6.1.3.1.2. Groundwater

Groundwater relates to the shallow groundwater of the Continental terminal captured by numerous wells. The intrusion of sea water makes the water saltier and more polluted.

#### 6.1.3.2. Hydrology

Hydrology refers to groundwater abstraction from the water table. Indeed, fresh water from the commune comes from the Continental terminal groundwater picked up by the village well. The depth of the water varies between 4 and 7 meters. This water is used for all purposes.

### 6.1.4. Soils

Dionewar village does not have enough land favorable for farming. Most of the available land suitable for agriculture suffered harsh effects of saline incursions and damage linked to intensive monoculture rice and the absence of fallow.

There are:

- The Dior soils or ferruginous tropical leached soil which are soft and permeable soils. Primarily located in the northern part of the island, these soils are suitable for agriculture.
- The Deck-Dior soils or little leached ferruginous soils occupy a small part of the total area. They are very suitable for horticulture, arboriculture and rainfed cultures (LDP 2011 - 2016).
- The lowlands or basins located for the most part in the East and North of the land are predominantly clay and clay loam type. They hence constitute areas suitable for rice and vegetable culture.
- The saline soils are encountered along the mangrove on the back of the mudflat. They are constantly watered by the flow of the tides, and rarely covered by vegetation due to their salty and even acid clay texture. There is currently a gradual extension of this type of soil, which is a threat to arable soils.

## 6.2. Biological environment

### 6.2.1. Vegetation

The vegetation of the municipality of Dionewar is essentially composed of three layers: a tree layer, shrub layer and herb layer.

#### 6.2.1.1. Tree layer

The tree layer can be decomposed into coastal forest and land forest. These two sub-strata are relatively well preserved and in clear regeneration (2011-2016 Dionewar PLD).

The coastal forest essentially has mangrove ecosystem tree species that occupies 17% of the total area of the municipality, and consists of *Rhizophora racemosa*, *Rhizophora mangle* and *Avicennia africana*. The mangrove is the breeding and development location of certain species of fauna and aquatic flora. Its wealth has raised awareness of the population in favor of its protection.

The land forest is located in the continental area after a big amount of mangrove vegetation. 8.7% of this area is allocated to agricultural and livestock activities. It consists of Sudano-Guinean species such as *Parinari macrofila*, *Detarium senegalensis*, *Borassus aethiopicum*, *Elaeis guineensis*, *Adansonia digitata*, *Cocos nucifera*, etc.

#### 6.2.1.2. Shrub layer

Shrub species in Dionewar are essentially *Daniellia oliveri*, *the raffia*, *the solom*, etc.

### 6.2.1.3. Herb layer

It is essentially composed of seasonal species whose development depends on rainfall. During the winter, the grass cover is well supplied and very varied. The grass that provides this layer is a power source for livestock whose survival depends heavily on the abundance of the latter.

The vegetation of the municipality of Dionewar has been facing these past years a progressive deterioration due to the growing needs of the population mainly in firewood, timber, extension of harvesting areas. The adverse effects of climate change are exacerbating this situation.

A resource management committee (COGER) is set up to raise awareness on the need to preserve natural resources. A local agreement for the sustainable management of natural resources of the community is in place.



**Photo 15: Dionewar landscape**

*(Photo credit: CSE , january 2016)*



## 6.2.2. Wildlife

### 6.2.2.1. Terrestrial wildlife

If the terrestrial wildlife was rich and varied several decades ago, it has become very rare now. Some species formerly represented in the zone like the lion, the leopard, hyena, the antelope, the jackal, the rabbit and many reptiles and birds are now unknown to the new generation.

For birds, this area which is part of the Saloum Delta National Park constitutes an important drop and reproduction point. This is the case especially for migratory birds. Some birds species like the flamingo and the pelican are sometimes seen in the area.

### 6.2.2.2. Aquatic life

The aquatic life is rich and diverse. It consists of estuarine and marine species (see table below).

The exploitation of fishery resources is the main source of household income. Over the past decade, there has been a reduction in stocks of fish resources due to poor fishing practices and climate change.



**Photo 16: Some waterbird species seen on Dionewar island**

*(Photo credit: CSE , january 2016)*

**Table 14: Aquatic species caught in estuaries and in the sea**

ESTUAIRES	MER
Barracudas (seud)	Trevally (Saaka)
Captain (jum)	White carp (sompat)
Trevally (Saaka)	Black carp (nawrex)
Gray carp (waas)	Red carp (yax)
Black carp (nawrex)	Lobster,
Red carp (yax)	Grouper (Thiof)
Belt (tallar)	Catfish (Kong)
Mackerel (IAI)	Octopus
Shrimp (sipaax)	Shark
Doyene (tapandar)	Sardinellas (yaboy)
Bonga (Cobo)	Seiche (yeuredeu)
Grouper (Thiof)	
Molluscs (Touffa, yet, loincloth, Yokos)	
Mulet (gray)	
Catfish (Kong)	
Skate (rayartar)	
Sardinellas (yaboy)	
Seiche (yeuredeu)	
Soles (SAPAL)	

*Source: PLD Dionewar 2011-2016*



## 6.3. Human environment

### 6.3.1. Demographic context

The Statistics and Demography National Office (ANSD) estimates there were 12,988 inhabitants in Dionewar in 2011, in its 2008-2012 documents, and gives a projection of 14,525 inhabitants in 2015. The same source estimates the population of the village of Dionewar to be 5,395 inhabitants, including 2,607 women (48.32%).

The population density is 43 hbts./Km<sup>2</sup>, hence lower than that of the region which is 77 hbts./Km<sup>2</sup>.

Elements that affect the dynamics of the population are fertility, mortality, migration and immigration. For Dionewar, migration relates mainly to external flows. Indeed, the external migratory movement is highlighted by rural migration and seasonal migration which constitute a revenue generation strategy and search for food security. Based on the 2003 LDP data, two kinds of flows are identified. For instance, there are seasonal movements of fishermen relating to some of them moving to other fishing areas both inside the country and in neighboring countries such as Gambia, Guinea Bissau and Mauritania. The exodus of young people in turn corresponds to the movements of the latter due to economic reasons or study to large urban centers. This phenomenon is more pronounced for girls because nearly 80% of them are in urban centers and return only for ceremonies.

### 6.3.2. Socioeconomic context

Fishing is the dominant activity in Dionewar. Other economic activities relate to agriculture, livestock, small businesses and arts and crafts.

In correlation to the growth of the fishing industry, there is an increase in fish processing activities. This is due to the dedication of Dionewar FELOGIE women. Processing activities mainly concerns shellfish by using drying processes, smoking, soiling and fermentation.

Rainfed agriculture mainly concerns food crops such as rice, millet "souna", sorghum, cowpea (niébé) and hibiscus (bissap). Rice, which is a staple food is also the main food crop. Growing millet is developing because of the existence of the very conducive Dior soils. The sorghum and cowpea crops are part of the millet plots. This is also the case for growing sorrel (hibiscus), of which a portion is grown around the fields to define the limits. It should also be noted that food crops, especially cereals, are often the victims of seed-eating birds.

For horticulture, speculations revolve mainly around the culture of sweet potato and various other vegetables, but its potential is underused because of its rudimentary practice. Arboriculture concerns mainly dwarf coconut trees.

Livestock farming is mainly domestic and is marked by a predominance of poultry and sheep. The presence of horses is very low. The livestock vulnerability is accentuated by the lack of veterinary care which exposes it to various viral and microbial attacks in the region. In addition, it is important to note the poor quality of livestock drinking water especially in the dry season, a period when it is cloudy and unsanitary (LDP 2011 - 2016).

### 6.3.3. Support to the development of Dionewar

Dionewar village received a lot of support to help people face the many issues caused by insularity of the community. The main areas of support include education (construction / rehabilitation of classrooms, literacy), health (rehabilitation of the health center), sanitation (latrine construction), access to drinking water (well drilling), the fight against flooding (dike construction), agriculture (anti-salt dam), the development of income generating activities (construction of fish processing center and forest fruit, central purchasing unit, revolving credit, etc.) and capacity building in several sectors, etc.

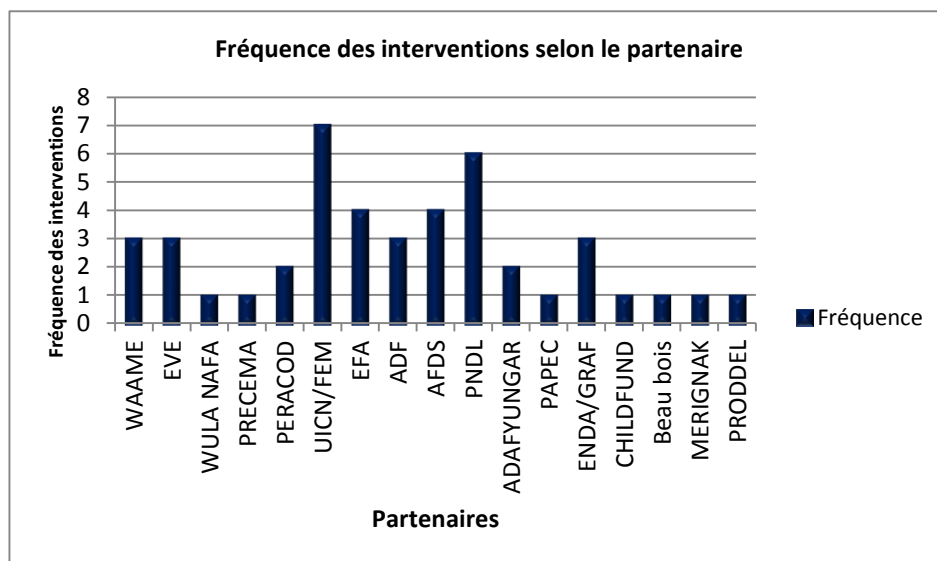
The table below summarizes the key areas of support and relevant partners to Dionewar these past years.

**Table 15: List of Dionewar past support partners**

Sectors/Activities	Main partners
Natural resource conservation activities (reforestation, wood village, development of local convention for the sustainable management of natural resources, distribution of improved stoves)	WAAME, EVE, WULA NAFA, PRECEMA, PERACOD
Literacy	WAAME, UICN/FEM
Youth group support	EFA
Support for the certification of fishery products and the enhancement of seafood value	EFA, ADF
Construction and central purchasing unit	ADF, AFDS
Sanitation: Construction of latrines, provision of donkeys and carts for garbage collection, incinerator donation)	WAAME, UICN/FEM, PNDL, ADAFYUNGAR
Support for the promotion of income generating activities (henhouse construction, processing units, oyster farming, market gardening, recycling seafood, revolving credit)	AFDS, EFA, PNDL, PAPEC, ENDA/GRAF, UICN/FEM
Support for the fisheries sector (wharf construction, endowment of life jackets, motorized pirogues)	PNDL, ENDA/GRAF, EVE, ADAFYUNGAR, UICN/FEM
Fight against floods and tides (construction of protective dikes)	AFDS
Health (Construction and equipping dental office , salt iodization, nutrition)	PNDL, CHILDFUND
Education (Construction / rehabilitation of classrooms)	Beau bois, Mérygnak, PNDL
Local Development : (Support for the development of PLH of the CR)	PRODDEL, PNDL
Access to drinking water (welldrilling)	AFDS, UICN/FEM
Agriculture (Development of anti-salt dikes, rice)	UICN/FEM
Capacity building in the areas of PFNL, processing, fishery products, administrative and financial management, etc.)...	EVE, PERACOD, ADF, ENDA/GRAF, EFA, UICN/FEM

*Source: "Mapping of interventions and beneficiaries in the Saloum Delta" Report, Foundiougne Mangrove Platform Technical Committee, August 2015*

**Graph 2: Past development support from partners for Dionewar**



The table and graph analysis below shows that UICN/FEM and PNDL are first on the Dionewar list of development partners these past years. They work mainly in rice growing, mangrove regeneration, and hygiene, revenue generating activities and capacity building, fisheries, health, local development. AFDS, EFA, WAAME and EVE have had a big impact on the island, especially in capacity building activities, hygiene, promotion of revenue generating activities, etc. ENDA GRAF, Wula Nafa, PRECEMA, PERACOD, ADF, ADAFYOUNGAR, PAPEC, PRODDEL, Child Fund have also worked in Dionewar but in a less important manner.

The situation on the ground shows that although there are various actors and various intervention sectors, the Dionewar village has not been able to address all the issues that challenge its effective development.

## VII. PUBLIC CONSULTATION

The consultation mission organized in the project intervention area allowed meeting the different stakeholder categories: local and administrative authorities, devolved state technical services and beneficiary populations. The objectives of these meetings in the form of interviews were to present the project and collect in return the perception and expectations of people and groups met.

The Sub-Prefect of Niodior and the Heads of devolved technical services at regional and departmental levels have been met in their respective services. The representatives of Water, Forestry and Marine Protected Areas services have been grouped in a single interview.

For local authorities, a meeting of the communal council chaired by the Mayor was organized. As for beneficiary populations, they have been consulted through a meeting organized with FELOGIE (local federation of economic interest groups of Niodior) members, on the one hand, and a public meeting involving all social classes of Dionewar, on the other hand.

The main issues focused on: (i) the project implementation opportunity; (ii) the project expectations; (iii) the social-economic impacts expected from the project.

Each of the stakeholder categories met will participate, according to its competence and responsibilities, in the project implementation.

The results of these consultations are summarized in the sections below.

### 7.1. Administrative authorities: the Sub-Prefect of Niodior

In Senegal, each region is divided into departments and the departments into arrondissements. Arrondissements are divided into communes, which are administered by a Sub-Prefect.

The Commune of Dionewar belongs to the arrondissement of Niodior.

The Sub-prefect considers that Dionewar is very vulnerable to climate change. Every year, the risk incurred is the junction between the river and the sea. Therefore, the project is a godsend, and he will spare no effort to support its implementation.

The activities planned by the project take into account the general concerns of local populations.

The Sub-Prefect also hailed the dynamism of FELOGIE female members, particularly those engaged in the processing of fishery products.

The main recommendations include: (i) the need for strong involvement of people and administrative and local authorities at all levels for their adherence to the project; (ii) the establishment of a steering committee for the monitoring and maintenance of infrastructure to ensure their sustainability; (iii) the need to focus on the results to avoid the despondency of populations.

## 7.2. The Municipal Council

The main themes discussed during the meeting with the Municipal Council of Dionewar include:

- The environmental issue, which is currently a critical question, because of the geographical configuration of Dionewar, as an island village faced with floods, sea encroachment and coastal erosion. The means to tackle them are out of populations' reach;
- The importance of the need to rehabilitate the dikes *“The studies previously carried out report that the dike located at the entrance of the village must be rehabilitated over 3 km for a total cost of about F CFA 5 million. As for the dike located at the river side, the length is about 1 km for a cost approximating F CFA 100 million. Currently, about 4 km of dike must be rehabilitated”* according to one of the commune councilors.
- *“The reforestation of coconut trees is a very good initiative, because currently dead coconuts are not replaced”*.
- The importance of forest fruits in the local economy was highlighted. Indeed, the exploitation of ditakh (*Detarium senegalensis*) brings to Dionewar *“about F CFA 3 million per year and F CFA 10 million FCFA to Niodior. These benefits allowed restoring the mosque of Dionewar with up to CFA 10 million”* according to one of COGER members.

As a result of these numerous questions of clarification, following recommendations have been made:

- Include ditakh reforestation in reforestation components, because this species brings a lot of income contributing to the local economy enhancement. *“Currently, there are only old plants that will not be renewed once dead.”*
- Build access ramps for canoes if the dike at the village entrance is rehabilitated (ocean side);
- For mangroves, in addition to their reforestation, think about alternative energies such as improved stoves. Indeed *“the commune has a population of about 15,000 inhabitants with approximately 700 households that only use mangrove wood as firewood, representing thus a strong pressure on mangroves”*;
- Share intervention resources and strategies with the Directorate of Marine Protected areas as part of Sangomar MPA which also includes Dionewar;
- Involve municipal councilors and community-based organizations (CBOs) in the training and technical capacity building component;
- Establish a participatory monitoring and evaluation mechanism to ensure the project sustainability.

### 7.3. State Technical Services

Interviews with the various state technical services can be summarized in terms of:

#### **Vulnerability of the village**

All technical services met have pointed out the vulnerability of the commune of Dionewar due to its sandy coast. They stressed on the urgent need to rehabilitate the dikes. Indeed, according to them *“The populations in these islands are often confronted with the difficulty for navigation, due to the silting of tidal reservoirs and bolongs (channels)”*.

#### **Partnership with the MPA of Sangomar**

The MPA of Sangomar recently created aims at managing protected areas in the region. Today, the MPA of Sangomar has developed a management and action plan whose activities are in line with those planned under this project. In this context, the establishment of a partnership with the MPA of Sangomar is necessary to share resources and strategies particularly with respect to dike rehabilitation, reforestation, agroforestry development, income-generating activities development, etc.

#### **Fishing**

The sector is marked by a decline in productivity. This decline in productivity has been confirmed by the heads of regional and departmental fishing services met. Fish farming and aquaculture activities planned by the project are in line with the policy developed by the State for the restoration of marine ecosystems and the problem of pressure on resources can be reduced through aquaculture. The potential for aquaculture is quite important. It appeared that the conflicts recorded in the area are generally related to fishing practices.

*“In Dionewar, women are very active in the processing of fishery products and the project will enable them to better prepare for climate change, and thanks to the support, find a suitable adaptation strategy”* according to the head of the departmental fishing service of Foundiougne.

#### **Reforestation and natural resource management**

Despite the absence of statistics on degraded mangrove areas, the overall remark is the decline of palm trees, coconut trees and mangroves. This is mainly due to illegal logging, decreasing rainfall and soil salinization. Islands are generally hostile to reforestation and species diversification. Reforestation is therefore essential to avoid sea encroachment. This activity must be supported by the Water and Forestry service for an important success rate.

There is an agreement for the management of natural resources. The COGER which supports the implementation of this agreement is doing a good job in the area. However, it shall comply with the Forestry Code regarding forest fruits owned by the state. The Water and Forestry Services recommend an agreement between the project and these services for continuous follow up and support of reforestation activities and identification of the sites and species to be reforested.

### **Rice cultivation**

Rice cultivation helps improve people's income, because oyster farming is difficult to perform, so it allows the reconversion and diversification of the activities.

There is an abandonment of rice cropping because of the increasing salinity of soil and rainfall reduction. *“Generally, the inputs (seed, fertilizer, etc.) are subsidized and given to the commune, but island communes do not benefit from it”* according to the head of the rural development department of Foundiougne.

To know the species adapted to Dionewar area, a soil survey must be undertaken. The agricultural service that must support the population is faced with a lack of financial and human resources. Thus *“it is difficult to reach insular areas that are hardly accessible. These communes do not benefit from the agricultural inputs granted by the State, because it is difficult to transport them in such areas”*.

As a result of the strong demand of Dionewar populations, the project for the recovery of saline lands was funded in 2013. But the problem that may be faced by people growing rice is the presence of grain-eating birds.

## **7.4. Beneficiary populations**

### **FELOGIE**

The local federation of economic interest groups is composed of 25 groups. The size of these groups ranges between 25 and 80 members.

Women welcome the project because all the activities planned therein are covered by FELOGIE: the processing of fishery products and forest fruits, the reforestation of casuarinas and coconut trees in 2003 and mangrove planting almost every year in August, the farming of oyster even if their first experience was not successful.

### **Dionewar populations**

The public consultation with Dionewar populations allowed collecting the following expectations, perceptions and concerns:

- The vulnerability of the village to recurrent flooding, coastal erosion and silting of a portion of the coast. Thus, during the rainy season, the village is faced with the difficulty to drain stormwater.
- The need to extend the dike of Ndioundiouré to Niodior to ensure a certain security and prevent water—during the rainy season—from bypassing the village and causing damage elsewhere.
- The importance of the environmental issue considering the island vulnerability:
- *“The village mosque has been rehabilitated partly thanks to the revenues from ditakh sales (almost FCFA 25 million)”*;
- The importance of boosting rice cultivation through the rehabilitation of Djimsane dike. Indeed, 20 years ago, the village was self-sufficient in rice. In 2015, FELOGIE piloted a project funded by the GEF (Global Environment Facility) to revitalize rice cultivation on Djimsane island with the construction of an anti-salt dike;

- The importance of monitoring reforested sites. With JAD (Active Youth of Dionewar) association, “several reforestation actions of casuarinas, coconut trees and eucalyptus have been carried out, but the problem is that there has been no follow-up, thus most of the plants reforested are dead”;
- The need to develop reception sites in Djimsane to actually boost rice cultivation on this island. *“Before, when rice cultivation was performed in Djimsane, there were available huts on site and people returned to Dionewar once a week for a day on average. They stayed there the whole season (about 90 days). Things have changed. People cannot carry cropping equipment every night to Dionewar. Before 2015, rice fields were no longer used since 1961. The resumption of activities in Djimsane also requires additional resources: canoes, available huts on site, etc.”*
- The consideration of “freshwater issue in Djimsane as there is no well.”

## **7.5. Summary of the perceptions and expectations of Project beneficiaries and partners**

### **7.5.1. Perception of beneficiaries**

During the environmental and social impact assessment mission in the field, consultation sessions with beneficiaries, administrative and local authorities and other stakeholders, were organized at different institution levels in the villages of Dionewar and Niodior arrondissement, but also in Foundiougne and Fatick. Thus, meetings with beneficiaries were organized, while administration officers (prefect), municipal councilors and devolved state services were consulted through meetings restricted to officials. The community of Dionewar has also been met as part of a forum, which brought together all social classes of the island including the project proponents. These consultations have been extended to other projects and programs whose missions cover the issues addressed in the project “Reducing vulnerability and increasing resilience of coastal communities in Dionewar”.





**Photo 17: Partial view of the room during the public consultation of Dionewar on January 17, 2016.**

*(Photo CSE, January 2016)*



**Photo 18: Partial view of the room during the public consultation of Dionewar on January 17, 2016.**

*Here some ADD members, proponents of the project and the consultants*



**Photo 19: Partial view of the room during the public consultation of Dionewar on January 17, 2016.**

*(Photo CSE, January 2016)*



**Photo 20: Interview with the Sub-Prefect of Niodior**  
*(Photo CSE, January 2016)*

The reactions recorded at the end of this consultation activity can be divided into two categories: expectations and concerns.

In general, all interviewees have accepted the project, and looked forward to its implementation, considering the numerous issues it is supposed to address.

### ***7.5.2. Expectations of beneficiaries and project partners***

People's expectations revolve around the resolution of recurrent flooding and coastal erosion issues, the revitalization of rice cultivation, the restoration of mangrove ecosystems and the increase of their revenues through income generating activities. This can be summarized in a strong desire to see their island cope with its current vulnerability and record improved resilience of communities.

These expectations and possible solutions are summarized in the table below.

**Table 16: Summary of the expectations of the populations and project partners as well as the possible solutions**

Expectations	Possible solutions
Effective start-up of the project	All the arrangements are made by stakeholders for the effective start-up of the project
Protection of the island against recurrent flooding	<ul style="list-style-type: none"> <li>➤ Rehabilitation and extension of existing dikes</li> <li>➤ Rehabilitation of the mangrove ecosystem (reforestation)</li> </ul>
Protection of the island against coastal erosion	<ul style="list-style-type: none"> <li>➤ Reforestation along the coastline mainland with adapted plant species such as the Niaouli (<i>Melaleuca quinquenervia</i>)</li> </ul>
Resolution of the food insecurity issue	<ul style="list-style-type: none"> <li>➤ Support to fish farming and oyster farming</li> <li>➤ Support to the processing, packaging and marketing of forest fruits</li> <li>➤ Support to the processing, packaging and marketing of fishery products</li> </ul>
Conservation and valuation of forest fruits to increase people's income	<ul style="list-style-type: none"> <li>➤ Enhancement and implementation of the local convention on the management of natural resources including the actual observance of a biological rest period and the regulation of forest fruits exploitation</li> <li>➤ Agroforestry development through the planting of forest fruit trees of high economic value (ditakh, tamarind, etc.)</li> <li>➤ Regeneration of oil palm trees</li>   <li>➤ Regeneration of coconut trees by supporting ongoing family initiatives (development of coconut clumps in family compounds)</li> <li>➤ Capacity building for women engaged in forest fruit processing, with respect to the processing, packaging and marketing of processed products and administrative and financial management</li> </ul>
Resolution of Djimsane land salinization problems	<ul style="list-style-type: none"> <li>➤ Rehabilitation of Djimsane dike to curb the saline front</li> </ul>
Development of rice production activities particularly in Djimsane island.	<ul style="list-style-type: none"> <li>➤ Rehabilitation and extension of Djimsane dike to stop the saline front and protect the rice lands from the effects of salt.</li> <li>➤ Development of Djimsane rice fields (fragmentation into plots and ridging)</li> <li>➤ Support to producers with agricultural and logistical equipment (canoes) for advantageous use of rice fields</li> <li>➤ Capacity building for producers on good agricultural practices and post-harvest techniques</li> <li>Support to the rice sector</li> </ul>

### ***7.5.3. Beneficiaries and project partners' concerns***

The beneficiaries and project partners have expressed a certain number of concerns, revolving around: (i) the insularity and climate change which is increasingly putting pressure on people's mind; (ii) the delay observed in the actual start of the project; (iii) the management, monitoring and maintenance of the infrastructure to be implemented; (iv) the aging of coconut populations which raises fear about their disappearance from the island in a near future; (v) the degradation of the mangrove ecosystem, especially due to its abusive logging for firewood and timber purposes.

These concerns reveal the relevance of the project. In fact, most of the concerns of the populations and partners are taken into account by the project: fight against flooding and

coastal erosion through the refurbishment of dikes, support rice production with the refurbishment of Djimsane dike and ridging rice plots and provision of equipments, management of natural resources, support for the processing of forest fruits, training and capacity building of actors in the fields of management and maintenance of infrastructure, aquaculture farms, etc. Regarding the facilities that will be put in place, a plan of management and maintenance will be developed for this purpose.

For aging coconut tree stands, the project provides reforestation enrichment of these two species on an area of 6 acres. Laudable family initiatives (coconut plantation in households) are underway in Dionewar regarding coconut tree. They deserve to be supported.

## VIII. PROJECT ACTIVITIES MAIN ENVIRONMENTAL AND SOCIAL IMPACTS

### 8.1. The **biophysical environment**

The key issues at stakes with the project would include the use of construction site machinery (manual compactor, **concrete mixer**), which require the use and handling of hydrocarbons that could contaminate the soil and surface waters if it happens to spill into the environment. These risks will be noticed at all stages of the construction site (maintenance of the equipment, supply, **fuel** leakages, etc.).

The earthworks, embankment reshaping, recovery of hydraulic work (drainage) and bank stabilization can also have a negative effect on the **biophysical environment**, mainly because of their interaction with surface water. It is worth to be noted that the renewal of many equipment can potentially be an environmental issue due to environmental contamination and visual impact in case of mismanagement of obsolete equipment. This includes mainly non-functional PVC pipes, rubble, wooden posts, etc.

#### *8.1.1. Negative impacts*

The nature of the project, which is to rehabilitate existing dikes in their existing easements, significantly reduced physical issues and their importance. Indeed, the sources of impact of this project are limited in scope and circumscribed in an already existing easement, and have a relatively short duration for each intervention site. The other activities (fish farming, oyster farming, nursery, rice growing, etc.) are likely to generate negative small-scale impacts.

In the following sections, the negative impacts of each of the activities planned in the project are analyzed.

##### **8.1.1.1. Change in soil structure and erosion**

###### ***8.1.1.1.1. Rehabilitation of the existing dikes***

###### **✚ During the construction phase**

The decommissioning of the existing dikes can lead to changes in the soil structure. The changes in soil structure may be accompanied with erosion but that erosion is limited to the scope of the dikes. However, given that the works do not require the intervention of heavy machines (only a concrete mixer will be used), these impacts will be very limited.

###### **✚ During the operational phase**

There is no predictable negative impact during this phase.

###### ***8.1.1.1.2. Implementation of the aquaculture farms and the tree nursery***

The fish farming consisted into dropping the floating cages into calm water with about two meters of depth. The activity will have no impact on changing the soil structure and will not lead to soil erosion during the installation phase or during the operation of the fish farm.

The oyster farming planned by the project will be done thanks to a garland system. This activity will not impact the change in soil structure and will not cause erosion during both installation and operation phase.

The project provides reforestation activities and the installation of a tree nursery for the protection of plant species for economic purposes on the island. Reforestation will be done progressively. The activity will not cause any negative impact on soil structure or erosion.

#### ***8.1.1.1.3. Rice growing activity installation***

During the development of the rice fields, a manual compactor will be used to make ridges. The use of this device may cause a localized change in soil structure which will be limited to the construction phase.

### **8.1.1.2. Contamination by products that are toxic for the environment**

Potentially toxic products that could be used for the project are: fuel, pesticides and fertilizers.

#### ***8.1.1.2.1. Rehabilitation of the existing dikes***

##### **✚ During the construction phase**

During this phase, all the equipment will be transported to the island by motorized canoes. During the transportation, there are risks of accidental oil spills, but of limited extent. On the island there will be no transportation by motorized vehicles but only by cart. However, a concrete mixer will be used to manufacture the reinforced concrete plates used to rehabilitate the dikes. This type of concrete mixer is a small motor machine that does not require large quantity of fuel from which the minor nature attributed to potential oil spills impact.

##### **✚ Pendant la phase d'exploitation**

During operation of the dikes, no risk of contamination by products is noted.

#### ***8.1.1.2.2. Aquaculture farms installation and implementation***

Regarding the aquaculture activities, no risk of contamination by toxic products can be noted during the installation and operation of the aquaculture farms. Indeed, these farms do not require the use of toxic products.

#### ***8.1.1.2.3. Tree nursery and reforestation activities***

The installation of tree nursery and the reforestation activities may lead to risk of contamination of the environment by toxic products during the development and the operation phase. The risk when not managed can lead to negative impacts that can be summarized in terms of pollution of the environment by fertilizers. Indeed, during the development of the tree nursery and during the reforestation, fertilizers will be used to increase the strength of reforested species. These impacts can last beyond the planned period for the activity.

#### ***8.1.1.2.4. Rice-growing activity***

The rice growing activity may require the use of agricultural inputs (pesticides and fertilizers). These products can lead to environmental contamination risks that will have as consequences poisoning by the residues on products, soil and water salinization. These risks mainly occur during the operational phase. The preparation phase will not have any risk of environmental contamination by toxic products.

Dionewar is traditionally an area where the use of pesticides and fertilizers is quite limited because it is often small household farms that do not require large quantity of fertilizer. So, given the small areas to grow by the population, the amount of pesticides and fertilizers used are unimportant, hence the minor nature that can be attributed to the impact.

### **8.1.1.3. Soil and water contamination**

#### ***8.1.1.3.1. Rehabilitation of existing dikes***

##### **✚ During the construction phase**

Most of the activities involved in the rehabilitation of dikes are subject to the risk of oil/fuel spillage. The leakage of fuel can lead to water or soil contamination. However, the impact remains minor because of the small quantity of fuel that will be used to power the concrete mixer.

##### **✚ During the operational phase**

During the operation of the dikes, no risk on soil or water contamination is noted.

#### ***8.1.1.3.2. Aquaculture farms implementation***

##### **✚ Construction phase**

At the time of immersion of aquaculture cages, no risk is noted.

##### **✚ Operation phase**

The lack of control of the high density of species can lead to competition with other uses of the water, the depletion of wild fish populations. There is also a risk of increased organic matter leading to eutrophication.

#### ***8.1.1.3.3. Nursery installation and reforestation***

The exact site where the nursery will be implanted is not yet defined. In all cases, the possible environmental impacts can be summarized as follows:

##### **✚ Installation phase**

The implementation of the tree nursery or the reforestation will require little weeding in a limited area. For this work, there is no significant impact in terms of soil or water contamination.

##### **✚ Operation phase**

During reforestation or installation of tree nursery, fertilizer will be used. The main risks arising from these activities would be: the misuse of fertilizers that can pollute the soil and water; and mismanagement of the fertilizer packaging and bags (which contain the plants).

This potential soil and water pollution remains however minor because of the small amounts of fertilizer to be used.

#### **8.1.1.3.4. Development of rice fields**

The creation of ridges is envisioned during the Rice farming development in Djimsane. Ridge farming is an agricultural technique used to limit the effects of a significant rainfall or humidity or to allow crops on clay soils.

The main environmental impacts related to this activity mainly occur during the operational phase and mostly include: land degradation due to poor agricultural practices; pollution of surrounding water and groundwater because of improper use of fertilizers and pesticides.

Also, the use of fertilizers can lead to soil and water salinization in long run.

However, Dionewar is an area where traditionally the use of pesticides and fertilizer is quite limited since it is often very small areas that do not require large amounts of fertilizer. That can low the impact.

#### **8.1.1.4. Other pollutions**

##### **8.1.1.4.1. Rehabilitation of existing dikes**

Apart from the impacts on soil and water, rehabilitation of dikes can generate various pollutions (dust emissions, waste).

There are risks of waste accumulation created by this activity which can cause environmental contamination.

During the construction phase, the main wastes that will be produced are:

- Used materials such as PVC pipes (from the replacement of existing equipment and materials);
- Rubble, reinforcement, various packaging and containers, dirty water from cleaning equipment (concrete mixer, various tools), etc. ;
- Waste oils, used parts (from equipment maintenance, concrete mixer in particular).

It is important to note, however, that waste will be fairly limited because the quantities produced are not very important. During operation of the dikes, no waste production is expected.

The local dust emissions during the earthworks, reshaping embankments and the operation of shell mounds could result in degradation of air quality. This deterioration is noticeable in the dry season, dust generation quickly folded during the rainy season.

Smoke production is also possible with the use of the concrete mixer and that can participate to the degradation of air quality.

However, these releases and emissions are very low and of short duration hence their minor character. During the operation phase, air emissions are not expected.

#### ***8.1.1.4.2. Aquaculture farms installation and implementation***

In addition to the risks and likely impacts of aquaculture facilities on soil and water, these activities may be generating waste. Waste can have a significant impact on the natural environment (soil, surface and ground water, atmosphere) if they are not subject to strict management to remove them to appropriate areas. The farms mainly produce these types of waste during construction and operation:

- Leftover of rope, pieces of wood;
- Leftover of fences;
- Organic waste (fish, oysters);
- Shells from oysters;
- Packaging of food for fries.

These wastes remain limited and will be in small quantities; and are for the most biodegradable.

The aquaculture farms will produce no air pollution.

#### ***8.1.1.4.3. Nursery installation and reforestation***

The development of tree nursery and reforestation can generate waste including: vegetable waste (from weeding), used bags and leftover of fence. These wastes will not cause pollution of the environment but still have a visual impact; especially bags.

These activities do not generate any air emissions.

#### ***8.1.1.4.4. Development of rice fields***

The development of rice plots can cause a few dust emissions affecting in a localized manner the air quality and can generate vegetable waste (only grass cover will be affected because the area selected for rice is free of woody vegetation). This impact is limited to the installation phase.

### **8.1.1.5. Impacts on fauna and flora**

#### ***8.1.1.5.1. Rehabilitation of existing dikes***

The removal of building materials such as shells at the borrowing sites will not cause any reduction of natural habitats and the other activities of rehabilitate the existing dikes will not cause disruption or reduction of natural habitats.

#### ***8.1.1.5.2. Aquaculture farms installation and implementation***

During the installation of aquaculture cages, no negative impact on the fauna or flora is noted.



During their exploitation, poor management of organic waste (fish, oysters) may result in overgrowth of opportunistic species which can be found there as a food source. This risk may be important in the absence of a rigorous waste management.

#### ***8.1.1.5.3. Nursery installation and reforestation***

These activities do not cause significant impacts on fauna and flora.

#### ***8.1.1.5.4. Development of rice fields***

These activities do not cause significant impacts on fauna and flora.

### ***8.1.2. Positive impacts***

In general, the positive environmental and social impacts are far greater than the negative ones.

Indeed, the rehabilitation of dikes will:

- Fight effectively against recurrent floods causing extensive damage to people every year (including destruction of properties);
- Gradually recover dozens of hectares of saline land and thus promote the development of agricultural activities;
- Fight effectively against the salty line and thus promote rice production in the island of Djimsane. This rice farming will contribute to the fight against food insecurity and enable the diversification of income among the populations.
- Generate jobs during construction phases.

In the same order of thought, the creation of drainage to allow passages for water has two positive sides. It allows, on the one hand, better water management during floods (management of large water flows), and, on the other hand, serves as crossing points for local populations.

The replanting of coconut trees, palm oil trees and other forest fruit tree species contribute to the reforestation of the environment and the recovery of forest ecosystems, to soil stabilization in relation to plants' root systems, to the fight against water and wind erosion, and to banks silting. Moreover, forest products will constitute significant sources of income for the population.

## **8.2. Human Environment**

### ***8.2.1. Negative impacts***

The nature of the project, which is to refurbish the existing infrastructure in an existing area, replanting coconut palms, oil palms and mangroves, developing aquaculture farms, significantly reduce the social issues and their importance. Indeed, the impacts of this project

are limited geographically, restricted in an already existing area of relatively short duration for each intervention site and require a small labor force.

The most important issues of the project are health and safety of workers and surrounding communities.

In terms of health and safety, issues concern mainly the risk of injury and accidents of workers and surrounding communities during the work. Other significant issues can be identified outside of these two key issues. These issues, though relatively minor, however, are subject to mitigation measures to ensure that they become important during the project.

#### **8.2.1.1. Health and safety of workers and communities**

**Some** rehabilitation works under the project will affect the health and safety of workers and the surrounding population.

In fact, the rehabilitation works can represent risks of accidents and injuries to workers if they do not have adequate protective equipment, if there is no established health and safety procedures and / or if there are no efforts to educate workers about safety and health risks related to their tasks. **Moreover, these risks can also reach the surrounding communities if the construction sites are not secured properly.**

**Also, dust emissions related to excavation can lead to respiratory and eye conditions for the persons at risk (those with allergies, etc.). These risks are, however, minor because the works will be at a small scale and temporary.**

**The presence of foreign-born workers may promote the development of certain diseases, especially sexually transmitted diseases and HIV / AIDS.**

**During the operation of the aquaculture sites, there are risks of falls and drowning. The same risk may exist on the rice fields during transportation on the island of Djimsane which is done exclusively by canoe/boat.**

#### **8.2.1.2. Life quality and social balance**

Workers' quality of life and surrounding communities as well as social balance could be affected by the project activities particularly in the context of the rehabilitation of dikes.

Indeed, the dikes rehabilitation phase works will generate dust, especially in the dry season. This dust, if not controlled properly, can not only have a negative impact on health but also on the quality of life of the surrounding population. In addition to dust, noise may also be generated by the construction equipment and the work performed. Regular noise control measures must be taken to prevent discomfort and nuisance which may be caused by these activities.

The rehabilitation works will certainly appeal to local and internal labor. The fabric and the social balance could be affected by the arrival of workers in search of jobs that could increase

the pressure on social services, and reveal situations of non-compliance with local customs by newcomers.

However, the project context and the nature of the work indicate that the number of foreign workers may be relatively minimal. This remains a risk to deal with so as to manage it from the start of the project activities.

During the operational phase, the main risks could be the choice of members of the management committees in particular as regards the gender dimension **when that dimension is not taken into account. Conflicts could also arise during the distribution of rice plots and equipment. Rice cultivation had been abandoned for many years; the redistribution of land could be a source of conflict. However, the establishment of management committees can minimize this impact.**

### **8.2.1.3. Labor and working conditions**

Any project involving the recruitment of permanent or contracted workers by the promoter, by his sub-contractors and by his primary suppliers may carry risks related to fair treatment of workers and their working conditions if a policy is not established for that matter. Also on equal skills, the employer must give priority to candidates from the town - and when the skills required are not available on site – he can recruit from outside the municipality or department. Risks associated with labor and working conditions can be related to:

- injuries and accidents of workers;
- a dust emission;
- unfair treatment of workers;
- discrimination and inequality of opportunity;
- non-compliance of national labor law and employment;
- use of underage labor (children);
- poor conditions of hygiene and safety.

### **8.2.1.4. Social acceptability**

Social acceptability is essential to successfully carry out the project. Though they are unexpected, the risks linked to poor relationships with stakeholders should be pointed out. They may be disagreement regarding the project, missed deadlines for activities that required the support of stakeholders, extra costs, lower social acceptability level of the project and protests.

If stakeholders are unidentified and their consultation plan is not developed and implemented, then, the project may experience significant financial and calendar risks. In addition, the desired level of social acceptability will probably be unfulfilled. Moreover, if social and environmental impacts of the project are not monitored and adequately managed over its implementation, this may also endanger the social acceptability of stakeholders particularly populations that are directly affected.

### **8.2.1.5. Archeological and cultural heritage**

All work requiring excavation, present a risk of discovery of archaeological sites. However, as part of this project, excavations will be in areas that have already been appointed and where there are no important archaeological sights, cultural or sacred, so the risk will not exist.

The shell mounds are shell deposits forming mounds deposited by people for millennia. They are found in several islands of the Saloum Delta. In some of these islands, a high historical and archaeological value accorded to them while for others it is not. In the village of Dionewar, there are no sacred sites associated with shell mounds. They are considered a cultural heritage and used since time immemorial to the building of buildings and dams.

Under the project, the shell mounds that will be used for the rehabilitation of dams are those that have been designated by the populations during field visits as their house loan materials.

### **8.2.1.6. Involuntary resettlement**

#### ▪ *Involuntary resettlement of persons or goods*

None of the project activities led to resettle people or goods. Indeed, there are no nearby people or buildings which may be displaced or relocated by the rehabilitation of the dikes. Regarding other activities (rice growing, reforestation, aquaculture, etc.), sites are free from any human habitation or good were identified.

#### ▪ *Involuntary resettlement of economic activities*

The project plans to set up local conventions (resource management rules and territories) especially on the biological recovery of fish stocks. Therefore, at certain times of the year, there will be a temporary stop of the exploitation of these resources, forcing the operators to turn to other alternative economic activities.

Regarding the insular nature of Dionewar, where fishing is the primary economic activity, alternative activities will be proposed.

## **8.2.2. Positive impacts**

### **8.2.2.1. Economic activities**

The dike operation, the exploitation of aquaculture farm and reforestation will have many positive economic effects:

- Job creation (processing and marketing of processed forest fruit for instance)
- Creation of business opportunity for service and goods suppliers
- Significant increase of available income, better life quality and living conditions for families.
- Development of related economic activities (for example sale of cement for dikes rehabilitation);
- Less rural exodus thanks to temporary job creation for young people
- Food self-sufficiency, rice growing being more dynamic.

### **8.2.2.2. Life quality**

The project activities improve populations' life quality thanks to better food and security conditions. Indeed, the equipment would enable to face up with floods and costal erosion that cause important damage on populations' lifestyle and environment.

The reforestation of coconut trees, palm oil trees and other forest fruits trees will favor an increase of incomes for populations which will contribute to the improvement of their quality life. Sea products from aquaculture farms will have the same impact as well.

Populations will meet their basic needs thanks to incomes generated by the sale of aquaculture products from oyster and fish farming activities, processing and sale of forest fruits (from reforestation of palm oil and coconut trees and aquaculture farms).

### **8.2.2.3. Landscape**

Since the project essentially consists in rehabilitating equipment, reforesting, converting aquaculture farms and cutting up rice lots, the landscape will not be modified significantly. However, a relative improvement of the landscape is to be expected thanks to reforestation activities.

## **8.3. Associated issues with cumulative impacts**

The cumulative impacts can be defined as impacts resulting of successive and / or combined effects of an action, a project or an activity when they are cumulated to other actions, projects or activities that are considered in future, existing and /or reasonably predictable perspectives. Other people define them as impacts that are considered to be important on the basis of scientific and / or particular concerns regarding affected communities.

In the framework of the project, potential impacts of this kind are not identified so far. In the current context of Dionewar, there is no other project in the short term.

## **8.4. Synthesis of environment and social issues**

The works of environment and social diagnosis carried out through different reports and books on the one hand, field work and basic investigation such as meetings, interviews and exchange with different actors on the other, enable to identify environment and social issues and impacts in the project's sphere of influence. They are summarized in the table below.

**Table 17: Summary presentation of the project activities and related stakes**

	Stakes related to the physical environment				Stakes related to the biological environment					Stakes related to the human environment		
	Soil instability	Soil and water contamination	Waste generation	Atmospheric emissions	Biological stakes due to soil contamination	Biological stakes due to water contamination	Biological stakes due to watercourse disturbances	Biological stakes due to atmospheric emissions	Biological stakes due to emissions of waste	Health and safety	Life quality and social balance	Labor force and working conditions
<b>Project activities</b>												
Development of fish and oyster farms			X						X	X	X	X
Reforestation			X								X	
Development of nursery		X	X								X	
Rehabilitation of dikes		X	X	X	X	X	X	X	X	X	X	X
Development of rice plots (ridging) in Djimsane		X	X	X	X					X	X	X

## **IX. FINDINGS AND PROPOSED ACTIONS**

The project activities can have potential risks of environmental contamination on soil, surface water, but also in the atmosphere. These risks also have social and health impacts when the receiving environment is human. However, they are small scale. The following table reviews the risks and impacts identified and measures for mitigation.

**Table 18: Potential risks and associated mitigation measures**

Potential risk	Activities	Measures
<ul style="list-style-type: none"> <li>- Environmental and social harms</li> <li>- Challenging measures aiming at a sustainable use of natural resources</li> <li>- Child labor and work related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Dikes rehabilitation</li> <li>Fish and oyster farming</li> <li>Reforestation</li> <li>Local Planning</li> </ul>	<ul style="list-style-type: none"> <li>- Identify and implement relevant safeguard measures</li> <li>- Associate relevant local authorities (Municipal Council and Sub-Prefect)</li> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Enforce relevant labor regulations</li> <li>- Prohibit any kind of child labor</li> </ul>
<ul style="list-style-type: none"> <li>-Conflicts regarding the distribution of the rice plots and equipment</li> <li>-Conflicts during the selection of the members of committees or the beneficiaries of trainings</li> </ul>	<ul style="list-style-type: none"> <li>Rice growing activity</li> <li>Capacity building</li> <li>Establishment of the management committees</li> </ul>	<ul style="list-style-type: none"> <li>-Choose the beneficiaries of the capacity building sessions, the rice plots and the member of the management committees in a participative way in collaboration with the local and traditional authorities.</li> </ul>
<ul style="list-style-type: none"> <li>- Non integration of the women in the decision making bodies (infrastructure, forest products management committees, steering committee for the local convention)</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of the management committees</li> </ul>	<ul style="list-style-type: none"> <li>- Establish a quota for women in all decision-making bodies</li> <li>-Organize women specific consultations for all decision-making processes where they might be embarrassed to talk before men</li> </ul>
<ul style="list-style-type: none"> <li>- Accidents</li> <li>- Bad working conditions</li> <li>- Child labor</li> </ul>	<ul style="list-style-type: none"> <li>Rehabilitation of the dikes</li> <li>Aquaculture installation</li> </ul>	<ul style="list-style-type: none"> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Respect all the labor regulations</li> <li>- Prohibit any kind of child labor</li> </ul>
<ul style="list-style-type: none"> <li>-Involuntary resettlement of economic activities (temporary stop of shellfish resources exploitation)</li> </ul>	<ul style="list-style-type: none"> <li>Preparation of local convention</li> </ul>	<ul style="list-style-type: none"> <li>-Propose alternative economic alternative (beekeeping is proposed)</li> </ul>



Potential risk	Activities	Measures
due to biological rest		
<ul style="list-style-type: none"> <li>- Accidental spills</li> <li>- Increase of the organic matter (overproduction of organic waste from due to uncontrolled fish density)</li> <li>- Waste</li> </ul>	Rehabilitation of the dikes  Aquaculture farms  Each activity of the project	<ul style="list-style-type: none"> <li>- Develop a waterproof space</li> <li>- Maintain regularly the concrete mixer</li> <li>- Analyze the water quality (for the fish cages)</li> <li>- Build new cages to transfer the overpopulation</li> <li>- Develop and implement a waste management plan</li> </ul>
<ul style="list-style-type: none"> <li>- Outbreak of sexually transmitted infections, including HIV/AIDS</li> <li>- Accidents</li> <li>- Falls or drowning</li> <li>- Ocular or respiratory diseases</li> </ul>	Rehabilitation of the dikes  Rice growing activity and aquaculture farms	<ul style="list-style-type: none"> <li>- Sensitization of workers and populations (through the environmental and social management plan)</li> <li>- Provide protective equipment (life jackets, lifebelts) for the operators of the aquaculture sites and rice plots</li> <li>- Provide protective equipment to the workers (for the rehabilitation of the dikes)</li> <li>- Water regularly the sites (dikes and borrowing sites) to avoid the dust takeoffs</li> </ul>
<ul style="list-style-type: none"> <li>- Removal of material from the shell mound considered as historical site</li> </ul>	Dikes rehabilitation	<ul style="list-style-type: none"> <li>- Excluded the Ndiamon-Badat shell mound from areas of extraction</li> </ul>
<ul style="list-style-type: none"> <li>- Fertilizers and pesticides used in rice cultivation as well as in the preparation of rice plots can cause soil chemical degradation.</li> </ul>	Rice growing activity	<ul style="list-style-type: none"> <li>- Develop and implement a pesticide and fertilizer management plan</li> </ul>

**Table 19: Summarized Mitigation measures with the associated costs**

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Compliance with the Law</i>	- Environmental and social harms	Dikes rehabilitation	- Identify and implement relevant safeguard measures	- Undertake an ESIA and ensure a sound implementation of the associated ESMP	-Executing entities	- Local representation of the Directorate of Environment (DREEC)	No cost associated
	- Challenging measures aiming at a sustainable use of natural resources	Fish and oyster farming	- Associate relevant local authorities (Municipal Council and Sub-Prefect)	- CSE and the PMU will ensure that relevant local authorities (sub-prefect, municipality) be informed in written prior to the launch	- PMU	- Local steering committee - Municipality	No cost associated
	- Child labor and work related accidents	Reforestation Local Planning	- Provide protection equipment to avoid accident - Conduct awareness campaign for the workers about the risks of accidents - Enforce relevant labor regulations	- CSE and the PMU will ensure that the company will provide all relevant protection equipment and will conduct awareness campaign about the risks by including that measure in the technical specifications - CSE and the PMU	- Civil engineering	- Local steering committee - Municipality	Included in the activity's budget  No cost associated

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
			of child labor	will ensure that children will not be employed for the project's activities and this measure will be included in the convention with the executing entities and the service providers	company		
<i>Access and Equity</i>	-Conflicts regarding the distribution of the rice plots and equipment -Conflicts during the selection of the members of committees or the beneficiaries of trainings	Rice growing activity  Capacity building  Establishment of the management committees	-Choose the beneficiaries of the capacity building sessions, the rice plots and the member of the management committees in a participative way in collaboration with the local and traditional authorities.	Set up a local committee in charge to oversee the distribution of the project's asset and the access to the project's benefits	PMU	Executing entities  Local Authorities	Included in activities' budget
<i>Gender Equity and Women's Empowerment</i>	- Non integration of the women in the decision making bodies	Implementation of the management committees	- Establish a quota for women in all decision-making bodies	- Breakdown the M&E indicators based on gender	Excuting entities	Women organization	Cost included in the activity's budget

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
	(infrastructure, forest products management committees, steering committee for the local convention)		-Organize women specific consultations for all decision-making processes where they might be embarrassed to talk before men	Executing entities will use gender based approaches during consultative processes			
<i>Core Labour Rights</i>	<ul style="list-style-type: none"> <li>- Accidents</li> <li>- Bad working conditions</li> <li>- Child labor</li> </ul>	Rehabilitation of the dikes Aquaculture installation	<ul style="list-style-type: none"> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Respect all the labor regulations</li> <li>- Prohibit any kind of child labor</li> </ul>	<p>-CSE and the PMU will ensure that the company will provide all relevant protection equipment and will conduct awareness campaign about the risks by including that measure in the technical specifications</p> <p>- CSE and the PMU will ensure that children will not be employed for the project's activities and this measure will be included in the convention with</p>	Civil engineering company ANA	PMU	No cost associated (included in the activity's budget)



Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
		Each activity of the project		ensure that ANA and all the structures involved will provide the water quality analysis reports and will implement the necessary measures to avoid excessive fish in the cages - CSE will ensure that the waste management plan is developed and implemented effectively			
<i>Public Health</i>	-Outbreak of sexually transmitted infections, including HIV/AIDS - Accidents -Falls or drowning -Ocular or respiratory diseases	Rehabilitation of the dikes  Rice growing activity and aquaculture farms	- Sensitization of workers and populations (through the environmental and social management plan) - Provide protective equipment (life jackets, lifebelts) for the operators of the aquaculture sites and rice plots	- CSE and the PMU will ensure that the specifications of the company will include awareness the workers about STDs, HIV-AIDS, the provision for the protective equipment and the watering of the sites - CSE will validate	Civil engineering company	ANA PMU Health department	Included in the activity's budget

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
			<ul style="list-style-type: none"> <li>- Provide protective equipment to the workers (for the rehabilitation of the dikes)</li> <li>- Water regularly the sites (dikes and borrowing sites) to avoid the dust takeoffs</li> </ul>	the list of future beneficiaries and participate in the distribution of protective equipment (life jackets, lifebelts, etc.)			
<i>Physical and Cultural Heritage</i>	- Removal of material from the shell mound considered as historical site	Dikes rehabilitation	- Excluded the Ndiamon-Badat shell mound from areas of extraction	<ul style="list-style-type: none"> <li>-The PMU will develop an awareness campaign towards the project's stakeholders about the status of the Ndiamon-Badat shell mound</li> <li>-Local steering committee and the PMU will ensure the follow up of the mesure of exclusion</li> </ul>	PMU	Local steering committee Local authorities	Included in the budget for activity 3.3

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Lands and Soil Conservation</i>	- Fertilizers and pesticides used in rice cultivation can cause soil chemical degradation	Rice growing activity	- Develop and implement a pesticide management plan	-CSE will include in its report of monitoring and supervision, the implementation of the pesticide management plan (effective implementation, action plan, results and soil and water salinity results)	Agriculture department	PMU Management committees	<u>30,000</u>
<b>TOTAL</b>							<b>52,500</b>



## **X. ENVIRONMENTAL MONITORING AND OVERSIGHT**

The following sections deal briefly with aspects linked to environmental monitoring and oversight. The necessary arrangements will be made under the project to ensure the follow-up of environmental and social factors likely to be affected by project activities.

Monitoring will be done in relation with the relevant authority such as: the Environment and Classified Establishment Directorate (DEEC) and technical services, members of the regional technical committee.

Environmental oversight as for it will essentially focus on sites with a view to ensure the compliance with environmental terms.

The table below presents the summary of environmental oversight and monitoring.

**Table 20 : Environmental oversight plan**

COMPONENT	ACTIVITY	OUTPUTS	ELEMENT TO OVERSEE	TIMETABLE / FREQUENCY	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
COMPONENT 1	Aquaculture	Implementation of an oyster farm	Ensure proper waste management for each phase	The whole project lifespan	ANA	RMC PMU	1192
		Implementation of a fish farm with floating cages	Ensure proper waste management for each phase	The whole project lifespan	ANA	RMC PMU	
		Strengthen the actors' capacities on fish and oyster farming techniques	Ensure the application of the environmental clauses	At the beginning, during and at the end (each step)	PMU	ANA RMC	1 191
			Check the effectiveness of the training sessions	At the end of the training sessions	PMU	DEEC RMC	
		Implement farm management plan	Ensure the effectiveness of the management plan and the integration of the environmental clauses and gender aspect into it	At the beginning of the activity	ANA	PMU RMC	700
		Endowment (boots, gloves, safety jacket, etc.)	Check the effectiveness of the endowment	At the beginning of the activity	ANA	PMU	492
COMPONENT 2	Extension and rehabilitation of the dikes to fight against flooding	Rehabilitation and extension of the dikes	Check the effectiveness of the waste management plan Check the involvement of the women and youth in the works, respect of labour right especially with regards on child work, etc.	During the activity	Agriculture Department (Section Rural Engineering)	RMC PMU	1050
		Preparation of a maintenance guide	Check the efficiency of the guide's use and the integration of environmental clauses into it	During and at the end of the activity	Agriculture Department (Section Rural Engineering)	RMC PMU	Included in the activity's budget
	Development of rice plots at Djimsane	Development of rice plots	Ensure the respect and application of environmental clauses	At the beginning and during the activity	PMU	RMC	2 450
		Implement a management committee	Ensure that the committee includes gender aspect	At the beginning and during the activity	PMU	RMC	
COMPONENT 3	Review and update of the	Integrate climate change aspects into the PCD	Ensure effectiveness of the integration of climate change aspects	At the beginning and during the activity	PMU	ARD	Included in the

COMPONENT	ACTIVITY	OUTPUTS	ELEMENT TO OVERSEE	TIMETABLE / FREQUENCY	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
	PCD		into the PCD				activity's budget
	Preparation of a local convention for natural resources management	Implement a local convention to better regulate the use of forest products and to respect the biological recovery period of the fish products	Ensure the implementation of the local convention	At the beginning and during the activity	PMU	RMC ARD	Included in the activity's budget
			Ensure the implementation of alternative activities (such as apiculture)	At the beginning and during the activity	PMU	RMC Forestry Department	4,480
	Sharing the lessons learned from the project	Sharing the project's activities	Check the existence of a lessons learned sharing report	At the end of the activity	PMU	ARD	Included in the activity's budget
<b>TOTAL</b>							<b>11,555</b>

The budget for the implementation of the environmental surveillance plan amounts to 5 775 000 CFA F (11 555 USD). This budget corresponds to the mission's expenses and DSA of technical staff involved in the implementation of the oversight plan.

**Table 21 : Environmental monitoring plan**

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
<b>COMPONENT 1</b>	Aquaculture	Implementation of an oyster farm	Monitoring of the physicochemical and bacteriological parameters of the oyster farm's site	Number of analysis report	Physicochemical (temperature, turbidity, oxygene, pH) and bacteriological analysis report	12	Before the works and every 3 months after installing	ANA	PMU RMC	6,590
		Implementation of a fish farm with floating cages	Monitoring of the physicochemical and bacteriological parameters of the fish farm's site	Number of analysis report	Physicochemical (temperature, turbidity, oxygene, pH) and bacteriological analysis report	12	Before the works and every 3 months after installing	ANA	PMU RMC	6,590
		Strengthen the actors' capacities on fish and oyster farming techniques	Monitoring the selection of beneficiaries taking into account gender aspects	Number of Economic Interest Group trained and involved in the management committees	Training session report	18	At the time of planning, and during the implementation of the capacity building plan	PMU		FTR
		Implement farm management plan	Monitoring the implementation of the farm management plan including environmental clauses	Number of management plan realized	Management plans	2	Throughout the project	ANA	PMU	2 450
		Endowment (boots, gloves, safety jacket, etc.)	Check of the technical specifications of the equipment	Quality of the equipment	Receipt	200	Upon receipt of the equipment	PMU	ANA	FTR <sup>2</sup>

<sup>2</sup> FTR : For The Record

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
<b>COMPONENT 2</b>	Extension and rehabilitation of the dikes to fight against flooding in Dionewar	Rehabilitation and extension of the dikes	Monitoring the respect of labor rights especially with regard to child work	Percentage of minor included in the works	Attendance list	0	During the activity	PMU	RMC	FTR
	Infrastructure management	Preparation of a maintenance guide	Monitoring the implementation of the maintenance guide	Number of visit	Inspection report	4	Before and after the rainy season	AGRICULTURE DEPARTMENT (SECTION RURAL ENGINEERING)	RMC PMU	FTR
		Project's activities	Monitoring of the health information and communication program's implementation	Number of realized awareness campaign	Awareness campaign report	8	Once a month during the four months of the rainy season	Health Regional Service	PMU	FTR
	Development of rice plots at Djimsane	Rehabilitation of the dike	Monitoring the water quality (drain water): physicochemical parameters such as pH, temperature, conductivity) Monitoring soil quality upstream and downstream of the dike (pH, salinity and sodium concentrations, etc.)	Number of water and soil quality analysis	Water and soil quality analysis report	6	Twice yearly (right after the rainy season and after dry season)	AGRICULTURE DEPARTMENT (SECTION RURAL ENGINEERING)	RMC	25,740

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
		Development of rice plots	Monitoring of the implementation of the Pesticide management plan	Number of realized analysis	Water quality analysis report	6	Before and after the rainy season	DRDR	RMC	
<b>COMPONENT 3</b>	Review and update of the PDC	Integrate climate change aspects into the PDC	Monitoring the implementation of the PDC with the climate change aspects	Number of monitoring field mission	Field mission report	9	Quarterly during the project lifespan	PMU	RMC ARD	FTR
	Preparation of a local convention for natural resources management	Implement a local convention to better regulate the use of forest products and to respect the biological recovery period of the fish products	Monitoring the implementation of the local convention	Number of monitoring field mission	Field mission report	9	Quarterly during the project lifespan	PMU	RMC ARD	FTR
			Monitoring the implementation of the alternative activities	Number of monitoring field mission	Field mission report	6	Quarterly during the last two years	PMU	RMC Forestry Department	3,220
	Sharing the lessons learned from the project	Sharing the project's activities	Monitoring the process of sharing the project's activities	Effectiveness of the sharing lessons learned report	Sharing lessons learned report	2	Mid-term and at the last semester of the project	CSE	RMC	FTR
				Number of workshops	Workshop report	3				
<b>TOTAL</b>										<b>44,590</b>

The environmental monitoring budget which includes the mission expenses and DSE of technical staff involved, the costs for the collection and analysis of physical-chemical parameters of waters and soils, amounts to USD 44,590. Memorandums of understanding will be signed with those services (namely ANA, DEEC, Forestry Department, etc.) for the implementation of the environmental and social monitoring plan.

The overall cost of the environmental monitoring and oversight amounts to USD 56,145.



## CONCLUSION

The project entitled “*Reducing vulnerability and increasing the resilience of Dionewar coastal communities*” has a strategic role for the economic development of the village. It has an economic and social impact on the population.

This environment and social diagnosis is based on document research and field observations conducted within a week.

The project interventions aim at improving global living conditions of Dionewar population and reducing their vulnerability as to climate change effects. They also aim at improving the following social and environmental conditions:

- The protection of populations against recurrent floods and coastal erosion;
- The rehabilitation of natural ecosystems particularly the mangrove, forest fruit trees through reforestation. This will improve the landscape and will have a positive effect on the fauna;
- Food insecurity through the boosting of aquaculture activities such as fish farming and oyster farming ;
- Populations build more their capacity to manage their natural resources through the ratification of local convention including the period of biological rest for fish species;
- Quality life improvement for populations through different adopted measures;
- Job and business opportunity creation.

As regards negative issues, taking into account the nature of the project which aims at rehabilitating existing equipments in a given area, there are not major negative effects on social and environmental components. Indeed the sources of impact have a limited range, are confined in an existing area and the duration is relatively reduced for each site of intervention.

The main environment concerns of the rehabilitation project are the following:

- Hydrocarbon use and handling that may contaminate the grounds and surface water in case of accidental spillage in the natural milieu;
- Interaction with surface water for leveling works, bank reshaping, resumption of hydraulic works and riverbank stabilization. This interaction will be particularly visible for reshaping work of Djimsane dike;
- Workers and neighboring communities health: the issues mainly concern injury and accident risks for workers and neighboring populations during works;

Except from these two major concerns other potential concerns are identified:

- The risk of temporary degradation of life quality and social balance for workers and populations that may be affected by dike rehabilitation activities (dust generation and noise nuisance);
- Risks linked to the workforce and working conditions in the case of inappropriate staff management;
- Possible impacts on cultural heritage associated with works requiring the exploitation of shell heaps.

All these constraints can be removed through the implementation of an appropriate social and environment management.

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## ANNEX : LIST OF PERSONS AND INSTITUTIONS MET

N°	Name	Position	Contact
<b>Niodior Prefecture, January 15 2016</b>			
1	Amadou Lamine SY	Sub-prefect	77 529 06 73
<b>Municipal Council of Dionewar, January 15 2016</b>			
2	Ansoumana SARR	Mayor	77 318 01 84
3	Abdoulaye NDIAYE	Secretary	77 525 99 35
4	Lamine THIARE	Mayor's 1st assistant	77 412 43 37
5	Abdou FAYE	Municipal Councillor	77 113 55 10
6	Mata DIENE	Municipal Councillor	77 604 37 61
7	Fatou BAKHOUM	Municipal Councillor	77 329 61 20
8	Aminata NDONG	Municipal Councillor	77 268 77 13
9	El H Ismaïla SARR	Municipal Councillor	77 921 66 62
10	Sophie SARR	Municipal Councillor	77 893 47 39
11	Lamine SARR	Municipal Councillor	77 316 22 64
12	Ibrahima NDIAYE	Municipal Councillor	77 507 11 08
13	Ibrahima DIOP	Municipal Councillor	77 518 90 32
14	Marie SARR	Municipal Councillor	77 316 23 92
15	Faback SALL	Municipal Councillor	77 415 84 96
<b>Local federation of the Economic Interested Groups (FELOGIE) de Dionewar, January 16 2016</b>			
16	Moussa SARR	Association for the Development of Dionewar (ADD)	77 566 21 85
17	Mariama THIOR	FELOGIE	77 521 61 38
18	Fatou NDONG	FELOGIE	
19	Fatou SARR	FELOGIE	77 449 35 42
20	Assane SARR	ADD	77 563 64 88
21	Djibril DIOP	ADD	77 552 33 95
22	Mahamadou Lamine NDONG	Village Chairman	77 521 54 28
<b>Public consultation of Dionewar, January 17 2016</b>			
23	Lamine THIARE	Mayor's 1st assistant	77 412 43 37
24	Arfang NDOUR	Fisherman	77 202 02 00
25	Adama NDIAYE	Fisherman	77 358 23 01
26	Mamadou DIOUF	Fisherman	77 320 83 23
27	Djibril SARR	Teacher	77 457 17 60
28	Aïcha DIOP	Housewife	77 903 29 72
29	Assane SARR	Health Committee President	77 309 47 22
30	Fatou SARR	GIE President	77 449 35 42
31	Salimata SARR	Midwife	77 375 28 37
32	Fatou NDONG	Housewife	
33	Gnima DIOUF	Housewife	
34	Mary SARR	Municipal Councillor	77 316 23 92
35	Ndèye Doko SENHOR	Housewife	77 876 02 50
36	Mariama THIOR	GPF President	77 522 62 38

N°	Name	Position	Contact
37	Mariama SARR	Housewife	77 191 64 47
38	Idrissa DIOP	Fisherman	77 734 48 94
39	Mouhamadou S SARR	Student	77 066 44 51
40	Bakary SARR	Student	78 315 88 79
41	Astou NDIAYE	Student	77 737 04 41
42	Khady NDIAYE	Student	78 397 04 96
43	Fodé SARR	Fisherman	77 784 29 68
44	Boubacar DIENG	Fisherman	77 520 99 15
45	Sékou NDIAYE	Fisherman	77 453 57 23
46	Faback SARR	Retiree Sailor/Fisherman	77 363 61 55
47	El H NDIAYE	Retiree Sailor/Fisherman	77 433 36 99
48	Birama NDONG	Fisherman	77 045 36 83
49	Abdou DIOUF	Fisherman	77 179 21 90
50	Ousmane NDONG	Retiree Sailor/Fisherman	
51	Babacar SARR	Carpenter	77 255 53 05
52	Omar NDONG	Fisherman	77 785 48 77
53	Moustapha NDOUR	Retiree	77 127 02 11
54	Mamadou SOW	Student	78 230 66 73
55	Mbagnick NGOM	Student	77 994 33 25
56	Abdou SENGHOR	Student	78 215 50 08
57	Abdou DIOUF	Teacher	77 443 11 58
58	Lamine DIOP	Fisherman	77 425 65 06
59	Assane DIOP	Fisherman	77 798 47 41
60	Mamadou NDOUR	Fisherman	77 229 82 94
61	Abdou NDIAYE	Fisherman	77 666 27 17
62	Yamaty MANE	Housewife	77 609 92 44
63	Sophie SARR	Municipal Councillor	77 893 47 39
64	Aminata NDONG	Municipal Councillor	77 268 77 13
65	Seynabou DIENE	Teacher	77 237 12 46
66	Sophie DIOUF	Post officer	77 428 52 43
67	Rokhy DIOUF	Housewife	77 030 79 86
68	Abdou SARR	Mason	77 316 24 46
69	Mama Lamine NDIAYE	Eco tour guide	77 370 55 09
70	Mamadou NDIAYE	Student	78 358 14 16
71	Bakary NDONG	Student	77 378 51 30
72	Abdoulaye DIOP	Teacher	77 378 51 30
73	Ansou DIOUF	Teacher	77 456 61 87
74	Soumaïla NDIAYE	Carpenter	77 367 09 46
75	Mady SARR	Teacher	77 532 17 34
76	Ibrahima NDIAYE	Municipal Councillor	77 507 11 08
77	El H Faby DIOUF	Teacher	77 435 87 85
78	Mamadou THIAW	Merchant	77 906 94 28
79	Lamine Séla FAYE	Fisherman	77 989 78 29
80	Ibrahima DIOP	Municipal Councillor	77 518 90 32

N°	Name	Position	Contact
81	Mamady DIOUF	Fisherman	77 438 78 99
82	Djibril Passy NDONG	Teacher	77 451 71 58
83	Lamine DIOUF	Local development agent	77 406 31 82
84	Ousmane THIOR	Carpenter	77 105 56 67
85	Assane NDIAYE	Retiree	77 534 47 10
86	Haby NDONG	Housewife	
87	Babacar NDIAYE	Carpenter	77 646 75 47
88	Aliou NDIAYE	Fishmonger	77 605 76 37
89	Ousmane SARR	Carpenter	77 916 90 27
90	Mouhamadou Lamine NDONG	Chef de village	77 521 54 18
91	Diatou DIOUF	Housewife	
92	Maïmouna DIAME	Housewife	
93	Bakary SARR	Carpenter	77 570 97 50
94	Dioba SARR	Maçon	77 986 88 00
95	Lamine TOURE	Maçon	77 230 18 98
96	Adama NDIAYE	Fisherman	77 678 53 97
97	Bineta DIOUF	Housewife	77 820 21 51
98	Djibril DIOP	ADD	77 566 21 85
99	Birama SARR	ADD	77 649 21 49
100	Souleymane DIOUF	Fisherman	77 175 57 92
101	Adama Sy SARR	Teacher	77 241 21 24
<b>Technical services, January 18 and 19 2016</b>			
102	Mamadou WADE	Foundiougne fishery department, Head of office	77 737 59 51
103	Victor Toupane	Foundiougne Rural development, Head of office	77 572 20 74
104	Papa Diogomaye DIOUF	APIL Coordinator	77 362 53 98
105	Ousseynou DIOUF	APIL leader	77 573 21 79
106	Adama DIALLO	Foundiougne Forestry Department Assistant Director	77 209 03 35
107	Abdallah L. CAMARA	Fatick Environment and Classified Establishments Department Head of Office	77 671 82 97
108	Omar BADIANE	Fatick Environment and Classified Establishments Department Head of Office's Assistant	77 441 51 70
109	Ousmane FALL	Fatick Forestry Department Head of Office	77 630 75 43
110	Mamadou Hamdiatou BA	Regional development Agency of Fatick's M&E Officer	77 657 77 33
111	Boubacar DIALLO	Fatick Rural Development Director	77 363 67 45
112	Ibrahima LO	Fatick Fishery Department Head of Office	77 649 01 45



ADAPTATION FUND

**PROJECT**

***REDUCING VULNERABILITY AND INCREASING RESILIENCE OF VULNERABLE  
COMMUNITIES IN THE SALOUM ISLANDS (DIONEWAR)***

**ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**

**April, 2016**

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## **LIST OF ACRONYMS**

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ANA : National Aquaculture Agency

ARD: Regional Agency for Development

RMC: Regional Monitoring Committee

CSE : Centre de Suivi Ecologique

DEEC: Directorate of Environment and Classified Establishments

DRDR: Regional Direction of Rural Development

ESMP: Environmental and Social Management Plan

FTR: For The Record

IREF: Regional Inspection of Water and Forest

PCD: Communal Development Plan

PMU: Project Management Unit

## INTRODUCTION

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### I. OBJECTIVE OF THE ESMP

The project is designed within the context of fragility and vulnerability of coastal communities of Dionewar to support the efforts to rehabilitate the protective infrastructures of the island and develop socioeconomic activities with a focus on aquaculture and the rational and sustainable management of natural resources.

The overall objective of the ESMP is to describe the overall context in terms of issues and measures that will be taken to ensure compliance with environmental and social national legal requirements and the requirements of the Adaptation Fund and CSE. Since the project covers only the island of Dionewar (one location), it was decided to produce a ESMP focusing on impacts by activity.

### II. BRIEF DESCRIPTION OF THE PROJECT

#### 2.1. OBJECTIVES

##### *2.1.1. OVERALL PROJECT OBJECTIVE*

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The project's overall objective is to reduce the vulnerability of populations in Dionewar to flooding. The resilience of natural habitats and populations will be enhanced through the implementation of protective measures, revival of the main productive sectors and promotion of local adaptation strategies to cope with the adverse effects of climate change.

##### *2.1.2. SPECIFIC OBJECTIVES*

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The project's specific objectives are to:

- ❖ SO1: Improve the resilience of the productive sectors such as fishing, oyster-farming and forestry to natural hazards.
- ❖ SO2: Reduce the vulnerability of populations and natural habitats to hazards through the establishment of structures to better regulate flooding and fight against land salinization.
- ❖ SO3: Enhance local development planning through integration of climate change, setting up local conventions and documenting lessons learned.

#### 2.2. COMPONENTS OF THE PROJECT

The project “**Reducing vulnerability and increasing resilience of coastal communities in Dionewar**” aims to be a response to the economic hardships and environmental challenges faced by populations due to a high exposure to natural hazards. It will be implemented through: (1) investments for the development of aquaculture, the revival of fishing and processing of fishery products and replenishment of vegetation; (2) the establishment of protection infrastructures for Dionewar to face flooding; (3) the development of planning and local regulations activities associated with a knowledge management system that ensures equitable and sustainable use of productive assets. The project strategy is to take an integrated approach linking up the 3 components.

## **Component 1: Enhancing resilience for productive sectors on Dionewar Island**

### ***Activity 1.1: Development of fish and oyster farms***

This activity aims to boost the fisheries sector, which is faced with a scarcity of fish stocks prompting populations to go further out to sea to get worthwhile catches (especially given the amount of time and fuel spent). It also aims to develop and regulate the oyster farming sector.

The project resources will be used to setup 30 fish growing cages. The project will also install 200 spat collectors to develop oyster farming in the mangrove areas. A suspension culture system will also be put in place, above the seabed, with 1000 growing bags that will collect larvae that have reached a fairly large size. Only indigenous species will be used and there will be no introduction of exotic species. The project will also purchase production equipment (ropes, fishing nets, boots, life-jackets...).

This activity is targeted mainly at local women's association (GIE) and assets provided will be community-based. The project will foster the adoption of an agreement between the GIE, the local government unit and the executing agency.

The main activities include:

- Construction and installation of 30 fish growing cages;
- Making and installation of 200 spat collectors;
- Putting in place a suspension culture system with 1000 growing bags;
- Purchasing production equipment;
- Setting up a saving mechanism (fees);
- Implementing specific environmental and social management actions: information and awareness campaign; oversight of management of waste measures and application of environmental clauses; monitoring of physicochemical and bacteriological parameters and selection of beneficiaries.

### ***Activity 1.2: At least 6 ha of trees planted (enrichment planting, particularly with coconut and oil palms) and 5 ha of mangrove rehabilitated in Dionewar and its satellite islands to revitalize the main productive sectors***

Through activity 1.2, the project resources will be used to increase the density of the stands of coconut and oil palm trees that have long been important sources of income for Dionewar's populations. The enrichment planting will target at least 6 ha (especially coconut and oil palms) and 5 ha of mangrove will be rehabilitated. The population will contribute in terms of human investment.

The main activities include:

- ❖ Setup of a tree nursery in close collaboration with the Forestry Service;
- ❖ Mobilization sessions to organize populations around tree planting activities;
- ❖ Planting of trees;
- ❖ Setup of committees tasked with the plantations' surveillance. These committees will be composed of existing committee for natural resources management members, who will be reinforced if required.

***Activity 1.3: At least 18 economic interest women's groupings and natural resources management committees trained to improve their technical performance***

Activity 1.3 will make it possible to train women oyster farmers and processors on new techniques for better recovery of products. About 270 women will be trained. New production techniques will ensure better quality products and more competitiveness, meaning access to new market and more remunerative prices.

Partnership will be developed with ANA, who has a national mandate to support the development of aquaculture nationwide. They will provide technical support in the selection of performing species, quality of fish larva, biological monitoring and trainings.

The main activities include:

- ❖ Identification of trainees, taking into account gender considerations;
- ❖ Preparation of training materials;
- ❖ Elaboration of a training programme;
- ❖ Organization of training sessions, including exchange visits in neighbouring areas in the Saloum islands where similar programmes took place in the past.
- ❖ Oversight on environmental and social management actions: integration of gender principle during the setting up of committees, application of environmental clauses - waste and water management - during training sessions, etc.

***Activity 1.4: A management plan is developed for the fish and oyster farms***

Intensive fish farming requires constant maintenance and watchfulness. If the management is poor or the funding inadequate, things can go wrong: toxic runoff, food and waste excess affecting population densities and stressed fish stocks. This activity is designed to allow the recipients to benefit from the advantages resulting from the oyster farms without jeopardizing objectives for sustainable and environmental safeguards. In partnership with ANA and target communities, a management plan will be developed and implemented.

**Component 2: Protection against flooding and salinization in Dionewar**

***Activity 2.1: Rehabilitation and extension of dikes to protect against flooding***

Activity 2.1 seeks the rehabilitation of two dikes and their extension over 2 km to ensure better protection for housing, infrastructures and agricultural lands. With this activity, the project resources will help reduce the vulnerability of Dionewar against rising waters, especially during the rainy season with the start of high tides and storms. Activity 2.1 will be implemented in close collaboration with researchers who focus on coastal management, civil engineers, local extensions, the local government unit and the communities themselves.

The main activities will consist of:

- ❖ Social mobilization actions to ensure a fruitful involvement of the population through human investment sessions;
- ❖ Heightening of dikes where it seems necessary;
- ❖ Extension of dikes ;
- ❖ Implementation of environmental and social management actions: implementation of

mitigation measures (anti-contamination plan, waste management, etc.); oversight and monitoring activity (effective involvement of social groups in the works; respect of labour rights, especially with regard to child work, etc.)

### ***Activity 2.2: Development of ridges around rice plots in Djimsane Island***

Through activity 2.2, the project resources will be used to protect rice plots against seawater intrusion. It will help boost rice cultivation in the area, thus enhancing the sustainable livelihoods.

The operating costs will be handled by the project in the first year of operation. A depreciation schedule will be elaborated through consultations with producers in order to amortize the equipment and to recover the operation cost related expenses. Money recovered will flow back into the Fund for Integrated Development of the Islands.

The main activities will be to:

- ❖ prepare a “cadastral map” for rice-growing areas;
- ❖ organize social mobilization actions to ensure the involvement of the population;
- ❖ purchase equipment (ploughing, weeding, harrowing, harvesting, husking and bagging);
- ❖ organize consultations with producers to design the appropriate arrangements to be put in place for the amortization of the equipment;
- ❖ Realize the ridges;
- ❖ Implement of environmental and social management actions: implementation of mitigation measures (pest and pesticide management plan...), oversight activity (gender aspects into the committees, integration of environmental clauses, etc.); monitoring activity (physicochemical parameters, etc.).

### ***Activity 2.3: A maintenance plan of coastal infrastructures developed, including key stakeholders***

This activity is geared toward creating the conditions for the maintenance, over time, of coastal infrastructures developed by the project. Its execution will include a partnership with the Rural Engineering Directorate, the Directorate of Environment and the Directorate of Civil Defence.

The main activities will be:

- ❖ Preparing a maintenance guide for each category of infrastructure;
- ❖ Setting up and training a management committee, including the Local Government Unit, the extensions, the main community-based organizations (including women) and the Sub-Prefect;
- ❖ Organizing a report back session to present the guide’s outlines to members of the management committee.

## **Component 3: Strategic planning and knowledge management**

***Activity 3.1: The Local Development Plan (PCD) is reviewed / updated in order to integrate climate change adaptation options & costs benefits.***

Dionewar *Local Development Plan (PCD)* will be reviewed and updated to include risks and opportunities associated with long-term climate change and to make community investments more resilient. This revision will also allow incorporation of sustainable fisheries management measures. The different steps for this phase will include: (i) coordination of decision makers and the service provider team selected to revisit the local planning instrument; (ii) sharing tools for mainstreaming climate changes issues; (iii) climate changes vulnerability assessment and costs benefits of adaptation options; (iv) revision and adoption of updated plan; (v) identify funding mechanisms for adaptation measures; and (vi) dissemination of revised local development plans.

***Activity 3.2: Preparation of a Local Convention to better regulate the use of forest products and the biological rest***

Activity 3.2 will allow updating and formalizing of existing rules on the use of forest products (timber and non-timber) and biological rest. To this end, a Local Convention will be prepared in order to promote environmentally appropriate, socially responsible and economically viable use of forests and fisheries resources.

Particular attention will be paid to social groups whose livelihoods may be affected by the application of such local regulations. On Dionewar Island, young people and women are the most involved in the use of forest products and fishing in areas targeted for the biological rest. Women usually collect from forest areas firewood and above all forest fruits that they consume or sell. These products help improve food security and the income they generate contribute immensely to the livelihoods of households (clothing, health and schooling expenditures, etc.). Furthermore, women and unemployed young people are involved in fishing and this activity also strengthens food security and provides them an income. These two social groups will then be given particular attention when implementing this activity, with regard to access and equity considerations. This will be done through the Implementation of environmental and social management actions: oversight and monitoring activities (effective application of alternatives measures proposed to these groups, e.g. inclusion in management committees, development of alternative income generation activities like apiculture, etc.).

***Activity 3.3: Project's lessons learned documented and shared***

Through Activity 3.3, collaborative planning approaches developed will enable multiple stakeholders to share knowledge, develop awareness, improve learning and improve replication.

Activity 3.3 is designed to regularly collect and document lessons learned at each stage of the implementation and integrate these into planning processes and future activities. Through this activity, at least three general reports on lessons learnt will be produced — one every year which is shared regionally and nationally. The information packet will be translated into the appropriate formats and languages to allow dissemination through the community radios or television channels in the national languages. Particular emphasis will be put on strategies that led to improved adaptive capacities and considering gender specificities.

***Activity 3.4: Installation of a meteorological station at Dionewar***

A standard weather station will be installed at Dionewar in association with ANACIM<sup>1</sup> to collect climatic data on wind speed, temperature, pluviometry and hygrometry.

The implementation of a weather station in the municipality will allow Dionewar and neighbouring islands to have accurate and timely climate information and allow fishermen to have more specific knowledge of the weather conditions that affect their productive activities. This type of station will also be encrypted climatic data - which is often missing in some areas of the country. Such data will be very valuable for local development planning.

The type of station was chosen by ANACIM<sup>2</sup>. The station will integrate the network of this Agency and thus allow it to expand its operation capacity.

Activity 3.4 includes; i) buying a standard automatic meteorological station, ii) laying out the site where the station will be installed, iii) installing the station, iv) securing the station, and v) assuring the maintenance and the monitoring of the station.

The project components' amounts are presented as below.

**Table 1: Project's components and budget**

Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Enhancing resilience of main ecosystems on Dionewar island	<p>1.1. Alternative fish and oyster farming production system developed for 18 women associations, including the setup of 30 growing cages, 200 spat collectors and 1000 growout bags (USD 88,082).</p> <p>1.2. At least 6 ha of trees planted (enrichment planting primarily with coconut and oil palms) and 5 ha of mangrove rehabilitated in Dionewar and its satellite islands to revitalize the main productive sectors (USD 151,983).</p> <p>1.3. At least 18 economic interest women's groups and natural resource management committees trained to improve their technical performance (USD 42,483).</p> <p>1.4. Management plans for fish and oyster farms management developed (USD 18,550).</p>	<p><u>Outcome 1:</u> Improved resilience of the main ecosystems on Dionewar Island and sustainable livelihoods of populations.</p>	<b>301,098</b>

<sup>1</sup> Agence Nationale de l'Aviation Civile et de la Météorologie (*National Agency for Civil Aviation and Meteorology*)

<sup>2</sup> National Civil Aviation and Meteorology Agency



Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
2. Protection against flooding and salinization in Dionewar	<p>2.1. Protect, rehabilitate and extend the two (02) dikes against flooding over 2 km area (USD 627,550).</p> <p>2.2. Build ridges around rice plots on a satellite Island (USD 95,027).</p> <p>2.3. Develop a maintenance plan, involving key stakeholders (USD 21,000).</p>	<p><u>Outcome 2:</u> Reduced population vulnerability and improved socioeconomics infrastructures in Dionewar in relation to climate hazards through the construction or rehabilitation of protection infrastructures.</p>	<b>743,577</b>
3. Strategic planning and knowledge management	<p>3.1. The Local Development Plan (PCD) is reviewed in order to integrate adaptation to climate changes options &amp; cost benefits (USD 21,000).</p> <p>3.2. Rules governing the exploitation of timber and non-timber forest products and the biological rest updated and formalized through a Local Convention (USD 15,646).</p> <p>3.3. Project's lessons learned are documented and shared (USD 16,150).</p> <p>3.4. One (01) meteorological station is installed in Dionewar (USD 29,400).</p>	<p><u>Outcome 3:</u> Strengthened capacity of local institutions to mainstream climate change in local development planning, sustainable natural resources management strategies and to document and disseminate lessons learned.</p>	<b>82,196</b>
4. Project Execution cost			118,290
5. Total Project Cost			1,245,161
6. Project Cycle Management Fee charged by the Implementing Entity (CSE)			105,839
<b>Amount of Financing Requested</b>			<b>1,351,000</b>

### III. DESCRIPTION OF THE PROJECT AREA

#### 3.1. INTERVENTION AREA

The project intervention zone corresponds to Dionewar Island, in the Niodior district, Foundiougne department. Dionewar is part of the Saloum islands archipelago whose geographical space is defined by the inlets of Diombos and Saloum. These Niominka islands, historically called Gandoun are composed of nineteen (19) inhabited islands and many others uninhabited islands (some of which serve as rice fields). They are, essentially, in an environment with a strong presence of riverine mangrove, multiple mudflats and bolongs.

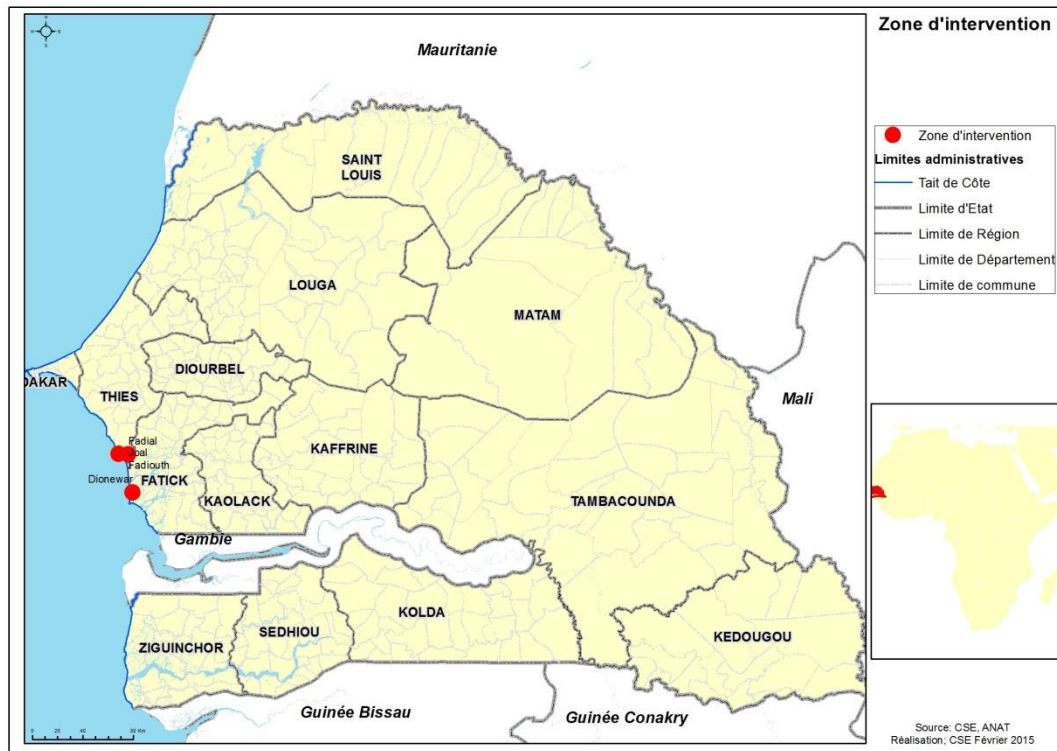


Figure 1: Location of the scope of the project

### 3.2. DESCRIPTION OF THE RECEIVING ENVIRONMENT

#### 3.2.1. PHYSICAL ENVIRONMENT

Data and information for the characterization of the biophysical environment Dionewar's village land are drawn essentially from the 2011-2016 Dionewar LPD and the Economic and Social Forum Report of Dionewar.

#### Topography

The extent of the Dionewar landform is mainly characterized by a flat relief except the bottomlands or basins located mainly in the East and North of the village. Most of the village is located below sea level, which increases its vulnerability to climate change impacts. In particular: (i) coastal erosion in the north of the village following the breakdown of Sangomar boom in 1987; and (ii) the gradual silting of tidal channels threatening mangroves and disturbing pirogue's seaworthability; (iii) floods; and, (iv) salinization of groundwater.

#### Climate

The climate is largely influenced by the maritime trade wind because of the proximity to the Atlantic Ocean and because of its insularity. It is characterized by the existence of two seasons:

- ❖ A longer dry season which lasts eight (8) months (October to June) during which a regular combination of maritime trade wind/harmattan results in the constancy of a relatively cool climate with an average temperature of 27 ° C. The maximum temperatures are 17 ° C in January and 37 ° C in June.

- ❖ A short rainy season starts after the monsoon. This hot and humid wind that blows from mid-June to mid-October brings rain. The greatest rainfall amounts are recorded during the month of August.

### 3.2.2. WATER RESOURCES

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- ❖ Surface water: it is mainly from the Atlantic Ocean along the entire western part of the island, of the Saloum River that feeds several ponds and mangrove. Thus, the commonly known Bolong inlets of Falia rise at the Saloum River before splitting into two meanderings among the villages of Dionewar and Falia. The Diagne Bolong goes through the eastern part of the Niodior village after taking its source at the Saloum River from its mouth. Despite their importance, these rivers are only used for fishing, gathering of fishery products and shipping.
- ❖ Temporary ponds on the other hand allow the practice of market gardening and livestock watering.
- ❖ Groundwater: relates to the shallow groundwater of the Continental terminal captured by numerous wells. The intrusion of sea water makes the water saltier and more polluted.

Fresh water from the commune comes from the Continental terminal groundwater picked up by the village well. The depth of the water varies between 4 and 7 meters. This water is used for all purposes.

### 3.2.3. SOILS

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In Dionewar, most of the available land suitable for agriculture suffered harsh effects of saline incursions and damage

The main soil types are:

- ❖ The Dior soils or ferruginous tropical leached soil which are soft and permeable soils. Primarily located in the northern part of the island, these soils are suitable for agriculture.
- ❖ The Deck-Dior soils or little leached ferruginous soils occupy a small part of the total area. They are very suitable for horticulture, arboriculture and rainfed cultures (LDP 2011 - 2016).
- ❖ The lowlands or basins located for the most part in the East and North of the land are predominantly clay and clay loam type. They hence constitute areas suitable for rice and vegetable culture.
- ❖ The saline soils are encountered along the mangrove on the back of the mudflat. They are constantly watered by the flow of the tides, and rarely covered by vegetation due to their salty and even acid clay texture. There is currently a gradual extension of this type of soil, which is a threat to arable soils.

## 3.3. BIOLOGICAL ENVIRONMENT

### 3.3.1. VEGETATION

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The vegetation of the municipality of Dionewar is essentially composed of three layers: a tree layer, shrub layer and herb layer.

- ❖ **The tree layer:** can be decomposed into coastal forest and land forest. These two substrata are relatively well preserved and in clear regeneration (2011-2016 Dionewar PCD).

The coastal forest essentially has mangrove ecosystem tree species that occupies 17% of the total area of the municipality, and consists of *Rhizophora racemosa*, *Rhizophora mangle* and *Avicennia africana*. The mangrove is the breeding and development location of certain species of fauna and aquatic flora. The land forest is located in the continental area after a big amount of mangrove vegetation. 8.7% of this area is allocated to agricultural activities. It consists of Sudano-Guinean species such as *Parinari macrofila*, *Detarium senegalensis*, *Borassus aethiopicum*, *Elaeis guineensis*, *Adansonia digitata*, *Cocos nucifera*, etc.

- ❖ **Shrub species:** in Dionewar are essentially *Daniellia oliveri*, the raffia, the solom, etc.
- ❖ **Herb layer:** It is essentially composed of seasonal species whose development depends on rainfall. During the rainy season, the grass cover is well supplied and very varied. The grass that provides this layer is a power source for livestock whose survival depends heavily on the abundance of the latter. A resource management committee (COGER) is set up to raise awareness on the need to preserve natural resources. A local agreement for the sustainable management of natural resources of the community is in place.

### 3.3.2. WILDLIFE

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- ❖ **Terrestrial wildlife:** it was rich and varied several decades ago; it has become very rare now. Some species formerly represented in the zone like the lion, the leopard, hyena, the antelope, the jackal, the rabbit and many reptiles and birds are now unknown to the new generation. For birds, this area which is part of the Saloum Delta National Park constitutes an important drop and reproduction point. This is the case especially for migratory birds. Some birds species like the flamingo and the pelican are sometimes seen in the area.
- ❖ **The aquatic life:** is rich and diverse. It consists of estuarine and marine species such as carp, shrimps, sardinellas, etc. (see table Environmental and Social Diagnosis Study).

## 3.4. HUMAN ENVIRONMENT

### 3.4.1. DEMOGRAPHIC CONTEXT

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The Statistics and Demography National Office (ANSD) estimates the population of Dionewar at 5.395 inhabitants, including around 2,607 women (48.32%).

For Dionewar, migration relates mainly to external flows. Indeed, the external migratory movement is highlighted by rural migration and seasonal migration which constitute a revenue generation strategy and search for food security. Based on the 2003 LDP data, two kinds of flows are identified. For instance, there are seasonal movements of fishermen relating to some of them moving to other fishing areas both inside the country and in neighboring countries such as Gambia, Guinea Bissau and Mauritania. The exodus of young people in turn corresponds to the movements of the latter due to economic reasons or study to large urban centers. This phenomenon is more pronounced for girls because nearly 80% of them are in urban centers and return only for ceremonies.

### 3.4.2. SOCIOECONOMIC CONTEXT

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Fishing is the dominant activity in Dionewar. But there are other economic activities such as agriculture, livestock, small businesses and arts and crafts.

In correlation to the growth of the fishing industry, there is an increase in fish processing activities. This is due to the dedication of Dionewar FELOGIE women. Processing activities mainly concerns shellfish by using drying processes, smoking, soiling and fermentation.

Rainfed agriculture mainly concerns food crops such as rice, millet "souna", sorghum, cowpea (niébé) and hibiscus (bissap). Rice, which is a staple food is also the main food crop. Growing millet is developing because of the existence of the very conducive Dior soils. The sorghum and cowpea crops are part of the millet plots. This is also the case for growing sorrel (hibiscus), of which a portion is grown around the fields to define the limits. It should also be noted that food crops, especially cereals, are often the victims of seed-eating birds.

For horticulture, speculations revolve mainly around the culture of sweet potato and various other vegetables, but its potential is underused because of its rudimentary practice. Arboriculture concerns mainly dwarf coconut trees.

Livestock farming is mainly domestic and is marked by a predominance of poultry and sheep. The presence of horses is very low. The livestock vulnerability is accentuated by the lack of veterinary care which exposes it to various viral and microbial attacks in the region. In addition, it is important to note the poor quality of livestock drinking water especially in the dry season, a period when it is cloudy and unsanitary (LDP 2011 - 2016).

### *3.4.3. SUPPORT TO THE DEVELOPMENT OF DIONEWAR*

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Dionewar village received a lot of support to help people face the many issues caused by insularity of the community. The main areas of support include education (construction / rehabilitation of classrooms, literacy), health (rehabilitation of the health center), sanitation (latrine construction), access to drinking water (well drilling), the fight against flooding (dike construction), agriculture (anti-salt dam), the development of income generating activities (construction of fish processing center and forest fruit, central purchasing unit, revolving credit, etc.) and capacity building in several sectors, etc.

The situation on the ground shows that although there are various actors and various intervention sectors, the Dionewar village has not been able to address all the issues that challenge its effective development.

## **IV. LEGAL AND REGULATORY FRAMEWORK**

### **4.1. SENEGAL LEGAL AND REGULATORY FRAMEWORK**

#### *4.1.1. ENVIRONMENTAL CODE*

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The most recent version of the legal framework regarding the environment is marked by the adoption of the Environmental Code, in particular Law No. 2001-01 of January 15, 2001 and its implementing decree No. 2001-282 of April 12, 2001.

This code was reinforced by regulations including:

- ❖ the Prime Minister circular letter No. 009 PM.SGG / SP of July 2001 reminding all structures, the need to respect the provisions of the Environmental Code which stipulates in Article L48 that "*any development project or activity likely to damage the environment, as well as policies, plans, programs, regional and sectoral studies*

*should be subject to an environmental assessment».* The completion of an environmental impact study must be done prior to any project and must be conducted in accordance with procedures defined in the implementation decree of the law

- ❖ The five orders from November 28, 2001 organizing the implementation modalities of the Environmental Impact Assessment (EIA), which are:
  - Order No. 009468 regulating public participation in the Environmental Impact Assessment;
  - Order No. 009469 regarding the organization and functioning of the Technical Committee;
  - Order No. 009470 establishing the conditions for issuance of the approval for the exercise of EIA activities;
  - Order No. 009 471 regarding TOR content for EIA;
  - Order No. 009 472 regarding EIA report content.

#### *4.1.2. FORESTRY CODE*

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The Forestry Code (Law No. 98-03 of January 8, 1998 and Decree 98-164 of February 20, 1998) guarantees the integrity of artificial plantations by way of Article L11 which states that "*user rights do not apply to the perimeters of reforestation and restoration, and private forest..*" and Article R2 which classifies areas of reforestation and restoration in the forest area of the State.

Article R5 defines the perimeters of reforestation or restoration as "*non-forested or insufficiently reforested land on which is or may be exercised severe erosion, and whose reforestation and restoration is deemed necessary agronomically or environmentally. These lands are temporarily classified in order to ensure their protection, restoration or reforestation. Once these goals are achieved, they can be developed or removed from the classified forest system.*" This can promote the sustainability of reforestation carried out in the project because the plantations located in the Dionewar of village land within that area.

Senegal has a new forest policy document. It updates the Forest Code, taking into account: (i) strengthening the decentralization process with one hand, the establishment of the local community in the region and on the other hand, the transfer of the management of certain powers to communities including local environment and natural resources; (ii) ensure consistency with the different national planning documents (DSRP, PODES, PNAT, Agro-forestry-pastoral Orientation Law, MDGs, etc.); (iii) at the international level, ratification by Senegal of a number of conventions that affect directly forest management: Biodiversity, Climate Change, Fight against Desertification.

#### *4.1.3. FISHERIES CODE*

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Law No. 2015-18 from July 13, 2015 regarding the Code of marine fisheries guarantee the conservation of fishery resources and their exploitation in a sustainable and rational way. Thus, in its L4 article, the code states that "*the management of fisheries resources is a prerogative of the state which defines, for this purpose, a policy to protect, maintain and provide the sustainable use in order to preserve the ecosystem*".

The state promotes the co-management of fisheries with industry professional's organizations, marine fisheries communities and all other stakeholders. The terms and conditions for implementation of fisheries co-management are determined by regulation.

The same code also promotes "*the creation of crop farms, meaning that any installation done in the sea or on the shores of marine waters under Senegalese jurisdiction and that aims conservation, farming or intensive exploitation of marine organisms and resulting in a fairly prolonged occupation of public property or, in the case of installation on private property, is fueled by the sea*" (Art. L62).

#### 4.1.4. OTHERS APPLICABLE REGULATORY TEXTS

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##### ❖ Hygiene code

Law N° 83-71 of 5 July 1983 establishing the Hygiene Code aims to regulate personal hygiene, but mostly public or collective sanitation in order to ensure a good life development in all its aspects. The law has defined, among others, the rules in order to fight against epidemics and ensure proper management of the hygiene, construction sites, and waste packaging.

##### ❖ General code of local authorities

**The Law n ° 2013-10 of December 28, 2013** establishing the general code of local authorities which skills transfer to local authorities: Transfer of skills to the decentralized communities, particularly in terms of environment and natural resources and public health include:

- Article 304.- The department receives the following skills:
  - o the development and implementation of departmental action plans for the environment, emergency response and risk reduction;
  - o the development and implementation of local action plans for the environment.
- Section 2: the skills: Article 305.- The town receives the following skills:
  - o the development of municipal plans of action for the environment;
  - o waste management and the fight against unhealthy.

**Table 1: Other applicable regulations**

Theme	Legal texts	Reference	Measures
<b>Water pollution</b>	Environmental Code	Article L 59	Are subject to the measures of this Act: spills, runoff, discharges, deposits, direct or indirect of any kind and generally everything that may cause or increase water degradation by modifying their physical, chemical, biological or bacteriological , whether surface water, groundwater or the sea waters within the limits of territorial waters. Special protection areas, subject to special measures shall, where necessary, be established by order of the Ministers of the Environment, Public Health, Water, Merchant Marine and Fisheries according to the observed levels of pollution and taking into account certain specific circumstances worsen the disadvantages.
<b>Noise pollution</b>	Environmental Code	Article L 84	"Are forbidden every type of noise emissions that could harm the health, or harm the environment. Natural or legal persons responsible for these emissions must implement all appropriate measures to remove them. "
	Decree	Article R 84	"The maximum noise levels do not exceed fifty five (55) to sixty (60) decibels during the day without exposing the human body to dangerous consequences and forty (40) decibels at night."
	Labor Code / Decree 2006 - 1252 of November 15, 2006 laying down the minimum conditions to prevent certain physical environmental factors	Article 14	"The level of noise exposure received by a worker for the duration of their working day should not exceed eighty five decibels weighted eighty A (db (A)). If it is not technically possible to reduce the level of noise exposure below 85 dB (A), the employer must provide to employees personal protective equipment. He must ensure that they are actually used. This limit of 85 dB (A) required for the use of personal protective equipment may be lowered depending on the nature of the work, intellectual or otherwise, requires concentration. "
<b>Waste management</b>	Environmental Code	Article L 30	"Waste must be disposed of or recycled in an environmentally sound manner in order to remove or reduce harmful effects on human health, natural resources, fauna and flora or the quality of the environment."
		Article L 31	"Anyone who produces or holds waste must ensure himself the disposal or recycling or to disposal or recycling from businesses licensed by the Minister for the Environment [...]"
<b>Prevention/Protection</b>			
<b>Health and Safety</b>	Law No. 97-17 of December 1 <sup>st</sup> 1997 on the Labour Code	Article L 171 and Article L 172	- The employer must ensure that the workplace, machinery, equipment, substances and work processes under its control do not present a risk to health and safety of workers through technical measures, to organization of occupational medicine, work organization - When the measures taken under Article L.171 are not sufficient to ensure the safety or health of workers, the personal protective measures against occupational risks must be implemented
		Article L 177	-All workers should be informed fully of occupational risks and should receive adequate instructions as to the means available, the procedures to follow to prevent those risks and protect against them



## 4.2. CONVENTIONS, TREATIES AND INTERNATIONAL AGREEMENTS

Convention	Regulated sector and objectives	Implementation in the project scope
African Convention on the conservation of natural environment and its resources <i>Alger, 1963</i>	<ul style="list-style-type: none"> <li>- Improving the protection of the environment,</li> <li>- Promoting the conservation and sustainable use of natural resources,</li> <li>- Harmonize and coordinate policies relates to environment</li> </ul>	Implement actions to be undertaken individually and collectively for the conservation, use and development of land resources in waters, flora and fauna.
Stockholm declaration on the environment and sustainable development <i>Stockholm, 1972</i>	<ul style="list-style-type: none"> <li>- Acknowledgment of the need to better manage non-renewable resources, protect the environment and implement national and international governance systems to take into account the environment.</li> <li>- Give priority to capacity building in regards to the vulnerability related to sustainable development.</li> </ul>	<p>Component 3 of the project has defined support of the commune in the management of natural resources and plans to ensure the respect of biological rest and all applicable standards related to environmental and social issues.</p> <p>Also, in its second component, the project offers building technical and institutional capacity of beneficiaries to increase their resilience to the effects of climate change.</p>
Ramsar Convention on wetland areas <i>Ramsar, 1971</i>	<ul style="list-style-type: none"> <li>- Stopping the degradation or loss of wetlands now and in the future;</li> <li>- Urges the signatories to take into account the conservation of wetlands in their planning;</li> <li>- Inclusion of sites on the Ramsar List and promoting their conservation;</li> <li>- Preserving wetlands included or not on the Ramsar list, support research, training, management and monitoring in the area of wetlands;</li> <li>- Cooperate with other countries, particularly to preserve or restore the transnational wetlands.</li> </ul>	The project, in an effort to limit exploitation of resources such as mangroves initiated a program of reforestation and sustainable management of these resources.
Rio Declaration on environment and sustainable development <i>Rio, 1992</i>	<ul style="list-style-type: none"> <li>- Provide a clear and comprehensive definition of the concept of sustainable development;</li> <li>- Demonstrate collective ability to manage global problems;</li> <li>- Assert the need for green growth;</li> <li>- Principle 10: "<i>the best way to address environmental issues</i></li> </ul>	The idea of the project is part of a will to reduce the vulnerability of coastal communities and to strengthen their resilience to climate change.

Convention	Regulated sector and objectives	Implementation in the project scope
	<p><i>is to ensure the participation of all concerned citizens, at the relevant level [...]</i>;</p> <p>- Principle 17: <i>"an environmental impact study [...] shall be undertaken for proposed activities that are likely to have significant adverse effects on the environment [...]."</i></p>	
<p>United Nations Framework Convention on Climate Change (CCNUCC) Came into effect in 1994</p>	<p>- Use appropriate methods, for example impact assessments, formulated and determined nationally;</p> <p>- Minimize adverse effects on the economy, public health and the quality of the environment of projects or measures undertaken by them to mitigate climate change or adaptation.</p>	<p>The project in its initial definition aims to reduce as much as possible the vulnerability of populations to climate change by offering protection and also income-generating activities.</p>
<p>Natural and Cultural World Heritage Convention Came into effect in 1972</p>	<p>- The deterioration or extinction of any item of cultural and natural heritage constitutes harmful impoverishment;</p> <p>- Are considered cultural heritage: monuments, groups, sites, etc.</p> <p>- Are considered cultural heritage: natural, geological and physiographic monuments, natural sites.</p>	<p>The objective of the assessment study of the environmental and social impacts is to identify the presence of cultural and / or natural heritage to allow the project to ensure its protection.</p>

**4.3. CONVERGENCE WITH THE ADAPTATION FUND’S ENVIRONMENTAL AND SOCIAL POLICY**

The AF’s environmental and social policy defines the basic principles that include among others: (i) compliance with national and international legislation; (ii) soil conservation and production capacity; (iii) fair access to project benefits; (iv) integration of vulnerable and marginalized groups; (v) respect of human rights; (vi) inclusion of gender and women’s empowerment; (vii) compliance with basic labor rights; (viii) respect of indigenous rights; (ix) limitation of the involuntary resettlement of populations; (x) protection of natural habitats; (xi) conservation of biodiversity; (xii) climate change consideration ; (xiii) the fight against pollution; (xiv) public health preservation ; and (xv) protection of the physical and cultural heritage.

The project complies with the climate change Adaptation Fund policy.

#### **4.4. CONVERGENCE WITH CSE'S ENVIRONMENTAL AND SOCIAL POLICY AND GENDER POLICY**

CSE sets up a social and environmental management system that includes risk and impact assessment, and the establishment of an Environmental and Social Management Plan. It will be applied to the initial phase and must be maintained throughout the project cycle (from the design, opening, implementation, monitoring and evaluation to the closure).

The evaluation will project direct, indirect, and cumulative risks; evaluate alternatives to the project; assess possible measures to avoid, minimize and / or mitigate project risks. At the end of the evaluation, if the risk seems likely, an Environmental and Social Management shall be formulated and associated with project implementation at early stage. The ESIA of the project has been conducted regarding the following steps edited by CSE's ESMS.

The ESMP has also been defined in coherence with the following principles:

- Climate change;
- Efficiency in resource use and pollution prevention;
- Construction of infrastructure and facilities;
- Exposure to disease;
- Natural/modified or Critical habitats;
- Protected areas;
- Invasive and exotic species;
- Management of ecosystem services;
- Management of living resources;
- Soil conservation;
- Indigenous people;
- Equity and women rights;
- Cultural heritage;
- Workers right;
- Land acquisition and reinstallation.

As part of its mission to collect, capture, analysis and dissemination of data and information on the territory, natural resources to improve management of natural resources, CSE has adopted a gender policy to strengthen the institutional weight of the inclusion of the gender dimension in it and in its interventions. The main principles of this policy are:

- Coherence with national and international policies;
- Understanding the gender inequalities: analysis of equity and gender equality in all activities;
- Completeness: mainstreaming gender in all activities;
- Impartiality: application of its kind in the recruitment and assignment of roles;
- Regular updates: depending on the evolution of the internal context, national and international, the Gender Policy will be updated.

Project activities fit well within this framework.

## V. POSITIVE AND NEGATIVE IMPACTS

### 5.1. METHODOLOGICAL APPROCH OF IMPACTS ANALYSIS

The methodological approach used includes the following steps:

- ❖ Description of the legal and regulatory framework for environmental and social aspects applied in Senegal;
- ❖ Description of the initial state of the receiving environment and identification of issues, in other words, the description of the environmental and social context in the study area and the identification of key environmental and social issues;
- ❖ Diagnostic analysis of key environmental and social issues of the project;
- ❖ Introduction of key environmental and social observations related to management and operations, and presentation of the main measures to address shortcomings observed.
- ❖ For the legal and regulatory framework, environmental and social requirements were identified according to the following approach:
  - Identification of the national legal requirements: codes (including environmental code), all applicable laws and decrees ;
  - The FA's requirements regarding environmental and social matters.

The description of the initial state of the receiver environment was achieved based on:

- ❖ Background research

The background search focused on the review of the scientific literature, study reports, study papers, action plans etc. based on the coast and the Saloum delta.

Document review has allowed to understand the overall situation of the study area and to detect missing data completed during field visits.

- ❖ Field visits

A seven-day (7) field mission for the assessment of social and environmental aspects had been organized from January 13 to 20 2016 in the project intervention area. It has allowed the verification of collected data and fill in the shortcomings identified during document review.

The following sites have been visited:

- ❖ The dikes present in the Dionewar village, namely Ndiar, Ndioundiouré, Ecole 2 and Ecole arabe ;
- ❖ Djimsane island and the anti-salt dike built for rice fields;
- ❖ The shell remains located north of the Dionewar village which allowed to simultaneously make observations on the biophysical environment;
- ❖ The Dionewar Beach to observe the sand encroachment phenomenon and degradation of mangroves;
- ❖ The mangrove at different locations around the village and on Djimsane island;
- ❖ Potential sites to accommodate aquaculture infrastructure (fish farming and oyster farming);

- ❖ The fish processing center of Dionewar FELOGIE;

Meetings have been organized with authorities and the following groups:

- ❖ The village chief who led the various visits;
- ❖ The city council led by the Mayor of the Commune;
- ❖ The Sub-Prefect of Niodior;
- ❖ The Association for the Development of Dionewar (ADD);
- ❖ The population of Dionewar as part of a large public consultation;
- ❖ The technical services of the ANA, Water and Forestry (Niodior and Fatick), the Sangomar MPA (Niodior), Environment (Fatick), Fisheries (Fatick and Foundiougne), Rural Development (Fatick and Foundiougne), ARD (Fatick) and mangrove projects (Wetlands International - based in Foundiougne), restoration and conservation of the mangrove ecosystem in the Saloum Delta (PRECEMA - Fatick).

These interviews were designed not only to introduce the project, but also to collect the views, concerns, and project expectations of the beneficiaries who were interviewed. It also helped to identify measures to reduce the adverse effects of the project on one hand, and the enhancement measures of the benefits of the project on the other hand.

## **5.2. THE PROJECT POSITIVE IMPACTS**

### *5.2.1. ON PHYSICAL ENVIRONMENT*

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In general, the positive environmental and social impacts are far greater than the negative ones.

Indeed, the rehabilitation of dikes will:

- ❖ Help to fight effectively against recurrent flooding episodes causing extensive damage to people every year (including destruction or wear of properties);
- ❖ Gradually recover dozens of hectares of saline land and thus promote the development of agricultural activities;
- ❖ Help to fight effectively against the salty line and thus promote rice production in the island of Djimsane. This rice farming will contribute to the fight against food insecurity and enable the diversification of income among the populations.

In the same order of thought, the creation of drainage to allow passages for water has two positive sides. It allows, on the one hand, better water management during floods (management of large water flows), and, on the other hand, serves as crossing points for local populations.

The replanting of coconut trees, palm oil trees and other forest fruit tree species contribute to the reforestation of the environment and the recovery of forest ecosystems, to soil stabilization in relation to plants' root systems, to the fight against water and wind erosion, and to banks silting.

### *5.2.2. THE BIOLOGICAL ENVIRONMENT*

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The project aims basically to refurbish existing infrastructure (dikes), to reforest, to develop aquaculture farms, the biological habitat will therefore be not significantly changed.

### 5.2.3. THE HUMAN ENVIRONMENT

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#### Economic activities

The dike operation, the exploitation of aquaculture farm and reforestation will have many positive economic effects:

- ❖ Job creation (processing and marketing of processed forest fruit for instance)
- ❖ Creation of business opportunity for service and goods suppliers
- ❖ Significant increase of available income, better life quality and living conditions for families.
- ❖ Development of related economic activities (for example sale of cement for dikes rehabilitation);
- ❖ Less rural exodus thanks to temporary job creation for young people
- ❖ Food self-sufficiency, rice growing being more dynamic.

#### Life quality

The project activities improve populations' life quality thanks to better food and security conditions. Indeed, the equipment would enable to face up with floods and costal erosion that cause important damage on populations' lifestyle and environment.

The reforestation of coconut trees, palm oil trees and other forest fruits trees will favor an increase of incomes for populations which will contribute to the improvement of their quality life. Sea products from aquaculture farms will have the same impact as well.

Populations will meet their basic needs thanks to incomes generated by the sale of aquaculture products from oyster and fish farming activities, processing and sale of forest fruits (from reforestation of palm oil and coconut trees and aquaculture farms).

#### Landscape

Since the project essentially consists in rehabilitating equipment, reforesting, converting aquaculture farms and cutting up rice lots, the landscape will not be modified significantly. However, a relative improvement of the landscape is to be expected thanks to reforestation activities.

## 5.3. THE NEGATIVE IMPACTS

### 5.3.1. IDENTIFICATION THE POTENTIAL NEGATIVE IMPACTS

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To identify the negative impacts of the project, it is necessary to identify potential sources of impact. The sources of impact are linked to the development of fish farming activities (implementation of the floating cages and oyster farms), rehabilitation of dikes and reforestation.

Regarding the rehabilitation of dikes, each phase – from the installation of the construction site to the operation of the dikes – can lead to an activity that can be a source of impact.

The main sources of impact are:

- Compaction of dikes;
- Fuel transfer operations;
- Excavations for profiling dykes;

- The use of concrete mixer for the construction;
- Poor use of pesticides and fertilizers;
- Installation of floating cages;
- Materials residues used for work;
- Poor control of fish density;
- The selection of members of the management committees;
- The selection of beneficiaries.

**Table 2: The identified potential and the activities related regarding the AF Principles**

<b>Principles</b>	<b>Potential risk</b>	<b>Activities</b>
<i>Compliance with the Law</i>	- Environmental and social harms - Challenging measures aiming at a sustainable use of natural resources - Child labor and work related accidents	Dikes rehabilitation  Fish and oyster farming  Reforestation Local Planning
<i>Access and Equity</i>	-Conflicts regarding the distribution of the rice plots and equipment -Conflicts during the selection of the members of committees or the beneficiaries of trainings	Rice growing activity  Capacity building  Establishment of the management committees
<i>Marginalized and Vulnerable Groups</i>	None	
<i>Human Rights</i>	None	
<i>Gender Equity and Women's Empowerment</i>	- Non integration of the women in the decision making bodies (infrastructure, forest products management committees, steering committee for the local convention)	Implementation of the management committees
<i>Core Labour Rights</i>	- Accidents - Bad working conditions - Child labor	Rehabilitation of the dikes Aquaculture installation
<i>Indigenous Peoples</i>	None	
<i>Involuntary Resettlement</i>	-Involuntary resettlement of economic activities (temporary stop of shellfish resources exploitation) due to biological rest	Preparation of local convention
<i>Protection of Natural Habitats</i>	None	
<i>Conservation of Biological Diversity</i>	None	

<b>Principles</b>	<b>Potential risk</b>	<b>Activities</b>
<i>Climate Change</i>	None	
<i>Pollution Prevention and Resource Efficiency</i>	- Accidental spills - Increase of the organic matter (overproduction of organic waste from due to uncontrolled fish density) - Waste	Rehabilitation of the dikes Aquaculture farms Each activity of the project
<i>Public Health</i>	- Outbreak of sexually transmitted infections, including HIV/AIDS - Accidents - Falls or drowning - Ocular or respiratory diseases	Rehabilitation of the dikes  Rice growing activity and aquaculture farms
<i>Physical and Cultural Heritage</i>	- Removal of material from the shell mound considered as historical site	Dikes rehabilitation
<i>Lands and Soil Conservation</i>	- Fertilizers and pesticides used in rice cultivation as well as in the preparation of rice plots can cause	Rice growing activity

The main environmental and social risks and impacts of the project are:

- ❖ The risk of water or soil contamination caused by accidental spills of products (hydrocarbons, pesticides, etc.);
- ❖ The risks of waste generation from fish and oyster farms and dike construction;
- ❖ The risk of dust and noise emissions that may be caused by the construction of dikes in particular;
- ❖ The risks to health and safety of workers and the community in the rehabilitation works and installation of fish and oyster infrastructures;



### *5.3.2. IDENTIFICATION OF THE MITIGATION MEASURES*

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Measures will be undertaken to eliminate, reduce or offset any environmental and / or social impact previously identified. Mitigation measures that will be proposed in this context are based on the state of knowledge and advancement of technologies available in the environmental protection, the analysis of the current state of the natural environment, the state of vulnerability of the target areas, the analysis of the foreseeable impact of the various components and project implementation phases.

The site environment has been characterized and sensitive items that may be affected by the project activities were highlighted. Similarly, the identification and characterization of the impacts have been developed according to the sources of pollution or impact and the affected receiving environment.

**Table 3: Mitigation measures identification**

<b>Principles</b>	<b>Potential risk</b>	<b>Activities</b>	<b>Requirement</b>
<i>Compliance with the Law</i>	<ul style="list-style-type: none"> <li>- Environmental and social harms</li> <li>- Challenging measures aiming at a sustainable use of natural resources</li> <li>- Child labor and work related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Dikes rehabilitation</li> <li>Fish and oyster farming</li> <li>Reforestation</li> <li>Local Planning</li> </ul>	<ul style="list-style-type: none"> <li>- Identify and implement relevant safeguard measures</li> <li>- Associate relevant local authorities (Municipal Council and Sub-Prefect)</li> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Enforce relevant labor regulations</li> <li>- Prohibit any kind of child labor</li> </ul>
<i>Access and Equity</i>	<ul style="list-style-type: none"> <li>-Conflicts regarding the distribution of the rice plots and equipment</li> <li>-Conflicts during the selection of the members of committees or the beneficiaries of trainings</li> </ul>	<ul style="list-style-type: none"> <li>Rice growing activity</li> <li>Capacity building</li> <li>Establishment of the management committees</li> </ul>	<ul style="list-style-type: none"> <li>-Choose the beneficiaries of the capacity building sessions, the rice plots and the member of the management committees in a participative way in collaboration with the local and traditional authorities.</li> </ul>
<i>Marginalized and Vulnerable Groups</i>	None		
<i>Human Rights</i>	None		
<i>Gender Equity and Women's Empowerment</i>	<ul style="list-style-type: none"> <li>- Non integration of the women in the decision making bodies (infrastructure, forest products management committees, steering committee for the local convention)</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of the management committees</li> </ul>	<ul style="list-style-type: none"> <li>- Establish a quota for women in all decision-making bodies</li> <li>-Organize women specific consultations for all decision-making processes where they might be embarrassed to talk before</li> </ul>

Principles	Potential risk	Activities	Requirement
			men
<i>Core Labour Rights</i>	<ul style="list-style-type: none"> <li>- Accidents</li> <li>- Bad working conditions</li> <li>- Child labor</li> </ul>	Rehabilitation of the dikes Aquaculture installation	<ul style="list-style-type: none"> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Respect all the labor regulations</li> <li>- Forbid each kind of child labor</li> </ul>
<i>Indigenous Peoples</i>	None		
<i>Involuntary Resettlement</i>	-Involuntary resettlement of economic activities (temporary stop of shellfish resources exploitation) due to biological rest	Preparation of local convention	-Propose alternative economic alternative (beekeeping is proposed)
<i>Protection of Natural Habitats</i>	None		
<i>Conservation of Biological Diversity</i>	None		
<i>Climate Change</i>	None		
<i>Pollution Prevention and Resource Efficiency</i>	<ul style="list-style-type: none"> <li>- Accidental spills</li> <li>- Increase of the organic matter (overproduction of organic waste from due to uncontrolled fish density)</li> <li>- Waste</li> </ul>	Rehabilitation of the dikes  Aquaculture farms  Each activity of the project	<ul style="list-style-type: none"> <li>- Develop a waterproof space</li> <li>- Maintain regularly the concrete mixer</li> <li>- Analyze the water quality (for the fish cages)</li> <li>- Build new cages to transfer the overpopulation</li> <li>- Develop and implement a waste management plan</li> </ul>

<b>Principles</b>	<b>Potential risk</b>	<b>Activities</b>	<b>Requirement</b>
<i>Public Health</i>	<ul style="list-style-type: none"> <li>- Outbreak of sexually transmitted infections, including HIV/AIDS</li> <li>- Accidents</li> <li>- Falls or drowning</li> <li>- Ocular or respiratory diseases</li> </ul>	<p>Rehabilitation of the dikes</p> <p>Rice growing activity and aquaculture farms</p>	<ul style="list-style-type: none"> <li>- Sensitization of workers and populations (through the environmental and social management plan)</li> <li>- Provide protective equipment (life jackets, lifebelts) for the operators of the aquaculture sites and rice plots</li> <li>- Provide protective equipment to the workers (for the rehabilitation of the dikes)</li> <li>- Water regularly the sites (dikes and borrowing sites) to avoid the dust takeoffs</li> </ul>
<i>Physical and Cultural Heritage</i>	<ul style="list-style-type: none"> <li>- Removal of material from the shell mound considered as historical site</li> </ul>	<p>Dikes rehabilitation</p>	<ul style="list-style-type: none"> <li>- Excluded the Ndiamon-Badat shell mound from areas of extraction</li> </ul>
<i>Lands and Soil Conservation</i>	<ul style="list-style-type: none"> <li>- Fertilizers and pesticides used in rice cultivation</li> </ul>	<p>Rice growing activity</p>	<ul style="list-style-type: none"> <li>- Develop and implement a fertilizer and pesticide management plan</li> </ul>

### 5.3.3. INSTITUTIONAL FRAMEWORK FOR THE IMPLEMENTATION OF THE ESMP

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The ESMP applies to the preparation and commissioning of all activities. It concerns all actors and technical services collaborating for the implementation of the project.

All these actors, both in management and in terms of implementation, have specific responsibilities in the maintenance and implementation of procedures and measures related to the ESMP.

The final responsible for all measures is CSE. However, the implementation of the mitigation measures, in most cases, will be the responsibility of the company concerned by the work or the implementation of the activities. Contracts and agreements should clearly define these conditions. It would also be important to include in the specification the principle of responsibility. This principle will include fees in the contracts or conventions (e.g. the civil engineering company), if a company does not comply with one or more measures.

#### a. The institutions involved in the implementation of the ESMP

The project implementation will involve five categories of actors at local level which are:

- ❖ The CSE and the Project Management Unit;
- ❖ The local and administrative authorities;
- ❖ Population, Community and Local structures (Economic Groups, Producer groups, Associations, etc.);
- ❖ Technical Services: DEEC, ANA, Forestry Department, Rural Development Department, Medical Service Department, etc.; and,
- ❖ Service Providers (Enterprises, Consultants)

#### b. Roles and responsibilities of institutions involved in the implementation of the ESMP

##### ❖ CSE

Proficiency in project works will be done by the CSE as an entity accredited by the Adaptation Fund. Among other activities, the CSE will be responsible for ensuring: (i) compliance regarding the Fund's commitments (ii) the supervision of the implementation of the ESMP; (iii) the effectiveness of the inclusion of environmental clauses in tender documents (DAO) for the selection of the company or the consultant; (iv) the effective implementation of measures to mitigate the negative impacts and environmental monitoring program; (v) the consideration of the implementation status of the ESMP in the preparation of periodic reports on the implementation of the project.

The CSE, through its Environmental and Social Safeguard Unit (ESSU), will ensure compliance with its policies and standards (Grievance Mechanism, Environmental and Social Policy, Gender Policy).

##### ❖ The Project Management Unit

The Project Management Unit (PMU): The Project will be executed by a project team, called Project Management Unit (PMU) that will be based in Dionewar. The PMU will include the

following key staff: i) A local project coordinator; ii) a Monitoring and Evaluation specialist; iii) an administrative and financial assistant; and v) two field officers (Members of the CADL). Additionally, staff members of ANA and ANACIM will also be mobilized, when needed and for specific tasks. The PMU will emanate from the main proponent of the project, which is CONAF-ADD and which will provide the coordinator. The PMU will serve as a technical assistance for CONAF-ADD which will ensure CSE's execution of activities on-the-ground. An agreement will be signed between CSE and CONAF-ADD, and this latter will make the recruitment of the PMU staff using CSE's procedures. Having CONAF-ADD strongly involved in the project management will ensure ownership, strengthen local actors' capacities and, thereby, ensure sustainability.

#### ❖ **Administrative and local authorities**

##### The local authority: Municipal Council

The intervention of the local council has started since the formulation of the project, and will continue during the implementation. In relation to the decentralized technical services and other partners, the City Council will have a key role:

- Advise, support, supervision and technical support especially in the transferred areas, either through the steering committee deliberation sessions or directly in the field through the implementation of the project activities;
- Support for validation and assessment of annual work plans and project budget;
- Support for the implementation of the update process of the municipal development plan with integrating climate change aspects;
- Regular participation in various sectoral meetings related to the implementation of project activities.

##### The administrative authority: Niodior Sub-Prefect

The municipality of Dionewar is under the administrative authority of the sub-prefecture, which is based in Niodior. As representative of the Government at local level, the sub-prefect has under his authority all government employees and civil agents in the "district". As such, he coordinates the economic and social development actions within the framework of the local planning strategies. He is also in charge of mobilizing all appropriate means to arouse and to encourage the populations' participation in development actions. In this respect, he chairs the local development support centre (CADL) among which the attributions, the organization and the functioning are all fixed by order.

Its role will be important to monitor and encourage technical services' actions involved in the implementation of the ESMP.

#### ❖ **Local organizations and associations**

The organizations, in their different components (associations, CBOs, GIE) will play an important role in the implementation of the project locally. Indeed, they will complement the action of the agencies involved in the implementation of the project. This is essentially the Natural Resource Management Committee (COGER), the Federation of Local GIE (FELOGIE) Dionewar, the Association for the Development of Dionewar (ADD), the National

Committee for Functional Literacy (CONAF), Zero Plastic Association (AZP). These structures are involved so far, according to their statutes, guidelines and resources to the socioeconomic development of the village. These associations support the project in activities such as awareness and reforestation in order to better ensure the ownership of the project by the beneficiaries.

### ❖ Technical Services

The Technical Services has a supervisory role, consulting, support and outreach to rural populations. This is why the project will use their expertise to implement the activities. The technical services include ANA, Forestry Department, Environment, Rural Development, Regional Development Agency, Rural Engineering, Fisheries, etc.

A convention which will define the role and mission of each of these structures will be made.

#### Directorate of Environment and Classified Establishments (DEEC)

The Directorate of Environment and Classified Establishments is responsible for the implementation of the Government's environmental policy, including the protection of nature and human against pollution and nuisances. To this end, it is responsible for:

- prevention and control of pollution and nuisances;
- monitor actions of the various services involved and organizations in the field of Environment;
- the preparation of legal texts concerning the environment.

As part of the project in relation to other services and partners, its mission will focus on environmental monitoring in particular with regard to verification of compliance with environmental clauses in the ESMP. DEEC has a regional bureau in Fatick.

#### National Agency for Aquaculture (ANA)

The ANA has as a mission to contribute to the development of aquaculture by providing professional guidance, and specific support necessary for sustainable development of aquaculture activities and the objectives of the National Development Program Aquaculture. Under the project, the ANA is responsible, in synergy with the appropriate structures, to:

- support the development of aquaculture farms (fish and oyster farms);
- educate and mentor the beneficiaries in the different segments of the aquaculture sector;
- strengthen the members of the management committees including the technical, financial, commercial and organizational management capacities;
- monitor the acquisition and distribution of equipment and materials for aquaculture (boots, gloves, etc.) to beneficiaries;
- ensure regular monitoring of the water quality on sites.

The ANA has a regional bureau in Fatick.

#### Regional Forestry Department

The main role and responsibilities of Forestry department will be to:

- Support the identification of degraded sites, evaluate the material resources (especially equipment), human and financial need, and develop a response plan;
- To evaluate the amount of planting material (propagules) necessary and identify sampling sites;
- Contribute to raising awareness and strengthening the operational capacities of reforestation;
- Ensure the effective empowerment of the people and the local community in the development of forest products;
- Evaluate at the end of each year the reforestation campaign, in collaboration with the local council, the people and the 'Project Management Unit';
- Deliver permits movement of forest products at the request of the village and prior approval of the City Council;
- The intervention the department is provided throughout the process. At the end of the project it is expected a significant role in this service business sustainability process;
- Establish a monitoring mechanism participatory evaluation and sustainability.

The Forestry Department has a bureau at the departmental level (Foundiougne) and district level (Niodior).

#### Regional Directorate of Rural Development (DRDR) and its Rural Engineering Section

The DRDR is responsible for putting in place a coherent framework for strategic planning, management and monitoring and evaluation of agricultural policies, strategies and programs at regional level. It promotes agricultural diversification, identification and development of promising agricultural sectors.

Under the project, the DRDR role will be to:

- Ensure the availability of inputs, including rice seed and fertilizer;
- Ensure the establishment of standby arrangements and intervention for good plant protection;
- Contribute to the training and supervision of populations;

Through its rural engineering section, it will be responsible for monitoring and control of dike rehabilitation;

- To support the formulation of a plan of management and maintenance of the dikes;
- To train the members of the management and maintenance committees;
- To monitor the management and maintenance of the dikes.

#### Regional Health Department and Regional Medical Service

The medical area is dedicated to the control, technical coordination and continuous training of regional health structures.

Under the project, the expected activities of the Regional Medical Service are:



- Collection and provision of relevant information to define a strategy if necessary to prevent population from diseases, especially those related to awareness campaign HIV-AIDS or STD;
- Contribute to define and implement a Communication, Information and Education Health program;
- Contribute to the establishment of a participatory monitoring and evaluation system.

The Regional Medical Service has a bureau on departmental (health district), district and communal levels.

#### ❖ **Services Providers**

##### Companies

It is essentially the companies in charge of the rehabilitation of dikes. Their responsibilities can be in terms of: (i) overall compliance with their commitments; (ii) the commitments concerning the implementation of environmental and social measures; (iii) provision of reports and other documents required integrating the management of environmental and social measures; (iv) compliance with all the environmental and social requirements attached to the ESMP.

##### Consultant

The project will use consulting services for the implementation of certain activities (specific studies or review of local development plan). These interventions must consider the measures defined in the ESMP.

**Table 4 : Responsible to implement each mitigation measure**

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement	
					Responsible	Structures to involve
<i>Compliance with the Law</i>	<ul style="list-style-type: none"> <li>- Environmental and social harms</li> <li>- Challenging measures aiming at a sustainable use of natural resources</li> <li>- Child labor and work related accidents</li> </ul>	<ul style="list-style-type: none"> <li>Dikes rehabilitation</li> <li>Fish and oyster farming</li> <li>Reforestation</li> <li>Local Planning</li> </ul>	<ul style="list-style-type: none"> <li>- Identify and implement relevant safeguard measures</li> <li>- Associate relevant local authorities (Municipal Council and Sub-Prefect)</li> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Enforce relevant labor regulations</li> <li>- Prohibit any kind of</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake an ESIA and ensure a sound implementation of the associated ESMP</li> <li>- CSE and the PMU will ensure that relevant local authorities (sub-prefect, municipality) be informed in written prior to the launch</li> <li>-CSE and the PMU will ensure that the company will provide all relevant protection equipment and will conduct awareness campaign about the risks by including that measure in the technical specifications</li> <li>- CSE and the PMU will ensure that children will not be</li> </ul>	<ul style="list-style-type: none"> <li>-Executing entities</li> <li>- PMU</li> <li>- Civil engineering company</li> </ul>	<ul style="list-style-type: none"> <li>- Local representation of the Directorate of Environment (DREEC)</li> <li>- Local steering committee</li> <li>- Municipality</li> <li>- Local steering</li> </ul>

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement	
					Responsible	Structures to involve
			child labor	employed for the project's activities and this measure will be included in the convention with the executing entities and the service providers		committee - Municipality
<i>Access and Equity</i>	-Conflicts regarding the distribution of the rice plots and equipment -Conflicts during the selection of the members of committees or the beneficiaries of trainings	Rice growing activity  Capacity building  Establishment of the management committees	-Choose the beneficiaries of the capacity building sessions, the rice plots and the member of the management committees in a participative way in collaboration with the local and traditional authorities.	Set up a local committee in charge to oversee the distribution of the project's asset and the access to the project's benefits	PMU	Executing entities  Local Authorities
<i>Marginalized and Vulnerable Groups</i>	None					
<i>Human Rights</i>	None					
<i>Gender Equity and Women's Empowerment</i>	- Non integration of the women in the decision making bodies (infrastructure,	Implementation of the management committees	- Establish a quota for women in all decision-making bodies -Organize women	- Breakdown the M&E indicators based on gender  Executing entities will	PMU	Local authorities  Women organization

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement	
					Responsible	Structures to involve
	forest products management committees, steering committee for the local convention)		specific consultations for all decision-making processes where they might be embarrassed to talk before men	used gender based approaches during consultative processes		
<i>Core Labour Rights</i>	<ul style="list-style-type: none"> <li>- Accidents</li> <li>- Bad working conditions</li> <li>- Child labor</li> </ul>	<p>Rehabilitation of the dikes</p> <p>Aquaculture installation</p>	<ul style="list-style-type: none"> <li>- Provide protection equipment to avoid accident</li> <li>- Conduct awareness campaign for the workers about the risks of accidents</li> <li>- Respect all the labor regulations</li> <li>- Forbid each kind of child labor</li> </ul>	<p>-CSE and the PMU will ensure that the company will provide all relevant protection equipment and will conduct awareness campaign about the risks by including that measure in the technical specifications</p> <p>- CSE and the PMU will ensure that children will not be employed for the project's activities and this measure will be included in the convention with the executing entities and the service providers</p>	<p>Civil engineering company</p> <p>ANA</p>	PMU
<i>Indigenous</i>	None					

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement	
					Responsible	Structures to involve
<i>Peoples</i>						
<i>Involuntary Resettlement</i>	-Involuntary resettlement of economic activities (temporary stop of shellfish resources exploitation) due to biological rest	Preparation of local convention	-Propose alternative economic alternative (beekeeping is proposed)	CSE and the PMU will ensure the effective implementation of beekeeping	<u>PMU</u>	<u>Management committees</u> <u>Forestry department</u>
<i>Protection of Natural Habitats</i>				None		
<i>Conservation of Biological Diversity</i>				None		
<i>Climate Change</i>				None		
<i>Pollution Prevention and Resource Efficiency</i>	- Accidental spills - Increase of the organic matter (overproduction of organic waste from due to uncontrolled fish density) - Waste	Rehabilitation of the dikes	- Develop a waterproof - Maintain regularly the concrete mixer - Analyze the water quality (for the fish cages) - Build new cages to transfer the overpopulation - Develop and implement a waste management plan	- CSE and the PMU will ensure that the specifications of the company will include the installation of the waterproof space and that the concrete mixer will be maintain regularly - CSE will be responsible for overseeing the implementation of the ESMP and	Civil engineering company	ANA PMU

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement	
					Responsible	Structures to involve
		Aquaculture farms  Each activity of the project		ensure that ANA and all the structures involved will provide the water quality analysis reports and will implement the necessary measures to avoid excessive fish in the cages - CSE will ensure that the waste management plan is developed and implemented effectively		
<i>Public Health</i>	<ul style="list-style-type: none"> <li>- Outbreak of sexually transmitted infections, including HIV/AIDS</li> <li>- Accidents or Falls or drowning</li> <li>- Ocular or respiratory diseases</li> </ul>	<ul style="list-style-type: none"> <li>Rehabilitation of the dikes</li> <li>Rice growing activity and aquaculture farms</li> </ul>	<ul style="list-style-type: none"> <li>- Sensitization of workers and populations (through the environmental and social management plan)</li> <li>- Provide protective equipment (life jackets, lifebelts) for the operators of the aquaculture sites and rice plots</li> <li>- Provide protective equipment to the workers (for the rehabilitation of the dikes)</li> </ul>	<ul style="list-style-type: none"> <li>- CSE and the PMU will ensure that the specifications of the company will include awareness the workers about STDs, HIV-AIDS, the provision for the protective equipment and the watering of the sites</li> <li>- CSE will validate the list of future beneficiaries and participate in the distribution of protective equipment</li> </ul>	Civil engineering company	ANA PMU Health department

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement	
					Responsible	Structures to involve
			- Water regularly the sites (dikes and borrowing sites) to avoid the dust takeoffs	(life jackets, lifebelts, etc.)		
<i>Physical and Cultural Heritage</i>	- Removal of material from the shell mound considered as historical site	Dikes rehabilitation	- Excluded the Ndiamon-Badat shell mound from areas of extraction	-The PMU will develop an awareness campaign towards the project's stakeholders about the status of the Ndiamon-Badat shell mound -Local steering committee and the PMU will ensure the follow up of the mesure of exclusion	PMU	Local steering committee Local authorities
<i>Lands and Soil Conservation</i>	- Fertilizers and pesticide used in rice cultivation cause soil chemical degradation	Rice growing activity	- Develop and implement a pesticide management plan	-CSE will include in its report of monitoring and supervision, the implementation of the fertilizer and pesticide management plan (effective implementation, action plan, results and soil and water salinity results)	Agriculture department	PMU Management committees

#### 5.3.4. COSTS ASSOCIATED TO THE MITIGATION MEASURES

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The Environmental and Social Management Plan (ESMP) includes two categories of measures:

- measures to insert as contractual measures and that the financial evaluation will be considered by the companies when they are setting their prices (see annex on the clauses).
- environmental measures (compensatory reforestation, awareness, oversight and monitoring, etc.) and which need an financial estimation.

The costs associated to the Environmental and Social Management Plan are estimations which have been done on the basis of:

- costs applied on the market for the realization of certain activities such as: Pest and Pesticides Management Plan, Waste Management Plan, etc.; and
- costs that may result from field mission.

Most mitigation measures are not subject to additional costs. Indeed, mitigation measures which implementation does not require additional cost are measures for which the implementation costs are already included in the activity.



**Table 5: Cost associated to the implementation of the ESMP**

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Compliance with the Law</i>	- Environmental and social harms	Dikes rehabilitation	- Identify and implement relevant safeguard measures	- Undertake an ESIA and ensure a sound implementation of the associated ESMP	-Executing entities	- Local representation of the Directorate of Environment (DREEC)	No cost associated
	- Challenging measures aiming at a sustainable use of natural resources	Fish and oyster farming	- Associate relevant local authorities (Municipal Council and Sub-Prefect)	- CSE and the PMU will ensure that relevant local authorities (sub-prefect, municipality) be informed in written prior to the launch	- PMU		No cost associated
	- Child labor and work related accidents	Reforestation Local Planning	- Provide protection equipment to avoid accident  - Conduct awareness campaign for the workers about the risks of accidents  - Enforce relevant labor regulations	-CSE and the PMU will ensure that the company will provide all relevant protection equipment and will conduct awareness campaign about the risks by including that measure in the technical	- Civil engineering company	- Local steering committee  - Municipality	Included in the activity's budget

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
			- Prohibit any kind of child labor	specifications - CSE and the PMU will ensure that children will not be employed for the project's activities and this measure will be included in the convention with the executing entities and the service providers		- Local steering committee - Municipality	No cost associated
<i>Access and Equity</i>	-Conflicts regarding the distribution of the rice plots and equipment -Conflicts during the selection of the members of committees or the beneficiaries of trainings	Rice growing activity  Capacity building  Establishment of the management committees	-Choose the beneficiaries of the capacity building sessions, the rice plots and the member of the management committees in a participative way in collaboration with the local and traditional authorities.	Set up a local committee in charge to oversee the distribution of the project's asset and the access to the project's benefits	PMU	Executing entities  Local Authorities	Included in activities' budget
<i>Marginalized and Vulnerable Groups</i>	None						

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Human Rights</i>	None						
<i>Gender Equity and Women's Empowerment</i>	- Non integration of the women in the decision making bodies (infrastructure, forest products management committees, steering committee for the local convention)	Implementation of the management committees	- Establish a quota for women in all decision-making bodies -Organize women specific consultations for all decision-making processes where they might be embarrassed to talk before men	- Breakdown the M&E indicators based on gender  Executing entities will used gender based approaches during consultative processes	Excuting entities	Women organization	Cost included in the activity's budget
<i>Core Labour Rights</i>	- Accidents - Bad working conditions - Child labor	Rehabilitation of the dikes  Aquaculture installation	- Provide protection equipment to avoid accident  - Conduct awareness campaign for the workers about the risks of accidents  - Respect all the labor regulations  - Prohibit any kind of child labor	-CSE and the PMU will ensure that the company will provide all relevant protection equipment and will conduct awareness campaign about the risks by including that measure in the technical specifications  - CSE and the PMU will ensure that children will	Civil engineering company  ANA	PMU	No cost associated (included in the activity's budget)

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
				not be employed for the project's activities and this measure will be included in the convention with the executing entities and the service providers			
<i>Indigenous Peoples</i>	None						
<i>Involuntary Resettlement</i>	-Involuntary resettlement of economic activities (temporary stop of shellfish resources exploitation) due to biological rest	Preparation of local convention	-Propose alternative economic alternative (beekeeping is proposed)	CSE and the PMU will ensure the effective implementation of beekeeping	PMU	Management committees Forestry department	Included in the activity's budget
<i>Protection of Natural Habitats</i>	None						
<i>Conservation of Biological Diversity</i>	None						
<i>Climate Change</i>	None						

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
<i>Pollution Prevention and Resource Efficiency</i>	- Accidental spills	Rehabilitation of the dikes	- Develop a waterproof space -Maintain regularly the engine	- CSE and the PMU will ensure that the specifications of the company will include the installation of the waterproof space and that the engine will be maintain regularly	Civil engineering company	PMU	Included in the activity's budget
	- Increase of the organic matter (overproduction of organic waste from due to uncontrolled fish density)	Aquaculture farms	- Analyze the water quality (for the fish cages) - Build new cages to transfer the overpopulation	- CSE will be responsible for overseeing the implementation of the ESMP and ensure that ANA and all the structures involved will provide the water quality analysis reports and will implement the necessary measures to avoid excessive fish in the cages	ANA	PMU	20,000 (to control the water quality and construct new cages)
	- Waste	Each activity of the project	- Develop and implement a waste	- CSE will ensure that the waste	Executing entities	PMU	2,500 (for the waste)

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
			management plan	management plan is developed and implemented effectively			management plan of the whole project)
<i>Public Health</i>	<ul style="list-style-type: none"> <li>- Outbreak of sexually transmitted infections, including HIV/AIDS</li> <li>- Accidents</li> <li>- Falls or drowning</li> <li>- Ocular or respiratory diseases</li> </ul>	<p>Rehabilitation of the dikes</p> <p>Rice growing activity and aquaculture farms</p>	<ul style="list-style-type: none"> <li>- Sensitization of workers and populations (through the environmental and social management plan)</li> <li>- Provide protective equipment (life jackets, lifebelts) for the operators of the aquaculture sites and rice plots</li> <li>- Provide protective equipment to the workers (for the rehabilitation of the dikes)</li> <li>- Water regularly the sites (dikes and borrowing sites) to avoid the dust takeoffs</li> </ul>	<ul style="list-style-type: none"> <li>- CSE and the PMU will ensure that the specifications of the company will include awareness the workers about STDs, HIV-AIDS, the provision for the protective equipment and the Watering of the sites</li> <li>- CSE will validate the list of future beneficiaries and participate in the distribution of protective equipment (life jackets, lifebelts, etc.)</li> </ul>	Civil engineering company	ANA PMU Health department	Included in the activity's budget
<i>Physical and Cultural Heritage</i>	- Removal of material from the shell mound	Dikes rehabilitation	- Excluded the Ndiamon-Badat shell mound from	-The PMU will develop an awareness	PMU	Local steering committee Local authorities	Included in the budget for activity 3.3

Principles	Potential risk	Activities	Requirement	Management	Implementation of the requirement		
					Responsible	Structures to involve	Cost (USD)
	considered as historical site		areas of extraction	campaign towards the project's stakeholders about the status of the Ndiamon-Badat shell mound -Local steering committee and the PMU will ensure the follow up of the mesure of exclusion			
<i>Lands and Soil Conservation</i>	- Fertilizers and pesticides used in rice cultivation as well as in the preparation of rice plots can cause soil chemical degradation	Rice growing activity	- Develop and implement a pesticide and fertilizer management plan	-CSE will include in its report of monitoring and supervision, the implementation of the fertilizer and pesticide management plan (effective implementation, action plan, results and soil and water salinity results)	Agriculture department	PMU Management committees	<u>30,000</u>
<b>TOTAL</b>							<b>52,500</b>

## **VI. ENVIRONMENTAL OVERSIGHT AND MONITORING PLANS**

### **6.1. ENVIRONMENTAL OVERSIGHT PLAN**

Environmental oversight is intended to ensure compliance of: (i) measures proposed in the environmental and social diagnosis, including mitigation measures; (ii) the conditions established in the Environmental Code and others regulatory texts related to ESIA; (iii) commitments to the authorities; (iv) the requirements for other laws and regulations on hygiene and public health, living environment, environmental protection and natural resources. Environmental oversight will also cover the construction and the operational phase.

The oversight activities include field missions at the beginning, during works completion. This activity is part of the project proponent responsibility, but it can associate the provincial service of Environment. The table below is a summary of the oversight elements.



Table 6: Summary of environmental oversight elements

COMPONENT	ACTIVITY	OUTPUTS	ELEMENT TO OVERSEE	TIMETABLE / FREQUENCY	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
COMPONENT 1	Aquaculture	Implementation of an oyster farm	Ensure proper waste management for each phase	The whole project lifespan	ANA	RMC PMU	1192
		Implementation of a fish farm with floating cages	Ensure proper waste management for each phase	The whole project lifespan	ANA	RMC PMU	
		Strengthen the actors' capacities on fish and oyster farming techniques	Ensure the application of the environmental clauses	At the beginning, during and at the end (each step)	PMU	ANA RMC	1 191
			Check the effectiveness of the training sessions	At the end of the training sessions	PMU	DEEC RMC	
		Implement farm management plan	Ensure the effectiveness of the management plan and the integration of the environmental clauses and gender aspect into it	At the beginning of the activity	ANA	PMU RMC	700
		Endowment (boots, gloves, safety jacket, etc.)	Check the effectiveness of the endowment	At the beginning of the activity	ANA	PMU	492
COMPONENT 2	Extension and rehabilitation of the dikes to fight against flooding	Rehabilitation and extension of the dikes	Check the effectiveness of the waste management plan Check the involvement of the women and youth in the works, respect of labour right especially with regards on child work, etc.	During the activity	Agriculture Department (Section Rural Engineering)	RMC PMU	1050
		Preparation of a maintenance guide	Check the efficiency of the guide's use and the integration of environmental clauses into it	During and at the end of the activity	Agriculture Department (Section Rural Engineering)	RMC PMU	Included in the activity's budget
	Development of rice plots at Djimsane	Development of rice plots	Ensure the respect and application of environmental clauses	At the beginning and during the activity	PMU	RMC	2 450
		Implement a management committee	Ensure that the committee includes gender aspect	At the beginning and during the activity	PMU	RMC	

COMPONENT	ACTIVITY	OUTPUTS	ELEMENT TO OVERSEE	TIMETABLE / FREQUENCY	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
<b>COMPONENT 3</b>	Review and update of the PCD	Integrate climate change aspects into the PCD	Ensure effectiveness of the integration of climate change aspects into the PCD	At the beginning and during the activity	PMU	ARD	Included in the activity's budget
	Preparation of a local convention for natural resources management	Implement a local convention to better regulate the use of forest products and to respect the biological recovery period of the fish products	Ensure the implementation of the local convention	At the beginning and during the activity	PMU	RMC ARD	Included in the activity's budget
			Ensure the implementation of alternative activities (such as apiculture)	At the beginning and during the activity	PMU	RMC Forestry Department	4,480
	Sharing the lessons learned from the project	Sharing the project's activities	Check the existence of a lessons learned sharing report	At the end of the activity	PMU	ARD	Included in the activity's budget
<b>TOTAL</b>							<b>11,555</b>

## 6.2. ENVIRONMENTAL MONITORING PLAN

Monitoring the implementation of the ESMP will be provided by the Directorate of Environment and Classified Establishments of the Ministry of Environment and Sustainable Development (DEEC / MEDD). The monitoring indicators will assist in the implementation of mitigation measures, monitoring and evaluation of the entire project to assess the effectiveness of its activities.

The technical support will be provided by:

- ❖ The National Agency for Aquaculture (ANA) for aquaculture activities;
- ❖ The Water and Forest Service for reforestation;
- ❖ The Rural Development Department with its Rural Engineering Section for monitoring and control of rehabilitation of the dikes;
- ❖ The Rural Development Department for rice growing activity.

All the monitoring measures and their indicators will be included in the general monitoring and evaluation plan of the project which will be develop during the first month of the beginning of the project.

Table 7: Summary of the environmental monitoring elements

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
COMPONENT 1	Aquaculture	Implementation of an oyster farm	Monitoring of the physicochemical and bacteriological parameters of the oyster farm's site	Number of analysis report	Physicochemical (temperature, turbidity, oxygene, pH) and bacteriological analysis report	12	Before the works and every 3 months after installing	ANA	PMU RMC	6,590
		Implementation of a fish farm with floating cages	Monitoring of the physicochemical and bacteriological parameters of the fish farm's site	Number of analysis report	Physicochemical (temperature, turbidity, oxygene, pH) and bacteriological analysis report	12	Before the works and every 3 months after installing	ANA	PMU RMC	6,590
		Strengthen the actors' capacities on fish and oyster farming techniques	Monitoring the selection of beneficiaries taking into account gender aspects	Number of Economic Interest Group trained and involved in the management committees	Training session report	18	At the time of planning, and during the implementation of the capacity building plan	PMU		FTR
		Implement farm management plan	Monitoring the implementation of the farm management plan including environmental clauses	Number of management plan realized	Management plans	2	Throughout the project	ANA	PMU	2 450

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
		Endowment (boots, gloves, safety jacket, etc.)	Check of the technical specifications of the equipment	Quality of the equipment	Receipt	200	Upon receipt of the equipment	PMU	ANA	FTR <sup>3</sup>
<b>COMPONENT 2</b>	Extension and rehabilitation of the dikes to fight against flooding in Dionewar	Rehabilitation and extension of the dikes	Monitoring the respect of labor rights especially with regard to child labor	Percentage of minor included in the works	Attendance list	0	During the activity	PMU	RMC	FTR
	Infrastructure management	Preparation of a maintenance guide	Monitoring the implementation of the maintenance guide	Number of visit	Inspection report	4	Before and after the rainy season	AGRICULTURE DEPARTMENT (SECTION RURAL ENGINEERING)	RMC PMU	FTR
		Project's activities	Monitoring of the health information and communication program's implementation	Number of realized awareness campaign	Awareness campaign report	8	Once a month during the four months of the rainy season	Health Regional Service	PMU	FTR
	Development of rice plots at Djimsane	Rehabilitation of the dike	Monitoring the water quality (drain water): physicochemical parameters such as pH, temperature, conductivity) Monitoring soil quality upstream	Number of water and soil quality analysis	Water and soil quality analysis report	6	Twice yearly (right after the rainy season and after dry season)	AGRICULTURE DEPARTMENT (SECTION RURAL ENGINEERING)	RMC	25,740

<sup>3</sup> FTR : For The Record

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
			and downstream of the dike (pH, salinity and sodium concentrations, etc.)							
		Development of rice plots	Monitoring of the implementation of the Pesticide management plan	Number of realized analysis	Water quality analysis report	6	Before and after the rainy season	DRDR	RMC	
<b>COMPONENT 3</b>	Review and update of the PDC	Integrate climate change aspects into the PDC	Monitoring the implementation of the PDC with the climate change aspects	Number of monitoring field mission	Field mission report	9	Quarterly during the project lifespan	PMU	RMC ARD	FTR
	Preparation of a local convention for natural resources management	Implement a local convention to better regulate the use of forest products and to respect the biological recovery period of the fish products	Monitoring the implementation of the local convention	Number of monitoring field mission	Field mission report	9	Quarterly during the project lifespan	PMU	RMC ARD	FTR
			Monitoring the implementation of the alternative activities	Number of monitoring field mission	Field mission report	6	Quarterly during the last two years	PMU	RMC Forestry Department	3,220
	Sharing the lessons learned from the project	Sharing the project's activities	Monitoring the process of sharing the project's activities	Effectiveness of the sharing lessons learned report	Sharing lessons learned report	2	Mid-term and at the last semester of the project	CSE	RMC	FTR
Number of workshops				Workshop report	3					

COMPONENT	ACTIVITY	OUTPUT	MONITORING PARAMETERS	INDICATORS	Means of verification	Targets	TIMETABLE	PRINCIPAL RESPONSIBLE	STRUCTURES TO INVOLVE	COSTS (USD)
<b>TOTAL</b>										<b>44,590</b>

The costs of the ESMP is estimated at 108 645 USD with 11 555 USD for environmental oversight and 44 590 USD for environmental monitoring.

## **VII. PUBLIC CONSULTATION**

Several public consultation missions have been organized since the project formulation. The main steps are:

- Recognition and contact making mission with populations, local and administrative authorities have been organized in October 2013 for a better appreciation of the raised issues. During the mission talks were made with the chief of the village, the president of the rural community, the project sponsor, the president of the Association of women processors, traditional authorities, women's groups, fishermen, etc.
- A second mission with CSE and ANA has been organized from 6 to 10 December 2013 in Dionewar. The aim was firstly, to meet the beneficiaries (particularly women's economic groups) and secondly to prospect the sites which will host the infrastructures and the fish and oyster farms.
- Mission for stakeholder analysis and development of an engagement plan, including community mobilization strategy have been organized from 18 to 20 November 2015. The goal of the mission was to meet the local community and technical services.
- A mission to study and analyze the vulnerability of Dionewar has been conducted. The main purpose of the mission was to identify with the population, the administrative and local authorities the vulnerability of the village.
- A last mission has been conducted from 13 to 20 January 2016 in order to do an Environmental and Social Impact diagnosis (see attached report).. Meetings with administrative and local authorities, populations, technical services have been conducted.
- During these missions, participatory consultations with stakeholders have confirmed the options and the orientation to implement the project.

## **VIII. CONCLUSION**

In terms of location of the sites (farms, rice fields) and infrastructure rehabilitation (dikes), the project will not require special protective measures or special activities to monitor. It will not be necessary to expropriate houses to complete the works. Nuisance during the construction phase will be low on natural resources (including courses existing water, soil, and air), low on the quality of life and on the economic activities. One could also fear the risk of accidents during construction. However, the effects will be easily controlled if the measures of the ESMP are applied and strictly observed.

Given the negligible overall appearance of the potential negative impacts in relation to the importance of the positive effects of the project, it can be inferred that the environmental feasibility of the project is very significant in terms of durability. If the environmental and social measures are taken into account during the implementation of the activities, the identified negative impacts will be a widely acceptable level in terms of generated socioeconomic benefits.



## **IX. ANNEXES**

### **ANNEXE 1 : ENVIRONMENTAL CLAUSES TO INCLUDE IN THE CONTRACTS**

The company in charge of the works must include the following elements in its prices.

The following prior arrangements must be made for the execution of works.

#### **❖ *Compliance with national laws and regulations:***

The company shall: (i) know, respect and apply the laws and regulations in Senegal and on the environment, all regulations on solid and liquid waste, the rejection and noise standards, working hours , etc. .; (li) take all appropriate measures to minimize environmental damage; (lii) assume responsibility for any claims related to non-compliance.

#### **❖ *Permits and authorizations before work***

Any construction works must be subject to prior information procedure and administrative permissions. Before starting work, the company shall obtain all necessary permits for carrying out the work under the contract: permits issued by local authorities, forest services (in case of deforestation, pruning, etc.) mining services (in case of quarrying and borrow sites), the hydraulic services (when using public water points), the labor inspection, network managers, etc. Before starting work, the company shall consult with neighbors with which it can make arrangements to facilitate the progress of projects.

#### **❖ *Start Meeting of work***

Before starting the works, the company shall organize meetings with the authorities, the representatives of the populations in the project area and the relevant technical services, to inform them of the consistency of the required works and their duration. The meetings will allow the company to obtain the observations and concerns of the population, make them aware of the environmental and social issues.

## ANNEXE 2 : ENVIRONMENTAL AND SOCIAL REQUIREMENTS

<ul style="list-style-type: none"><li>❖ Information and awareness</li></ul>
<b>Construction of facilities for sites requiring civil works</b> <ul style="list-style-type: none"><li>❖ Preparation</li><li>❖ Sanitary facilities and drinking water</li><li>❖ Security Installations</li></ul>
<b>Personnel protective equipment for sites requiring civil works</b> <ul style="list-style-type: none"><li>❖ Boots, gloves, helmets, masks, etc.</li><li>❖ Medicine Box of first aid / accident</li></ul>
<b>Signaling the site and work</b> <p>This item covers work and services related to the installation of the panels and the demarcation of work sites</p>
<b>Protective measures during transportation of equipment and materials</b> <ul style="list-style-type: none"><li>❖ Cover the carts</li><li>❖ Minimize dust emissions</li></ul>
<b>Workers awareness</b> <p><b><i>This item includes the following activities and services:</i></b></p> <ul style="list-style-type: none"><li>❖ Awareness of the importance of environmental protection;</li><li>❖ Awareness on safety and hygiene at work;</li><li>❖ Distribution protective equipment for safety (boots, gloves, helmets, etc.) for construction sites involved in civil works.</li></ul>

## Autres infos à collecter sur le terrain/ site

**Digue** : NDIAR

Situation actuelle des différentes digues:.....

Longueur actuelle des digues : 266.74 m

Evaluer le matériau de construction des digues : Amas coquilles

Apprécier leur consistance : Résistant

Mise en forme du linéaire de digue déjà en place : Trapézoïdale

Identifier et caractériser les évacuateurs en place :en PVC

Distance des dégradations à recharger :.....

Niveau du compactage : à améliorer

Linéaire restants non exécutés s'il y a lieu : néant

La finalisation du linéaire restant non exécuté : néant

La prospection des matériaux :.....

Autres observations ou problèmes constats :

Recommandations des populations : Même recommandation que l'Ecole 2

Coordonnées GPS : 13° 53' 17.49" N 16° 43' 36.37" W

Profondeur fondation :.....

## Autres infos à collecter sur le terrain/ site

**Digue** : ECOLE 2

Situation actuelle des différentes digues:.....

Longueur actuelle des digues : 767.20 m

Evaluer le matériau de construction des digues : Amas Coquilles

Apprécier leur consistance : Résistant

Mise en forme du linéaire de digue déjà en place : Digue de forme Trapézoïdale

Identifier et caractériser les évacuateurs en place : en PVC d 400 et 200

Distance des dégradations à recharger :.....

Niveau du compactage : à améliorer

Linéaire restants non exécutés s'il y a lieu : néant

La finalisation du linéaire restant non exécuté : néant

La prospection des matériaux :.....

Autres observations ou problèmes constatés : Parfois l'eau dépasse la crête

Recommandations des populations : augmentation des diamètres de pvc pour permettre une rapide évacuation des eaux pouvant atteindre les cimetières

Coordonnées GPS : 13° 53' 10.78659" N    16° 43' 36.64871" W

Profondeur fondation :.....

## Autres infos à collecter sur le terrain/ site

**Digue** : NDIOUNDIOURE

Situation actuelle des différentes digues:.....

Longueur actuelle des digues : 137.65 m

Evaluer le matériau de construction des digues : mélange de sable et de coquilles

Apprécier leur consistance :

Mise en forme du linéaire de digue déjà en place :

Identifier et caractériser les évacuateurs en place : Buse D400

Distance des dégradations à recharger : Rechargement sur toute la longueur

Niveau du compactage : Faible , digue détruite, absence de compactage

Linéaire restants non exécutés s'il y a lieu : néant

La finalisation du linéaire restant non exécuté : néant

La prospection des matériaux :.....

Autres observations ou problèmes constats : Digue détruite

Recommandations des populations :.....

Coordonnées GPS : 13° 52' 53.52056" N      16° 43' 48.77735" W

Profondeur fondation :.....

## Autres infos à collecter sur le terrain/ site

**Digue** : ILE DE DJIMSANE

Situation actuelle des différentes digues:.....

Longueur actuelle des digues : 1754.00 m

Evaluer le matériau de construction des digues : argile

Apprécier leur consistance : résistant

Mise en forme du linéaire de digue déjà en place : Digue en forme trapézoïdale

Identifier et caractériser les évacuateurs en place : ouvrage en béton

Distance des dégradations à recharger : Toute la longueur

Niveau du compactage : bon

Linéaire restants non exécutés s'il y a lieu : néant

La finalisation du linéaire restant non exécuté : néant

La prospection des matériaux : non effectuée

Autres observations ou problèmes constatés : R.A.S

Recommandations des populations : R.A.S

Coordonnées GPS : 13° 57' 42.88370" N    16° 43' 48.63183" W

Profondeur fondation : 0.20 cm

## CODE DU TRAVAIL

### *Sénégalais*

cutoire pour les parties sur lesquelles un accord est intervenu et procès-verbal de non-conciliation pour le surplus de la demande.

Article L.253 - En cas de non-conciliation, ou pour la partie contestée de la demande, le président déclare ouverte la phase contentieuse de la procédure et avertit les parties de la date de l'audience, s'il estime que l'affaire peut être jugée en l'état.

S'il échet, le président met le dossier en état. A cette fin, il ordonne, même d'office, toute expertise, toute enquête, toute production de document et, plus généralement, toute mesure d'information utile.

Dans les cas urgents, le président peut, à tous les stades de la procédure, ordonner par provision telles mesures nécessaires, notamment pour empêcher que les objets qui donnent lieu à une réclamation ne soient enlevés, ou déplacés ou détériorés. Quand il estime que l'affaire est en état d'être jugée, le président du tribunal renvoie la cause devant la juridiction et cite les parties pour la première audience utile.

Article L.254 - Le président donne connaissance aux assesseurs de l'objet du litige ainsi que des arguments des parties et, plus généralement, de tous les éléments du dossier. Il dirige les débats.

Le tribunal peut, par jugement motivé, ordonner, même d'office, toute enquête, descente sur les lieux, comparution personnelle des parties, ainsi que tout constat ou expertise.

Il peut déléguer le président pour exécuter les enquêtes ou les descentes sur les lieux, ordonnées par lui-même ou par le président.

Article L.255 - Les agents des services du travail et de la sécu-

rité sociale ne peuvent être commis en qualité d'experts par les tribunaux du travail.

Article L.256 - Dès la clôture des débats, le tribunal délibère immédiatement en secret. Le jugement est rédigé sur l'heure et l'audience reprise pour sa clôture.

Lorsque l'affaire nécessite un délibéré prolongé, le président doit donner avis aux parties de la date à laquelle le jugement sera rendu.

Cette date doit être celle de la prochaine audience de la même section, sans que la durée du délibéré puisse excéder quinze jours.

Les jugements sont pris à la majorité des membres présents. En cas de radiation d'un des assesseurs, la voix du président est prépondérante.

Les jugements doivent être motivés et lus en audience publique.

Article L.257 - Dans tous les cas d'urgence, la formation de référé peut, dans la limite de la compétence des tribunaux du travail, ordonner toutes les mesures qui ne se heurtent à aucune contestation sérieuse ou que justifie l'existence d'un différend.

La formation de référé peut toujours, même en présence d'une contestation sérieuse, prescrire les mesures conservatoires ou de remise en état qui s'imposent, soit pour prévenir un dommage imminent, soit pour faire cesser un trouble manifestement illicite.

Dans le cas où l'existence de l'obligation n'est pas sérieusement contestable, elle peut accorder une provision au créancier ou ordonner l'exécution de l'obligation, même s'il s'agit d'une obligation de faire.

Article L.258 - La demande en référé est introduite conformément aux dispositions de l'alinéa

1 de l'article L.242. Les délais prévus à l'article L.243 peuvent être abrégés.

S'il apparaît au président, statuant en référé, que la demande excède ses pouvoirs et lorsque cette demande présente une particulière urgence, il peut, après avoir procédé à une tentative de conciliation en audience non publique, renvoyer l'affaire devant la section compétente du tribunal du travail.

Dans ces cas, la notification aux parties de l'ordonnance de référé mentionne la date de l'audience du tribunal du travail et vaut citation.

Le délai d'appel de l'ordonnance de référé est de 15 jours. L'appel est formé, instruit et jugé comme il est dit à l'article L.265.

Article L.259 - Les minutes du jugement ou de l'ordonnance de référé sont signées par le président et le greffier.

Elles sont conservées pendant dix ans et reliées chaque année à la diligence du président.

Article L.260 - Le jugement peut ordonner l'exécution immédiate, nonobstant opposition ou appel et par provision, avec dispense de caution, jusqu'à une somme qui ne peut excéder vingt fois le montant mensuel du salaire minimum interprofessionnel garanti.

Pour le surplus, l'exécution provisoire peut être ordonnée à charge de fournir caution.

Cependant l'exécution provisoire pourra jouer sans limite, nonobstant toute voie de recours, et sans versement de caution, lorsqu'il s'agira de salaires non contestés et reconnus comme étant dus.

Copie du jugement, signée par le président et le greffier, doit être remise aux parties sur demande. Mention de cette délivrance, de sa date et de son heure, est faite par le greffier en

## CODE DU TRAVAIL

### *Sénégalais*

marge de la minute du jugement.

Article L.261 - Les jugements par défaut sont signifiés sans frais à la partie défaillante, à personne ou à domicile par le greffier du tribunal ou par agent administratif spécialement commis par le président ou par lettres recommandées avec accusé de réception.

L'opposition est faite dans les formes prévues à l'alinéa 1 de l'article L.242. Elle est recevable dans le délai de dix jours, non compris les délais de distance.

Le délai court de la date de la signification, si elle a été faite à personne ou, dans le cas contraire, du jour où la partie défaillante a pu avoir connaissance du jugement, ou à compter du premier acte d'exécution.

Dans le cas où la signification n'a pas été faite à personne, le jugement est néanmoins exécutoire, à défaut d'opposition ou d'appel, à l'expiration du délai de dix jours, augmenté des délais de distance suivant la signification.

Le jugement rendu sur l'opposition n'est pas susceptible de nouvelle opposition. Il est exécutoire par provision, nonobstant appel.

Article L.262 - Le tribunal statue en premier et dernier ressort, sauf du chef de la compétence, lorsque le chiffre de la demande n'excède pas dix fois le montant mensuel du salaire minimum interprofessionnel garanti ou lorsque la demande tend à la remise, même sous astreinte, de toute pièce que l'employeur est tenu de délivrer, à moins que le jugement ne soit en premier ressort en raison du montant des autres demandes.

Au-dessus du taux précité, les jugements sont susceptibles d'appel devant la cour d'appel.

Article L.263 - Il y a abus de droit d'ester au tribunal du tra-

vail lorsqu'il apparaît que le demandeur a intenté son action uniquement pour nuire au défendeur en l'obligeant à subir les charges d'une défense. Lorsque le tribunal du travail estimera qu'une procédure est abusive de ce chef, le demandeur pourra être condamné à des dommages-intérêts envers le défendeur.

Article L.264 - Le tribunal du travail connaît de toutes les demandes reconventionnelles ou en compensation qui, par leur nature, entrent dans sa compétence. Lorsque chacune des demandes principales reconventionnelles ou en compensation sera dans les limites de sa compétence en dernier ressort, il se prononcera sans qu'il y ait lieu à appel.

Si l'une de ces demandes n'est susceptible d'être jugée qu'à charge d'appel, le tribunal du travail ne se prononcera sur toutes qu'à charge d'appel. Néanmoins, il statuera en dernier ressort si seule la demande reconventionnelle en dommages-intérêts, fondée exclusivement sur la demande principale, dépasse sa compétence en dernier ressort. Il statue également sans appel, en cas de défaut du défendeur, si seules les demandes reconventionnelles formées par celui-ci dépassent le taux de sa compétence en dernier ressort, quels que soient la nature et le montant de cette demande.

Si une demande reconventionnelle est reconnue non fondée et formée uniquement en vue de rendre le jugement susceptible d'appel, l'auteur de cette demande peut être condamné à des dommages-intérêts envers l'autre partie, même au cas où, en appel, le jugement en premier ressort n'a été confirmé que partiellement.

Article L.265 - L'appel est interjeté dans les formes pré-

vues à l'alinéa 1 de l'article L.242.

Le délai d'appel est de quinze jours. Il court du prononcé du jugement si celui-ci est contradictoire et en cas d'itératif défaut.

Toutefois, le délai court à compter du lendemain de la signification à personne ou à domicile contre les parties non représentées ou assistées qui n'étaient pas présentes au prononcé du jugement rendu contradictoirement, lorsque celles-ci n'ont pas été avisées de la date à laquelle le jugement serait prononcé.

A l'égard des jugements par défaut, le délai d'appel court du jour où l'opposition n'est plus recevable.

L'appel est transmis dans la huitaine de la déclaration d'appel à la cour d'appel avec une expédition du jugement et des lettres, mémoires et documents, déposés par les parties ou par l'inspection du travail et de la sécurité sociale.

Lorsque l'appel est formé hors délai, ou contre un jugement qualifié en dernier ressort, le dossier sera transmis dans les quarante-huit heures à la cour, sous bordereau spécial. Celle-ci devra enrôler l'affaire à sa première audience utile.

L'appel est jugé sur pièces. Toutefois les parties peuvent demander à être entendues; en ce cas, la représentation des parties obéit aux règles fixées devant le tribunal du travail. La cour dispose des mêmes pouvoirs que ceux qui sont reconnus au premier juge. Elle peut, notamment, procéder à toute audition utile ou comparution personnelle des parties.

L'arrêt d'appel doit être rendu dans les trois mois de la transmission de la déclaration d'appel à la cour d'appel.

Si elle estime l'appel dilatoire ou abusif, la cour d'appel peut condamner l'appelant à l'amende prévue par l'article 278 du



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code de procédure civile, quelle que soit la nature du jugement confirmé, sans préjudice des dommages-intérêts alloués à l'intimé sur sa demande. L'amende est toujours prononcée en cas de confirmation du jugement rendu susceptible d'appel dans les conditions fixées par le dernier alinéa de l'article L.264.

Article L.266 - La cour de cassation connaît des recours en cassation contre les jugements rendus en dernier ressort et les arrêts de la cour d'appel, dans les formes et conditions prévues par la procédure en vigueur devant la cour de cassation.

Article L.267 - Des décrets déterminent la contexture des registres et les délais de distance.

Article L.268 - Le travailleur bénéficie d'office de l'assistance judiciaire pour l'exécution des décisions rendues à son profit. Lorsque la décision est exécutoire et que le travailleur bénéficiaire ne peut en obtenir l'exécution amiable, il demande au président de faire apposer la formule exécutoire sur la copie qui lui a été délivrée et de commettre un huissier pour poursuivre l'exécution forcée aux frais de l'employeur.

Les décisions en dernier ressort sont notifiées à personne ou à domicile, soit par huissier ou agent administratif commis à la demande de la partie la plus diligente, soit par le greffier directement contre récépissé ou sous lettre recommandée avec accusé de réception.

Article L.269 - Lorsqu'un huissier n'est pas commis conformément à l'article précédent ou lorsque la partie n'est pas représentée par un avocat, l'exécution du procès-verbal de conciliation devant l'inspecteur du travail ou devant le tribunal du tra-

vail ainsi que l'exécution de la décision judiciaire, ne peuvent intervenir qu'en mains propres au profit du travailleur créancier, après vérification de son identité, et sur bulletin de paie spécialement établi, ou par mandat-poste au nom du travailleur intéressé, s'il le demande par écrit.

Lorsque l'une des parties le demande, cette exécution est constatée par procès-verbal de l'inspecteur du travail certifiant la remise des sommes en mains propres au profit du travailleur créancier. Ce procès-verbal est signé par l'inspecteur du travail et par le travailleur créancier ou, s'il est illettré, par deux témoins dont l'un choisi par lui.

Lorsqu'il y a exécution forcée du procès-verbal de conciliation ou de la décision judiciaire au profit d'un travailleur, toute somme ou bien quelconque en provenant ne peuvent être remis qu'en mains propres au bénéficiaire lorsqu'il n'est pas représenté par un avocat. La remise, en violation de ces dispositions, n'est pas libératoire pour la partie condamnée et engage la responsabilité pécuniaire de l'huissier ou de l'agent d'exécution.

Article L.270 - Les dispositions du code de procédure civile seront appliquées à défaut de dispositions particulières prévues au présent code ou aux règlements pris pour son application.

## CHAPITRE II

### DU DIFFEREND COLLECTIF

Article L.271 - Les dispositions du présent chapitre sont applicables aux différends collectifs concernant les travailleurs définis à l'article L.2; elles ne s'appliquent aux tra-

vailleurs des services et établissements publics qu'en l'absence de dispositions législatives ou réglementaires contraires.

Article L.272 - Tout différend collectif doit être immédiatement notifié par la partie la plus diligente :

1) à l'inspecteur du travail lorsque le conflit est limité au ressort d'une inspection régionale du travail et de la sécurité sociale,

2) au directeur général du travail et de la sécurité sociale lorsque le conflit s'étend sur les ressorts de plusieurs inspections régionales du travail et de la sécurité sociale.

Article L.273 - La procédure de conciliation sera celle prévue par la convention collective pour le règlement des différends collectifs.

A défaut de procédure de conciliation prévue par la convention collective, ou en cas d'échec de ladite procédure, l'inspecteur régional du travail ou le directeur général du travail et de la sécurité sociale devra, dans les 48 heures après sa saisine, convoquer les parties.

En cas de conciliation des parties dans les 10 jours qui suivent leur convocation, un procès-verbal en tenant acte est dressé sur le champ par l'inspecteur régional du travail ou par le directeur général du travail et de la sécurité sociale et signé par les parties auxquelles il en est délivré copie.

Dès lors que la conciliation n'a pas été constatée dans ce délai, le lock-out ou la grève déclenchée après un préavis de 30 jours déposé au niveau des syndicats des employeurs ou des travailleurs concernés est licite.

Article L.274 - Le lock-out ou la grève déclenchée en violation des dispositions de l'article précédent est considéré comme illicite.

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Article L.275 - Le lock-out et la grève déclarés illicites entraînent :

1) pour les employeurs, le paiement aux travailleurs des journées de salaire perdu de ce fait et, par jugement du tribunal régional, rendu à la requête du ministre chargé du travail, pendant une période de deux ans, l'inéligibilité aux fonctions de membres des chambres de commerce ou de métiers, l'interdiction de faire partie du conseil économique et social, d'une commission ou d'un conseil consultatif du travail, de la main-d'oeuvre ou de la sécurité sociale et d'un conseil d'arbitrage, et de participer sous une forme quelconque à une entreprise de travaux ou un marché de fourniture pour le compte de l'Etat, d'une collectivité publique ou de sociétés nationales,

2) pour les travailleurs, la perte du droit aux indemnités et aux dommages intérêts prévus en cas de rupture de contrat.

Article L.276 - L'autorité administrative compétente peut, à tout moment, procéder à la réquisition de ceux des travailleurs des entreprises privées et des services et établissements publics qui occupent des emplois indispensables à la sécurité des personnes et des biens, au maintien de l'ordre public, à la continuité des services publics, ou à la satisfaction des besoins essentiels de la nation.

La liste des emplois ainsi définis sera fixée par décret.

L'autorité compétente réglera les conditions et modalités de réquisition des travailleurs occupant les emplois figurant sur la liste prévue à l'alinéa précédent. Elle précisera les cas dans lesquels la notification de la réquisition, faite en principe à personne par ordre de service signé de l'autorité administrative compétente, ou de l'employeur, ou de son représentant, pourra

néanmoins résulter de la publication au journal officiel, de la diffusion radiophonique, ou de l'affichage sur les lieux de travail, d'un décret requérant collectivement et anonymement les travailleurs occupant tout ou partie des emplois énumérés dans la liste préalablement fixée par décret.

En aucun cas, l'exercice du droit de grève ne peut s'accompagner d'occupation des lieux de travail ou de leurs abords immédiats, sous peine des sanctions prévues aux articles L.275 et 279.

## TITRE XIV

### PENALITES

#### CHAPITRE PREMIER

#### DE LA RADIATION

Article L.277 - Tout assesseur du tribunal du travail qui ne sera pas rendu à son poste sur la citation qui lui aura été notifiée recevra une nouvelle citation pour l'audience suivante.

En cas d'absence de l'assesseur à cette audience, le tribunal est considéré comme étant valablement composé et en mesure de siéger.

Par ailleurs, après trois absences successives dûment constatées et non justifiées, le juge prononce la radiation d'un assesseur.

La décision de radiation est notifiée au ministre chargé du travail dont les services compétents procèdent à la désignation d'un nouvel assesseur, dans les mêmes conditions que celles fixées par l'arrêté.

#### CHAPITRE II

#### DES DELITS

Article L.278 - Sera puni d'une amende de 250.000 francs à 1.000.000 de francs et d'un emprisonnement de un mois à un an ou de l'une de ces deux peines seulement, quiconque aura porté atteinte soit à la libre désignation des délégués du personnel, soit à l'exercice régulier de leurs fonctions.

En cas de récidive, dans le délai de trois ans, l'emprisonnement sera toujours prononcé. Les infractions pourront être constatées, soit par l'inspection du travail et de la sécurité sociale, soit par les officiers de police judiciaire.

Sera puni des mêmes peines et dans les mêmes conditions quiconque, employeur ou travailleur, aura enfreint, en toute connaissance de cause, les dispositions des articles L.162 à 166 et 204.

Article L.279 - Seront punis d'une amende de 500.000 à 1.000.000 de francs et d'un emprisonnement de trois mois à un an, ou de l'une de ces deux peines seulement :

a) les auteurs d'infraction aux dispositions de l'article L.4 sur l'interdiction du travail forcé et de l'article 114, 2e alinéa, sur le paiement du salaire en alcool ou boisson alcoolisée;

b) les personnes qui auront fait sciemment une fausse déclaration d'accident du travail ou de maladie professionnelle;

c) toute personne qui, par violence, menace, tromperie, dol ou promesse, aura contraint ou tenté de contraindre, un travailleur à s'embaucher contre son gré, ou qui, par les mêmes moyens, aura tenté de l'empêcher ou l'aura empêché de s'embaucher ou de remplir les obligations imposées par son contrat ,

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d) toute personne qui, en faisant usage d'un contrat fictif ou d'une carte de travail contenant des indications inexactes, se sera fait embaucher ou se sera substituée volontairement à un autre travailleur ;

e) tout employeur, fondé de pouvoir ou préposé, qui aura porté sciemment sur la carte du travailleur, le registre d'employeur ou tout autre document, des attestations mensongères relatives à la durée et aux conditions du travail accompli par le travailleur, ainsi que tout travailleur qui aura sciemment fait usage de ces attestations;

f) tout employeur, fondé de pouvoir ou préposé, qui aura sciemment engagé, tenté d'engager ou conservé à son service, un travailleur encore lié à un autre employeur par contrat de travail, un apprenti encore lié par un contrat d'apprentissage ou un stagiaire en cours de formation professionnelle, indépendamment du droit à des dommages-intérêts qui pourra être reconnu à la partie lésée;

g) toute personne qui aura exigé ou accepté du travailleur une rémunération quelconque, à titre d'intermédiaire, dans le règlement ou le paiement des salaires, indemnités, allocations et frais de toute nature;

h) toute personne qui aura offert ou remis à un agent s'occupant de la main-d'oeuvre, une rétribution sous quelque forme que ce soit et toute personne s'occupant de la main-d'oeuvre qui aura accepté une telle rétribution;

i) toute personne qui aura rémunéré un travail à la tâche ou aux pièces à un salaire inférieur à celui du travailleur rémunéré au temps, de capacité moyenne et travaillant normalement, effectuant un travail analogue, en violation du premier alinéa de l'article L.111;

j) tout employeur, relevant d'une convention collective ne prévoyant pas de rémunération

à la tâche ou aux pièces, qui aura pratiqué ce mode de rémunération, en violation de l'interdiction stipulée au quatrième alinéa de l'article L.111;

k) tout tâcheron qui aura sous-traité, en tout ou partie, son contrat de tâcheronnat, en violation de l'interdiction stipulée au dernier alinéa de l'article L.30;

l) tout employeur et tout travailleur qui auront souscrit un contrat d'équipe en violation de l'interdiction stipulée au dernier alinéa de l'article L.77;

m) tout travailleur requis conformément aux dispositions de l'article L.276 et des textes pris pour son application et n'ayant pas déféré à l'ordre de réquisition. Indépendamment de cette sanction pénale, ledit travailleur pourra être immédiatement licencié sans préavis ni autre indemnité que, le cas échéant, l'indemnité compensatrice de congés payés;

n) tout travailleur occupant l'un des emplois figurant sur la liste fixée par décret prévue à l'article L.276 qui aura interrompu son travail en violation des dispositions de l'article L.273. Indépendamment de cette sanction pénale, ledit travailleur pourra être immédiatement licencié sans préavis ni indemnité autre que, le cas échéant, l'indemnité compensatrice de congés payés;

o) tout travailleur gréviste qui aura occupé les lieux de travail ou leurs abords immédiats.

p) tout employeur qui aura enfreint les dispositions de l'article L.186 relatif à l'obligation d'organiser un service de médecine du travail dans l'entreprise à l'intention de tous les travailleurs;

q) les auteurs d'infraction aux dispositions des articles L.133, sauf en matière d'affichage, et L.134.

Article L.280 - Seront punis d'une amende de 200.000 à

500.000 francs et, en cas de récidive, d'une amende de 400.000 à 1.000.000 de francs, les auteurs d'infractions aux dispositions de l'article L.228.

Article L.281 - Sera punie d'une amende de 500.000 à 1.000.000 de francs et d'un emprisonnement de quinze jours à trois mois, ou de l'une de ces deux peines seulement, toute personne qui s'est opposée ou a tenté de s'opposer à l'exécution des obligations ou à l'exercice des pouvoirs qui incombent aux inspecteurs du travail, aux contrôleurs du travail et aux chefs de circonscriptions administratives agissant comme suppléants de l'inspecteur du travail.

En cas de récidive, l'amende est de 1.000.000 à 2.000.000 de francs et l'emprisonnement de six mois à un an.

En cas de double récidive, l'emprisonnement est obligatoirement prononcé.

Les dispositions du code pénal qui prévoient et répriment les actes de résistance, les outrages et les violences contre les officiers de police judiciaire, sont, en outre, applicables à ceux qui se rendent coupables de faits de même nature à l'égard des inspecteurs du travail ou de leurs suppléants.

Article L.282 - Sera puni des peines prévues à l'article 408 du code pénal, tout employeur qui aura retenu ou utilisé dans son intérêt personnel ou pour les besoins de son entreprise, les sommes ou titres remis en cautionnement ou tout autre prélevement sur le salaire des travailleurs en application des dispositions légales, réglementaires ou conventionnelles en vigueur.

Article L.283 - La loi de sursis est applicable aux délits prévus et réprimés au présent code.

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Le délai utile pour constater la récidive est de cinq ans pour ces délits.

Toutefois, la récidive en matière d'atteinte à la libre désignation des délégués du personnel ou à l'exercice de leurs fonctions, doit, par exception, être constatée dans le délai de trois ans.

Article L.286 - Les chefs d'entreprise sont civilement responsables des condamnations prononcées contre leurs fondés de pouvoir ou préposés.

### ADDITIF

#### EXTRAIT DE LA LOI N° 62-47 DU 13 JUIN 1962 PORTANT INTERDICTION DU TRAVAIL NOIR ET DU CUMUL D'EMPLOI

### TITRE XV

#### DISPOSITIONS TRANSITOIRES

Article L.287 - Sont abrogées toutes dispositions contraires à la présente loi et notamment la loi n° 61-34 du 15 juin 1961 et ses modifications.

Toutefois, cette abrogation ne prendra effet, en ce qui concerne les institutions en place et les procédures en vigueur, qu'au fur et à mesure de la mise en place des nouvelles institutions.

Article L.288 - Jusqu'à leur modification ou leur abrogation, les règlements pris en application et pour l'exécution des lois précédentes demeurent en vigueur, en tout ce qu'ils ne sont pas contraires aux dispositions du présent code, sous les sanctions aux règlements correspondants qu'il prévoit.

La présente loi sera exécutée comme loi de l'Etat.

L'Assemblée nationale a délibéré et adopté,

Le Président de la République promulgue la loi dont la teneur suit :

Art. L.3 - Tout employeur exerçant une profession industrielle, commerciale ou artisanale, qui se soustrait aux charges sociales imposées à sa profession, sera puni des peines prévues par la présente loi, sans préjudice de sa condamnation à la requête de la partie civile, au paiement de la somme représentant les cotisations dont le versement lui incombait, augmentée des majorations de retard.

Art. L.4 - Dans les conditions prévues par la législation et la réglementation applicables aux cumuls en matière de traitement, au cumul d'une fonction publique et d'un emploi privé, aux cumuls de retraite, de rémunération et de fonction, il demeure interdit à tout fonctionnaire civil ou militaire en activité ou en service détaché, et à tout agent des services publics et de tous organismes même privés assurant la gestion d'un service public ou constituant le complément d'un tel service, d'occuper un emploi privé rétribué ou d'effectuer à titre privé un travail quelconque moyennant rémunération.

Art. L.6 - Quiconque aura enfreint, en toute connaissance de cause, les dispositions des articles 3 et 4 de la présente loi

### CHAPITRE III

#### DES CONTRAVENTIONS DE SIMPLE POLICE

Article L.284 - Pour les contraventions, il y a récidive lorsque, dans les douze mois antérieurs au fait poursuivi, le contrevenant a déjà fait l'objet d'une condamnation pour un fait identique.

### CHAPITRE IV

#### DISPOSITIONS COMMUNES AUX DELITS ET AUX CONTRAVENTIONS

Article L.285 - L'article 463 du code pénal relatif aux circonstances atténuantes est applicable à toutes les infractions aux dispositions du présent code.

Lorsqu'une amende est prononcée en vertu du présent titre, elle est encourue autant de fois qu'il y a d'infractions.

Cette règle s'applique notamment au cas où plusieurs travailleurs auraient été employés dans des conditions contraires au présent code.

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sera puni des peines prévues par l'article 248 de la loi n° 61-34 du 15 juin 1961 instituant un Code du Travail.

#### **LOI N° 74-52**

**DU 4 NOVEMBRE 1974**

**RELATIVE À LA FETE  
NATIONALE ET AUX  
FETES LÉGALES  
MODIFIÉE PAR LA LOI N°  
83-54 DU 18 FÉVRIER 1983  
ET LA LOI N° 89-41 DU 26  
DÉCEMBRE 1989**

L'Assemblée nationale a délibéré et adopté en sa séance du vendredi 25 octobre 1974;

Le Président de la République promulgue la loi dont la teneur suit :

Article premier - La République célèbre le quatre avril comme jour de fête nationale.

Article 2 - Outre la fête nationale et outre les fêtes de Pâques et de Pentecôte tombant un dimanche, les fêtes suivantes sont fêtes légales :

- Premier janvier;
- Tamxarit;
- Premier mai;
- Journée du Mawloud;
- Journée de la Korité;
- Journée de la Tabaski;
- Lundi de Pâques;
- Jeudi de l'Ascension;
- Lundi de Pentecôte;
- Journée du 15 août;
- Journée de la Toussaint;
- Vingt cinq décembre.

Quand à la Korité et la Tabaski tombent un dimanche, le lundi suivant est férié.

Article 3. - Les fêtes légales sont chômées.

Article 4. - La fête nationale, la Tamxarit, nouvel an musulman, et la journée du 1er mai, sont chômées et payées.

Article 5. - L'autorité compétente définira les modalités d'application de la présente loi.

Article 6. - Sont abrogées toutes dispositions contraires et notamment l'ordonnance n° 60-46 du 31 octobre 1960, modifiée par la loi n° 63-51 du 3 juillet 1963.

La présente loi sera exécutée comme loi de l'Etat.

#### **DECRET N° 62-017**

**PC/MFPT/DGTSS/TMO**

**DU 22 JANVIER 1962**

**FIXANT L'ECHELLE DES  
PEINES DE SIMPLE  
POLICE APPLICABLES  
AUX AUTEURS DE  
CONTRAVENTIONS AUX  
DISPOSITIONS DU CODE  
DU TRAVAIL ET DES  
REGLEMENTS PREVUS  
POUR SON APPLICATION**

Le Président du Conseil,  
VU la Constitution, notamment ses articles 26 et 42,

VU la loi n° 61-34 du 15 juin 1961 instituant un Code du Travail, spécialement en son titre IX (Pénalités), chapitres III et IV, et son titre X (Dispositions transitoires),

La Cour suprême entendue,  
Sur le rapport du Ministre de

la Formation publique et du Travail, le Conseil des Ministres entendu.

DECRETE :

Article premier - En conformité de l'article 137 du code d'instruction criminelle, l'échelle des peines de simple police, dans la limite d'un maximum de 18.000 francs d'amende et de 10 jours d'emprisonnement, dont seront punis les auteurs des contraventions de police simple aux dispositions de la loi n° 61-34 du 15 juin 1961 et des décrets et arrêtés prévus pour son application, est établie ainsi qu'il suit :

Article 2. - Seront punis d'une amende de 500 à 2.500 francs et, en cas de récidive, d'une amende de 2.000 à 18.000 francs :

a) les auteurs d'infractions aux dispositions des articles 37, 38, 44, 53, 61, alinéas 2, 3 et 4, 63, 75, avant dernier alinéa, 77, 78, 111, 113, alinéa 3, 114, 194;

b) les auteurs d'infractions aux dispositions du décret prévu à l'article 65 et des arrêtés ministériels prévus au dernier alinéa de l'article 78, au 4e alinéa de l'article 193, au 2e alinéa de l'article 194;

c) les employeurs, fondés de pouvoir ou leurs préposés, responsables du défaut d'affichage conforme aux dispositions de l'article 132.

Article 3 - Seront punis d'une amende de 1.000 à 2.500 francs et en cas de récidive, d'une amende de 2.000 à 18.000 francs :

a) les auteurs d'infractions aux dispositions des articles 66, 67, 115, 141, 2e alinéa, 142, 163, 192;

b) les auteurs d'infractions aux dispositions :

- des décrets prévus par les articles 31, 2e alinéa, 142;

- des arrêtés ministériels prévus par les articles 115, 163, 99, dernier alinéa, 140, 191, dernier alinéa, 192;

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c) les personnes qui auront omis de faire la déclaration prévue à l'article 162.

Dans le cas d'infractions aux dispositions de l'article 115 et des arrêtés ministériels prévus par les articles 115 et 163, la récidive pourra, en outre, être punie d'un emprisonnement de 6 jours à 10 jours. Lorsque l'infraction est commise en récidive de faits qui ont déjà donné lieu à une première application de l'article 254 du code du travail, l'emprisonnement sera prononcé.

En ce qui concerne les infractions à l'arrêté ministériel prévu à l'article 192, l'amende sera appliquée autant de fois qu'il y aura d'inscriptions omises ou erronées, chacune des mentions imposées par l'arrêté ministériel précité, pour chaque travailleur, dans chacune des colonnes des deux premières parties du registre d'employeur, constituant une inscription au sens du présent article.

Article 4. - Les infractions aux dispositions des articles 4 à 7 inclus, 19, et de l'article 25, seront poursuivies contre les directeurs ou administrateurs de syndicats, et punies d'une amende de 2.000 à 18.000 francs.

En cas de fausse déclaration relative aux statuts et aux noms et qualités des administrateurs ou directeurs, l'amende est obligatoirement prononcée au taux maximum de 18.000 francs

Article 5. - Les infractions aux dispositions de l'article 87 en matière de salaires seront punies d'une amende de 2.000 à 18.000 francs.

En cas de récidive l'amende sera obligatoirement prononcée au taux maximum de 18.000 francs.

Les mêmes peines sont applicables dans les mêmes conditions à tout employeur auteur

d'infraction aux dispositions du premier alinéa de l'article 35.

Article 6. - Seront punis d'une amende de 2.000 à 18.000 francs :

a) les auteurs d'infractions aux dispositions des articles 128, 140, 143, 144, 145, 146, 148, 150, 152, 155, 156, 157, 161, 192, avant dernier alinéa;

b) les auteurs d'infractions aux dispositions :

- des décrets prévus aux articles 137, 149, 185, 195, 196;
- des arrêtés ministériels prévus aux articles 155, 157, 159.

En cas de récidive, l'amende sera obligatoirement prononcée au taux maximum de 18.000 francs et l'auteur de l'infraction pourra, en outre, être puni d'un emprisonnement de 6 jours à 10 jours.

Dans le cas d'infraction à l'article 128, lorsque l'infraction est commise en récidive de faits qui ont déjà donné lieu à une première application de l'article 254 du Code du Travail, l'emprisonnement sera prononcé.

Dans le cas d'infraction à l'article 140, les pénalités ne seront pas encourues si l'infraction a été l'effet d'une erreur portant sur l'âge des enfants commise lors de l'établissement de la carte de travail.

Article 7. - Seront punis d'une amende de 5.000 à 18.000 francs :

a) les auteurs d'infractions aux dispositions des articles 68, 100, 101, 107, 129, 130, 136, 138;

b) les auteurs d'infractions aux dispositions :

- des décrets prévus par les articles 107 et 109;
- des arrêtés ministériels prévus par les articles 89, 109, 134;

c) toute personne qui aura employé un travailleur de nationalité étrangère démunie de carte de travail ou muni d'une carte établie pour une profession autre que celle de l'emploi réellement tenu;

d) toute personne qui aura embauché un travailleur étranger dont le contrat avec un précédent employeur n'était pas soit expiré, soit résilié par décision judiciaire, à moins que le travailleur n'ait été autorisé par l'inspecteur du travail et de la sécurité sociale du ressort, cette autorisation réservant les droits du précédent employeur, vis-à-vis du travailleur, et du nouvel employeur.

En cas de récidive, l'amende sera obligatoirement prononcée au taux maximum de 18.000 francs et l'auteur de l'infraction pourra, en outre, être puni d'une emprisonnement de 6 à 10 jours.

Article 8 - Pour compter de la publication du présent décret au Journal officiel, les pénalités ci-dessus fixées pour assortir les décrets et arrêtés ministériels d'application de la loi n° 61-34 du 15 juin 1961 se substitueront, pour l'application de l'article 258 du code du travail, aux pénalités dont se trouvaient assortis les règlements correspondants pris pour l'application de la loi n° 52-1322 du 15 décembre 1952.

Article 9. - Le Ministre de la Fonction publique et du Travail, et le Garde des Sceaux, Ministre de la Justice, sont chargés, chacun en ce qui le concerne, de l'exécution du présent décret qui sera publié au Journal officiel.

Fait à Dakar, le 22 janvier 1962,

Par le Président du Conseil,  
Mamadou DIA  
Le Ministre de la Fonction publique et du Travail  
Ibrahima SAR  
Le Garde des Sceaux,  
Ministre de la Justice  
Gabriel d'ARBOUSSIER



MINISTERE DE L'ENVIRONNEMENT  
ET DU DEVELOPPEMENT DURABLE

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## RAPPORT DE PRESENTATION

Le Sénégal dispose de plus de 700km de côte, sur la frange occidentale de l'Océan Atlantique. La Zone économique exclusive (ZEE) du pays couvre une superficie de 200 000 miles marins.

La Stratégie nationale et le Plan national d'actions pour la conservation de la biodiversité (MEPN, 2008) du Sénégal ont identifié la conservation de la biodiversité marine et côtière comme une option stratégique à caractère spécifique hautement prioritaire.

Cette stratégie reconnaît la pertinence du système des aires protégées en tant que conservatoire de l'essentiel de la diversité biologique caractéristique des biotopes du territoire qui sont représentés. Mais le réseau des aires protégées concernaient principalement des écosystèmes terrestres ; et si des efforts similaires ne sont pas consentis pour créer des aires protégées en milieu marin et côtier, les processus actuels de dégradation de la biodiversité risquent d'atteindre des seuils d'irréversibilité.

Lors du V<sup>e</sup> Congrès mondial sur les Parcs nationaux (Durban, 2003), le constat était établi que le système mondial des aires protégées avait atteint un taux de couverture de 12% des écosystèmes terrestres alors que ce taux était en dessous de 1% pour les écosystèmes marins. Pour contribuer à combler cette lacune, le Sénégal y avait pris un engagement qui se concrétisera par le décret n° 2004- 1408 du 04 novembre 2004 portant création de cinq (5) Aires marines protégées : Saint-Louis, Kayar, Joal-Fadiouth, Abéné et Bamboung.

Avec la nouvelle alternance politique survenue le 25 mars 2012 au Sénégal, les autorités ont créé la Direction des Aires marines communautaires protégées. La création de cette nouvelle Direction, logée au Ministère de l'Environnement et du Développement Durable et essentiellement dédiée à la conservation des ressources marines et côtières, est une manifestation sans équivoque de la détermination des nouvelles autorités à réaliser les objectifs assignés à chaque pays par la Conférence des Parties à la Convention sur la diversité biologique (Nagoya, 2010) de porter le taux de couverture des Aires marines protégées à 10% d'ici 2020, contre 17% pour les écosystèmes terrestres.

Cet engagement de la Communauté internationale de renforcer les réseaux nationaux, régionaux et mondiaux des Aires marines protégées a été réaffirmé avec force dans la déclaration ministérielle dite d'Ajaccio, adoptée lors du 3<sup>e</sup> Congrès international des Aires marines protégées (IMPAC3) qui s'est tenu à Marseille du 21 au 25 octobre 2013.

Compte tenu de l'importance du secteur de la Pêche dans l'économie nationale et aussi des conséquences sociales pouvant naître des processus de dégradation des pêcheries, le Sénégal a ainsi fait siens les objectifs de la Communauté internationale de protéger tous les écosystèmes marins littoraux, sous juridiction nationale, qui mériteraient de l'être.

La création de l'Aire marine protégée de Sangomar s'inscrit dans ce cadre et répond à une demande des populations des Communautés rurales de Palmarin et Dionewar.

Telle est l'économie du présent projet de décret.

**Mor NGOM**





# REPUBLIQUE DU SENEGAL

Un Peuple – Un But – Une Foi

Décret n° 2014-338 portant création de  
l'Aire marine protégée de Sangomar

## LE PRESIDENT DE LA REPUBLIQUE

Vu la Constitution, notamment en ses articles 43 et 76 ;

Vu la Convention africaine sur la conservation de la nature et des ressources naturelles adoptée, à Alger, le 15 septembre 1968, ratifiée par le Sénégal, le 26 mars 1972 ;

Vu la Convention de l'UNESCO sur la protection du Patrimoine mondial, naturel et culturel adoptée à Paris, le 23 novembre 1972, ratifiée par le Sénégal, le 13 mai 1976 ;

Vu la Convention relative aux zones humides d'importance internationale particulièrement comme habitat des oiseaux d'eau adoptée à Ramsar, le 02 février 1971, ratifiée par le Sénégal, le 11 novembre 1977 ;

Vu la Convention sur la conservation des espèces migratrices appartenant à la faune sauvage adoptée à Bonn, le 23 juin 1979, ratifiée par le Sénégal, le 1<sup>er</sup> décembre 1983.

Vu la Convention relative à la coopération en matière de protection et de mise en valeur du milieu marin et des zones côtières de la région de l'Afrique de l'ouest et du centre adoptée à Abidjan, le 23 mars 1981, ratifiée par le Sénégal, le 05 août 1984 ;

Vu la Convention des Nations unies sur le Droit de la mer adoptée à Montégo Bay, le 10 décembre 1982, ratifiée par le Sénégal, le 25 octobre 1984 ;

Vu la Convention sur la diversité biologique adoptée à Rio de Janeiro, le 05 juin 1992, ratifiée par le Sénégal, le 05 juin 1994, et les accords et protocoles y associés ;

Vu la loi n° 64- 46 du 17 juin 1964 sur le Domaine national ;

Vu la loi n° 86- 04 du 15 janvier 1986 portant Code de la Chasse et de la Protection de la Nature ;

Vu la loi n° 96- 06 du 22 mars 1996 portant Codes des Collectivités locales ;

Vu la loi n° 96- 07 du 22 mars 1996 portant transfert des compétences aux Collectivités locales ;

Vu la loi n° 98- 32 du 14 avril 1998 portant Code de la Pêche maritime ;

Vu la loi n° 2001- 01 du 15 janvier 2001 portant Code de l'Environnement ;

Vu le décret n° 96- 1130 du 27 décembre 1996 portant application de la loi de transfert de compétences aux régions, aux communes et aux communautés rurales en matière de gestion et d'utilisation du domaine privé de l'Etat, du domaine public et du domaine national ;

Vu le décret n° 96- 1134 du 27 décembre 1996 portant transfert de compétences aux régions, aux communes et aux communautés rurales en matière d'environnement et de gestion des ressources naturelles ;

Vu le décret n° 2004- 1408 du 04 novembre 2004 portant création des cinq (5) Aires marines protégées de Saint-Louis, Kayar, Joal-Fadiouth, Abéné et Bamboung ;

Vu le décret n° 2013- 1218 du 1<sup>er</sup> septembre 2013 portant nomination du Premier Ministre ;

Vu le décret n° 2013- 1223 du 02 septembre 2013 portant composition du Gouvernement ;

Vu le décret n° 2013- 1225 du 04 septembre 2013 portant répartition des services de l'Etat et du contrôle des établissements publics, des sociétés nationales et des sociétés à participation publique entre la Présidence, la Primature et les Ministères ;

Vu le décret n° 2013- 1270 du 23 septembre 2014 relatif aux attributions du Ministre de l'Environnement et du Développement durable ;

Vu la délibération n° 08/AF/CRPF du Conseil rural de Palmarin en date du 15 mars 2013 portant avis favorable pour la création de l'Aire marine protégée de Sangomar ;

Vu la délibération n° 002/CRDWR du Conseil rural de Dionewar en date du 08 avril 2013 portant avis favorable pour la création de l'Aire marine protégée de Sangomar ;

Vu la délibération n° 0033/CRF/SG/SAG\_DD du Conseil régional de Fatick en date du 02 juillet 2013 portant avis favorable pour la création de l'Aire marine protégée de Sangomar ;

Sur rapport du Ministre de l'Environnement et du Développement durable,

#### DECRETE

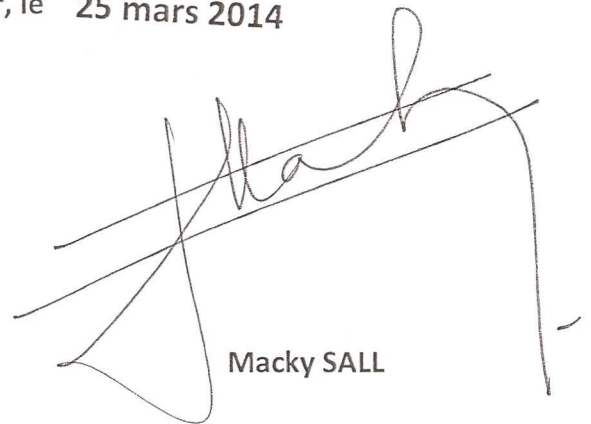
Article premier : Est créée, sur la façade maritime des communautés rurales de Palmarin (département de Fatick) et de Dionewar (département de Foundiougne), l'Aire marine protégée de Sangomar.

L'Aire marine protégée de Sangomar s'étend sur 12 miles au large et est délimitée conformément aux coordonnées géographiques et la carte jointes en annexes.

Article 2 : Les règles concernant la protection, la surveillance et la gestion de l'Aire marine protégée de Sangomar sont fixées par arrêté du Ministre en charge de l'Environnement.

Article 3 : Le Ministre chargé de l'Environnement, le Ministre chargé de la Pêche, le Ministre des forces armées et le Ministre chargé des Collectivités locales sont chargés, chacun en ce qui le concerne, de l'exécution du présent décret qui sera publié au Journal officiel.

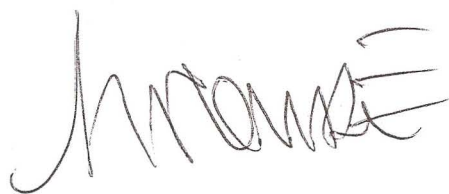
Fait à Dakar, le 25 mars 2014

A handwritten signature in black ink, appearing to read 'Macky SALL', written over a horizontal line.

Macky SALL

Par le Président de la république

Le Premier Ministre

A handwritten signature in black ink, appearing to read 'Aminata TOURE', written in a cursive style.

Aminata TOURE

## ANNEXES

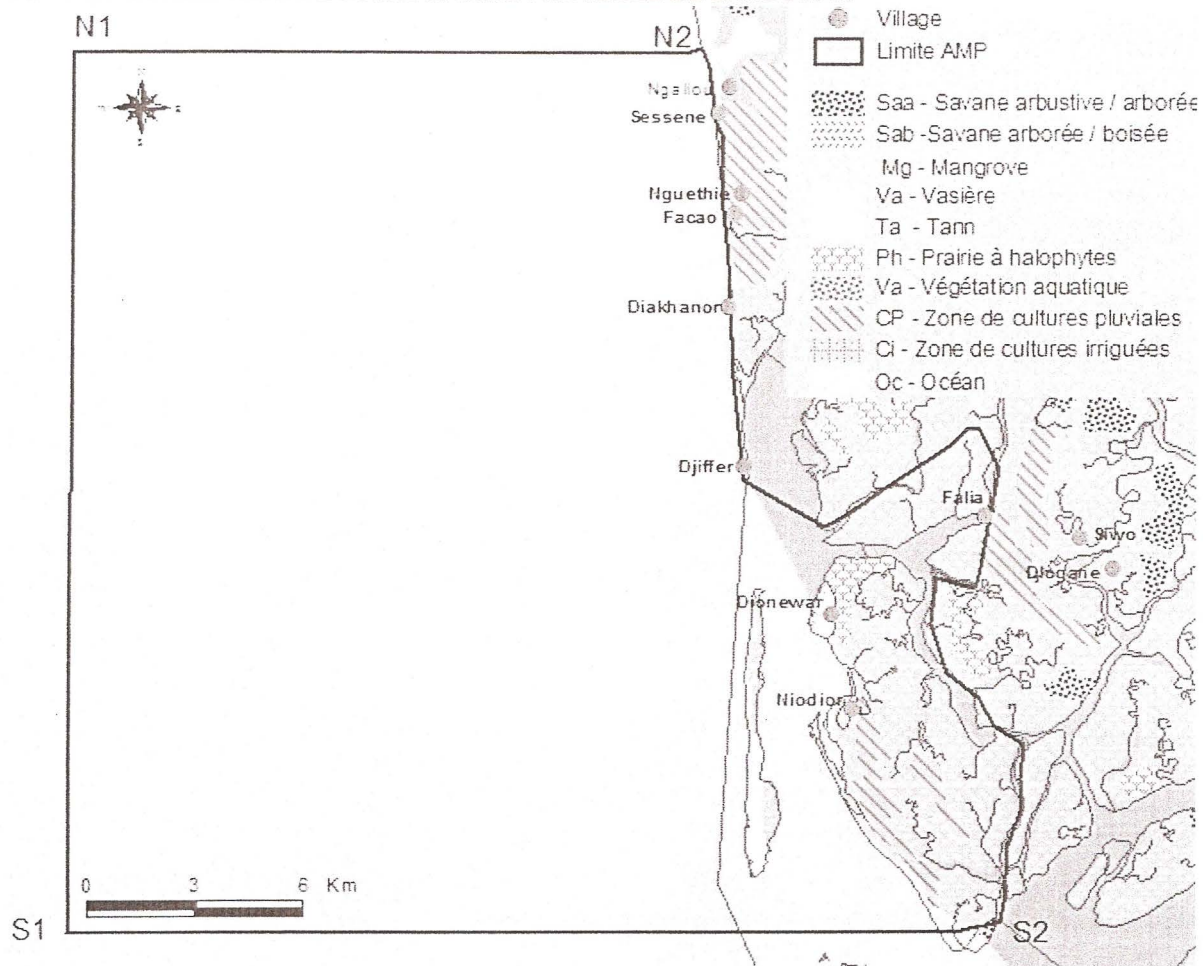
### Coordonnées points partie terrestre de l'AMP

Coordonnées GPS des sites et Bolongs des villages de Dionewar, Niodior et Falia faisant partie intégrante dans l'AMP de Sangomar				
N° d'ordre	Zone	Sites et Bolongs	Coordonnées UTM	
			X	Y
1	<b>Niodior- Dionewar</b>	Fosse Bakina (Zone de frayère)	310458	1530862
2	<b>Niodior</b>	Sofna début (Zone de frayère)	313921	1527752
3		Sofna fin (Zone de frayère)	316425	1524497
4		Sarékossi (Zone de reproduction arche)	312687	1529830
5		Saréma (Zone reproduction arche)	317927	1531919
6		Bolong Diakarwett (Fadiong)	318769	1524940
7		Bolong Djihor	316552	1533808
8		<b>Falia</b>	Bolong Godane	317717
9	Bolong Sabou		315574	1539023
10	Bolong Fambang		317241	1540428
11	<b>Dionewar</b>	Bolong Gokhor	314963	1537633
12		Bolong Thjique	314953	1537532
13		Bolong Djimsane	314942	1537445

### Coordonnées points partie marine de l'AMP

Limites	Points	X	Y
Limite Nord	N <sub>1</sub>	310639	1555644
	N <sub>2</sub>	289398	1555644
Limite Sud	S <sub>1</sub>	318678	1524665
	S <sub>2</sub>	289398	1524665

# CARTE DE LOCALISATION DE L'AIRE MARINE PROTEGEE DE SANGOMAR



[Imprimer](#)

## MINISTERE DE LA CULTURE ET DU PATRIMOINE HISTORIQUE CLASSE

## ARRETE MINISTERIEL n° 2711 mcphc-dpc en date du 3 mai 2006

ARRETE MINISTERIEL n° 2711 mcphc-dpc en date du 3 mai 2006 portant publication de la liste des sites et monuments historiques classés

**Article premier.** - Conformément aux dispositions de l'article 1er alinéa II de la loi n° 71-12 du 25 janvier 1971 fixant le régime des monuments historiques ainsi que celui des fouilles et découvertes, les biens culturels ci-après sont inscrits sur la liste des monuments historiques.

**REGION DE DAKAR**

Département de Dakar et de Pikine

1. Île de Gorée
2. Cap Manuel, site préhistorique et géologique
3. Secteur nord de la Pointe des Almadies, site préhistorique et protohistorique
4. Les Mamelles, site géologique
5. Falaise de Toundeup Riya à Yoff, site géologique
6. Île des Madeleines, site préhistorique et réserve ornithologique
7. Île de Ngor
8. Lieux de Culte des Layènes (Mausolée, Mosquées à Yoff et Cambérène, Grotte à Ngor)
9. Assemblée nationale, Place Soweto
10. Musée d'Art africain, Place Soweto
11. Villa n° 1, Place Soweto
12. Villa n° 2, Place Soweto
13. Villa n° 10, Avenue Nelson Mandela
14. Villa n° 30, Avenue Nelson Mandela
15. Villa n° 33, Avenue Nelson Mandela
16. Villa n° 37/35, Avenue Nelson Mandela
17. Villa n° 39 Avenue Nelson Mandela
18. Villa n° 40, Avenue Nelson Mandela x Avenue Carde
19. Villa n° 42, Avenue Nelson Mandela
20. Villa n° 43/41, Avenue Nelson Mandela
21. Villa n° 46/48, Avenue Nelson Mandela
22. Villa n° 45, Avenue Nelson Mandela
23. Villa n° 49/47, Avenue Nelson Mandela
24. Villa n° 50, Avenue Nelson Mandela
25. Villa n° 51, Avenue Nelson Mandela
26. Villa n° 54/52, Avenue Nelson Mandela
27. Villa n° 55/53, Avenue Nelson Mandela
28. Villa n° 56, Avenue Nelson Mandela x Avenue Carde
29. Villa n° 57, Avenue Nelson Mandela x Avenue Roosevelt
30. Villa n° 60/60 bis, Avenue Nelson Mandela
31. Villa n° 16, Rue Paul Holle
32. Villa n° 22, Rue Calmette
33. Villa n° 23, Avenue Carde
34. Villa n° 25, Avenue Carde
35. Ecole nationale des Douanes, Avenue Carde  
x Rue René Ndiaye
36. Villa n° 61/63, Rue Kléber
37. Villa n° 65, rue Kléber
38. Bâtiment abritant le C E M Abbé Fridoil et l'École élémentaire, 59, Rue Kléber
39. Lycée Lamine Guèye, Avenue du 18 juin
40. Villa n° 3, Avenue Brière de l'Isle

41. Villa n° 12, Avenue Brière de l'Isle
42. Villa n° 14, Avenue Brière de l'Isle x Avenue du 18 juin
43. Villa n° 16/18, Avenue Brière de l'Isle x Avenue du 18 juin
44. Villa n° 21, Avenue Brière de l'Isle
45. Villa n° 22, Avenue Brière de l'Isle
46. Villa n° 24, Avenue Brière de l'Isle
47. Villa n° 25, Avenue Brière de l'Isle
48. Villa n° 26/28, Avenue Brière de l'Isle
49. Villa n° 27, Avenue Brière de l'Isle
50. Villa n° 30, Avenue Brière de l'Isle
51. Immeuble de l'Isle, Avenue Brière de l'Isle
52. Bâtiments de l'Etat Major général des Armées, Avenue des Jambaar
53. Villa n° 30, Avenue des Jambaar
54. Villa n° 32/34, Avenue des Jambaar
55. Immeuble n° 36, Avenue des Jambaar
56. Villa n° 38, Avenue des Jambaar
57. Villa n° 40, Avenue des Jambaar
58. Villa n° 54, Avenue Franklin Roosevelt
59. Villa n° 55, Avenue Franklin Roosevelt
60. Bâtiment abritant la Médiature, Avenue Franklin Roosevelt
61. Ancien bâtiment abritant le Bureau régional de Dakar de la Croix Rouge, 3 Avenue Franklin Roosevelt
62. Palais de Justice, Cap Manuel
63. Bâtiment la Maternité de l'Hôpital Aristide Le Dantec, Avenue Pasteur
64. Villa n° 4, Avenue Pasteur
65. Institut Pasteur, Avenue Pasteur
66. « Petit Palais », Corniche Est
67. Bâtiment abritant l'Ambassade de la Grande Bretagne, Rue du Docteur Guillet x Avenue Pasteur
68. Villa n° 4 (Bis) Avenue Maunory
69. Hôpital principal de Dakar, Avenue Nelson Mandela x Avenue Léopold Sédar Senghor
70. Palais de la République et bâtiments annexes, Avenue Léopold Sédar Senghor
71. Primature, Avenue Léopold Sédar Senghor
72. Square Van Vollenhoven, Avenue Léopold Sédar Senghor
73. Ministère des Affaires étrangères, Place de l'Indépendance
74. Bâtiment abritant la Gouvernance, Place de l'Indépendance, Rue Ramez Bourgi x Rue Le Dantec
75. Bâtiment abritant la Préfecture, Place de l'Indépendance, Rue Ramez Bourgi x Rue Le Dantec
76. Bâtiment abritant le Conseil régional de Dakar, Place de l'Indépendance
77. Chambre de Commerce, Place de l'Indépendance
78. Maison des élus locaux, Place de l'Indépendance
79. Immeuble abritant l'UNICEF, Rue Carnot x Rue Salva
80. Gare ferroviaire de Dakar (bâtiment principal, entrepôts, maisons sur pilotis et rotonde)
81. Place du Tirailleur sénégalais (Monument Demba et Dupont et Square du Souvenir)
82. Cercle Messe des Officiers, Rue Joris
83. Ensemble logements et Direction de l'Océanographie ; Boulevard Djily Mbaye
84. Place Jean Louis Turbe et ilot compris entre Boulevard Djily Mbaye, Rue Vincens, Rue Ahmadou Lakhsane Ndoye, et Rue Wagane Diouf
85. Marché et Place Kermel, Rue Parent, Rue des Essarts, Rue Le Dantec, Rue Dagorne, Rue Caillé
86. Ecole hôtelière Amala Sy, Avenue Albert Sarraut x Rue Braconnier
87. Bâtiment abritant AGF Sénégal assurances, Avenue Fadiga x Rue de Thann
88. Ecole Berthe Maubert, Rue Béranger Ferraud x Avenue Albert Sarraut
89. Ecole Amadou Assane Ndoye I et II, Rue Amadou Assane Ndoye x Rues Béranger Ferraud, Carnot, Huart
90. Ecole Mame Yacine Diagne, Rue EL Hadj Ismaëla Guèye x Rues Wagane Diouf et Docteur Thèze
91. Villa n° 13/15, Rue Wagane Diouf
92. Villa n° 3, Rue Ngalandou Diouf
93. Hôtel de Ville de Dakar, Allées Robert Delmas
94. Bâtiment abritant les Etablissements Fougerolle, Avenue Félix Eboué x Rue des Brasseries
95. Bâtiment abritant ENDA Tiers-Monde, Rue Kléber x

Rue Joseph Gomis

96. Maison des Avocats, Boulevard de la République

97. Villa n° 15, Avenue Emile Zola x Rue Joseph Gomis

98. Cathédrale du Souvenir africain, Boulevard de la République

99. Immeuble abritant le Ministère de l'Economie et des Finances, Place Washington x Avenue Carde x Rue René Ndiaye et Boulevard de la République

100. Le Théâtre national Daniel Sorano, Boulevard de la République

101. Hôtel des Députés, Boulevard de la République

102. Musée de l'Armée, Boulevard de la République

103. Tribunal régional, Bloc des Madeleines, Avenue Peytavin x Boulevard de la République

104. Villa n° 71, Boulevard de la République

105. Villa n° 73, Boulevard de la République

106. Villa n° 77, Boulevard de la République

107. Ministère de la Communication, Boulevard de la République x Avenue Jean Jaurès

108. Bâtiment abritant la Cour de Cassation, Boulevard Martin Luther King

109. Cimetière musulman, Corniche Ouest

110. Cimetière catholique de Bel Air

111. Ex- Camp Lat Dior et logements, Avenue André Peytavin

112. Bâtiment abritant le Marché Sandaga, Avenue du Président Lamine Guèye x Rue Emile Badiane

113. Mosquée des Khadres, Avenue du Président Lamine Guèye x Rue Félix Faure

114. Bulding Maginot, Avenue du Président Lamine Guèye x Avenue Jules Ferry et Victor Hugo

115. Villa n° 165, Avenue du Président Lamine Guèye

116. Office national des Anciens Combattants, Avenue du Président Lamine Guèye x Rue Félix Faure

117. Hôtel Saint-Louis SUN, Rue Félix Faure x Avenue du Président Lamine Guèye

118. Grande Mosquée du Plateau, Rues Moussé Diop x Rues Carnot et Félix Faure

119. Temple Protestant, Rue Carnot

120. Centre culturel français, 89, Rue Joseph Gomis

121. Bâtiment du Service régional d'Hygiène, Avenue Blaise Diagne

122. Groupe scolaire de Médina, Avenue Blaise Diagne

123. Maison de la Culture Douta Seck, Avenue Blaise Diagne

124. Institut d'Hygiène social (Polyclinique), Avenue Blaise Diagne x Avenue El Hadji Malick Sy

125. Ensemble Grande Mosquée/Institut islamique de Dakar, Allées Papa Guèye Fall x Avenue El Hadji Malick Sy

126. Ecole El Hadji Malick Sy, Avenue El Hadji Malick Sy x Allées Papa Guèye Fall

127. Place de la Nation et Monument de l'Indépendance (Obélisque), Allées du Centenaire prolongées

128. Pënc de Santhiaba, Rue 22 x Rue 17, Médina

129. Mosquée de Thieurigne, Rue 24-26 x 15-17, Médina

130. Hôpital Abass Ndao, Avenue Cheikh Anta Diop

131. Ancienne Tour de contrôle de l'Aéropostale, quartier Mermoz

132. Hangars de l'Aéropostale, au Garage dépôt des Bus « Dem Dik », Route de Ouakam

133. Stèle dédiée à Jean Mermoz, Avenue Cheikh Anta Diop x Route Pyrotechnique

134. Bâtiment abritant l'OCLALAV, Hann Maristes

135. Cimetière militaire de Thiaroye

Département de Rufisque :

1. Centre historique ou « Vieux Rufisque », compris entre le Canal Est, le Canal Ouest, la ligne de chemin de fer et le front de mer

2. Imprimerie nationale

3. Ex-Ecole normale William Ponty de Sébikotane

4. Dunes ogoliennes de Kounoune, site néolithique

5. Le Lac Rose

#### **REGION DE DIOURBEL**

Tous les tumulus suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Diourbel

1. Grande Mosquée de Diourbel :



2. Préfecture
3. Gare ferroviaire
4. Immeuble abritant la Poste
5. Champ de bataille de Bounghoye
6. Champ de bataille de Ndiaby
7. Ecole Ibrahima Thioye, Diourbel - ville
8. Baobab dit « Gouye Sambaye Karang » Quartier Keur Yéli Manel Fall, Diourbel Ville
9. Baobab dit « Gouye Woté », Quartier Ndiotione, Diourbel
10. Résidence de Cheikh Ahmadou Bamba, Diourbel - ville
11. Champ de Bataille de Sambé
12. Champ de Bataille de Ngagnane, Centre administratif de Diourbel
13. Tombes Sereer de Ndayane et vestiges associés

Département de Mbacké :

1. Grande Mosquée de Touba
2. Aynou Rahmati, Puits de la Miséricorde à Touba
3. Gouye Tékhé et Gouye Ziarra, à Touba
4. Négou Mame Diarra Bousso à Khourou Mbacké
5. Champ de tumulus à Thiékène, Sous-Préfecture de Kael
6. Tumulus de Gninguène.

Département de Bambey :

1. Tumulus de Lambaye (sites des teignes)
2. Tène-Mbambey, champ de bataille à Mbambey Sérère
3. Gouye Ndeung, sur le site du champ de bataille de Sanghay, à Lambaye
4. Champ de bataille de Sanghay-Mbol
5. Champ de bataille de Ndiarème, près de Sindiane,

Arrondissement de Ngoye

6. Mausolée du Professeur Cheikh Anta Diop, à Thieytou, Communauté rurale de Dinguiraye
7. Tumulus de Pouniar, Arrondissement de Lambaye
8. Tumulus de Gallo Peye, Arrondissement de Ndangalma
9. Tumulus de Peul Lamassas, Arrondissement de Ndangalma

## **REGION DE FATICK**

Tous les monuments mégalithiques et les tumulus suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Fatick :

Commune de Fatick :

1. Mbind Ngo Mindiss, site de libations et d'offrandes, situé sur le bras de mer, le Sine
  2. Diogaye, lieu de cérémonies traditionnelles
  3. Jab Ndeb, arbre sacré, situé à Ndiaye-Ndiaye
  4. Bâtiment abritant la Mission Luthérienne
  5. Bâtiment abritant la Préfecture
  6. Bâtiment abritant le Tribunal
- Sous-Préfecture de Diakhao :
7. Maison royale de Diakhao
  8. Tombe du Bour Sine Coumba Ndoffène Fa Maak à Diakhao
  9. Tombes des Guélwars à Diakhao
  10. Tombes des Linguères à Diakhao Thioupane
  11. Baobab Kanger de Diakhao, lieu de libations des Rois du Sines
  12. Mausolée de Maba Dakhou Bâ, à Mbel Fandane
- Sous-Préfecture de Fimela
13. Tombe de Meïssa Waly Dione à Mbissel
  14. Puits et Mosquée d'EL Hadji Omar à Simal
  15. Maison familiale Senghor à Djilor Djidiack
- Sous-Préfecture de Niakhar :
16. Tumulus de Yenguélé
  17. Piquets levés de Niakhar liés à l'initiation

18. Piquets levés de Mboul liés à l'initiation

19. Fasaw, fangool du pays Njaafaaj

Sous-Precture de Tataguine :

20. Vestiges de la Maison du Bour Sine Salmon Faye, village de Khodjil-Ndiongolor

21. Piquets levés de Bikol

22. Gouye Géwel à Toucar et à Senghor

23. Harwak, fangool de la famille maternelle Coofan, à Fayil

Département de Foundiougne :

Commune de Foundiougne et Sokone :

1. Canons (2) installés le long du bras de mer, au nord de la ville de Foundiougne, à Ndakhonga

2. Ancien camp militaire devenu Lycée Diène Coumba Ndiaye

3. Bâtiment abritant la Préfecture

4. Mosquée de EL Hadji Amadou Dème à Sokone

Sous-Préfecture de Djilor

5. Site de Laga Ndong, à Ndong-log, fangool du panthéon sereer

6. Pecc, lieu de culte des Gelewars du Saloum

Sous-Préfecture de Niodior :

7. Amas appelé Ndiamon-Badat, à 1,4 Km à l'Est-Nord-Est de la mosquée de Dionewar (149 tumulus)

8. Amas appelé Apetch, situé à 1,2 km au Sud-Sud-Est de la mosquée de Dionewar (17 tumulus)

9. Amas appelé Fandanga, à 2 km au Sud-Est de la mosquée de Niodior

10. Amas appelé Ndiouta-Boumak, à 4,7 km au Sud-Sud-Est de la mosquée de Niodior (26 tumulus)

11. Amas appelé Ndafafé, immédiatement au Sud-Ouest de Falia (12 tumulus)

12. Deux amas voisins, appelés Tioupane-Boumak et Tioupane-Boundaw à 700 m à l'Est de Falia (168 et 54 tumulus)

13. Amas appelé Sandalé Déralé, à 1,2 km à l'Ouest de Diogane (17 tumulus)

14. Amas appelé Mbar Fagnick, situé à 7,5 km à l'Est du précédent (4 tumulus)

15. Amas situé sur le bolon Bakhalou (6 tumulus)

16. Amas situé sur la rive gauche du Djombos (77 tumulus)

Sous-Préfecture de Toubacouta :

17. Amas appelé Dioron-Boumak à 6 km de Toubacouta, sur la rive Ouest du Bandiala (125 tumulus)

18. Amas appelé Dioron-Boundaw à 1,5 km au Sud du précédent (12 tumulus)

19. Amas situé à 350 m au Sud-Ouest du précédent (14 tumulus)

20. Amas situé sur la rive Nord de la bifurcation du bolon du Bossinka (63 tumulus)

21. Amas appelé Bandiokouta, sur la rive droite du bras de la bifurcation du bolon du Bossinka (30 tumulus)

22. Amas situé sur la rive droite du bolon Oudiérin (72 tumulus)

23. Amas de Soukouta, situé en terre ferme à 1 km à l'Est du Bandiala (33 tumulus)

Département de Gossas :

Commune de Gossas :

1. Kadd Madou Sop

2. Grande Mosquée

3. Mausolée de Serigne Khar Kane

4. Mausolée de Ndamal Gossas (Oumar Guèye)

Gossas Département :

1. Marigot de Danki, champ de bataille

2. Puits de Ndiéné

3. Bois sacré de Ndioudane

4. Bivouac de EL Hadji Oumar Tall (Badakhone)

5. Arbre fétiches de Gagnick Godjil

6. Gouye Ndiouly à Kahone, près de Kaolack

7. Ile de Kouyong Keïta, face à Kahone

8. Marigots Ndaly et Wagui (Badakhone)

## **REGION DE KAOLACK**

Tous les monuments mégalithiques et les tumulus suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Kaolack :

1. Bâtiment abritant la Gouvernance de Kaolack

2. Ex-Palais de Justice de Kaolack
3. Mosquée Diabel Ka
4. Mosquée Kanène, Léona
5. Tumulus de Ndalane, Arrondissement de Gandiaye  
Département de Nioro :
1. Tata de Maba Diakhou Ba à Nioro
2. Mausolée de Mame Diarra Bousso à Prokhane
3. Puits de Mame Diarra Bousso
4. Tombe de Matar Kalla Dramé, à Ndimb Dramé
5. Site mégalithique de Sine Ngayène
6. Site mégalithique de Sine Wanar
7. Mosquée de Kabakoto

Département de Kaffrine :

1. Site mégalithique de Keur Ali Ngane
2. Site mégalithique de Sorokogne
3. Site mégalithique de Keur Modi Toy
4. Site mégalithique de Pathé Tiangaye
5. Site mégalithique de Keur Ali Lobé
6. Site mégalithique de Kounou Mbayèn

#### **REGION DE KOLDA**

Tous les monuments mégalithiques suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Kolda :

1. Tata de Moussa Molo Baldé à Ndorma, Arrondissement de Médina Yoro Fulah
2. Tombe de Coumba Oudé à Soulabaly, arrondissement de Médina Yoro Fulah
3. Hamdallahi, site historique, arrondissement de Médina Yoro Fulah
4. Préfecture de Kolda
5. Site mégalithique de Pata

Département de Sédhiou :

1. Tata de Fodé Kaba Doumbouya à Sédhiou
2. Fort Pinet-Laprade, ville de Sédhiou
3. Préfecture de Sédhiou
4. Grande Mosquée de Sédhiou, quartier Doumassou
5. Mosquée de Karantaba, Arrondissement de Tanaf
6. Mosquée de Baghère, Arrondissement de Tanaf

Département de Vélingara :

1. Village de Payoungou, site historique, Arrondissement de Pakour

#### **REGION DE LOUGA**

Tous les tumulus suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Louga :

1. Ancienne Caserne de l'Artillerie, commune de Louga
2. La Poste de Louga
3. La Gare ferroviaire de Louga
4. Kadd Gui, site historique, face Gare ferroviaire
5. Site historique de « Toundou Diéwol »

Département de Linguère :

1. Tata d'Alboury Ndiaye à Yang-Yang
2. Les Ruines du Poste militaire Faidherbe
3. La Résidence royale de Yang-Yang
4. La Stèle représentant la mosquée du Tata à Yang Yang
5. La Stèle représentant le champ de bataille de Guillé à Mbeuleukhé
6. Mosquée de Mbeuleukhé

Département de Kébémér :

1. Gare ferroviaire de Ndande
2. Puits de Kalom à Ndande
3. Tombe de Kocc Barma Fall à Ndiougué Fall, Sous Préfecture de Ndande

4. Champ de bataille de Dékheulé
5. Champ de bataille de Loro
6. Quai de Kébémér

#### **REGION DE MATAM**

Tous les Villages anciens suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Matam :

1. Bâtiment abritant la Gouvernance de Matam
2. Bâtiment abritant l'Ecole 1 de Matam
3. La Résidence de Diorbivol Matam
4. Le Village ancien de Sinthiou Bara
5. Le Village ancien de Ogo
6. La Mosquée de Ogo

Département de Kanel :

1. Le Mausolée de Cheikh Moussa Kamara à Ganguel
2. La Mosquée de Kobilou
3. La Mosquée de Séno Palel
4. Le Mausolée Abdel Kader Kane

#### **REGION DE SAINT-LOUIS**

Tous les tumulus et les Villages anciens suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Saint-Louis :

Ville de Saint-Louis

1. Ile de Saint-Louis
2. Pont Faidherbe
3. Grue à vapeur de 20 tonnes, Quai Roume, point nord, Ile de Saint-Louis
4. Ex-hydrobase et Stèle à l'effigie de Jean Mermoz
5. Cimetière des pêcheurs, Langue de Barbarie
6. Eglise et Grotte Notre Dame de Lourdes - Quartier Sor Saint-Louis
7. Vestiges de la première briqueterie de l'Afrique - Ile de Bopp-ou-Thior à 2 km de Saint-Louis
8. Ancien Orphelinat des Sœurs de Saint-Joseph de Cluny, Ndar Toute, Saint-Louis
9. Le monument dédié aux anciens combattants - Place Pointe à Pitre - Guet-Ndar
10. Marmyale, Cimetière catholique, Quartier Sor Saint-Louis
11. l'Ecole des Fils de Chef et des Interprètes, Ecole Khayar Mbengue, quartier Sor
12. La Gare ferroviaire
13. Ancien Temple Protestant et Asile des esclaves, Pont de Khor Saint-Louis

#### **Département de Dagana :**

1. Les Tumulus de Rao (Nguiguéla, Mboy-u-Gar, Menguègne)
2. Le Marigot de Khant, site préhistorique
3. Le Fort de Dagana
4. L'Usine des eaux de Mbakhana
5. La Résidence de Richard Toll, dite Folie du Baron Roger
6. La Tour de Ndiakhar (arrondissement de Rao)
7. Les Ruines du Fort de Laybar, près de Saint-Louis
8. Le Village de Nder, site historique
9. Les ruines du Poste de la barre à Mouit

#### **Département de Podor :**

Ville de Podor

1. Le Fort de Podor
2. Maison Foy à l'angle du quai à Podor
3. Les quais de Podor (quai et bâtiments)

Département de Podor :

1. La Mosquée de Alwar
2. Le Cimetière des Almamys à Mboumba
3. L'ancienne Mosquée de Mboumba
4. La Mosquée de Ouro Madiou et Mausolée
5. La Mosquée de Diama Alwaly

6. Le Village ancien de Walaldé
7. le Village ancien de Siouré
8. le Village ancien de Kaskas
9. La Mosquée de Guédé Ouro
10. Le Village ancien de Tioubalel

### **REGION DE TAMBACOUNDA**

Tous les monuments mégalithiques, les tumulus et les villages anciens, suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Tambacounda :

1. Gare ferroviaire et Hôtel de la Gare de Tambacounda
2. Bâtiment abritant la Préfecture de Tambacounda
3. Tata de Maba à Ndoungoussine
4. Puits et vestiges historiques de Ndoungoussine
5. Site mégalithique de Thiékène Boussoura
6. Site mégalithique de Kodiam
7. Site mégalithique de Saré Diouldé
8. Site mégalithique de Saré Sékourou

Département de Bakel :

1. Pavillon René Caillé, ville de Bakel
2. Fort de Bakel, ville de Bakel
3. Tours militaires de Bakel, ville de Bakel
4. Cimetière des circoncis, ville de Bakel
5. Ancien Comptoir des établissements Maurel & Prom, ville de Bakel
6. Colline sacrée de Ngoundéiny Guidimpalé, ville de Bakel
7. Fort de Sénédebou, Arrondissement de Kídira
8. Colline de Wouro Himadou : Tombe de Malick Sy, premier Almamy du Bundu

Département de Kédougou :

1. Tata de Bademba en pays Tenda
2. Chutes de Dindifelou, site naturel
3. Site de Iwol à Bandafassi, sur la montagne « Lieu de silence »
4. Monts Assirik dans le Parc National du Niokolo Koba
5. Pays Bassari

### **REGION DE THIES**

Tous les tumules suivant l'Inventaire des sites protohistoriques de la Sénégalie (annexe)

Département de Thiès :

Ville de Thiès :

1. Gare ferroviaire et entrepôts
2. Place Ibrahima Sarr, Cité Ballabey
3. Le bâtiment de la Direction générale de la SNCS
4. Le bâtiment des « 3 Horloges » de la SNCS
5. Fort de Thiès, Ex 10e, actuel Musée régional
6. Bâtiment principal abritant la Gouvernance
7. Bâtiment principal abritant la Chambre de Commerce
8. Cathédrale de Thiès et bâtiment de l'Evêché
9. Bâtiment abritant l'école Sainte Anne face à la Cathédrale
10. Poste de Thiès

Thiès Département :

11. Fort de Mbidiem, Arrondissement de Pout
12. Carrières de Diack, site archéologique, Arrondissement de Thiénaba
13. Carrières de Diakité, site archéologique
14. Bureau de Poste de Pout

Département de Tivaouane :

1. La Gare ferroviaire de Tivaouane
2. Bâtiment abritant la Préfecture (ancienne résidence du Commandant de Cercle du Kayor)

3. Village de Longhor, site historique et religieux
4. Villages de Soughère et de Nguiguiss, sites historiques, capitales secondaires des Damels du Kayor
5. Village de Mboul, site historique, capitale des Damels
6. Mausolée de Khaly Madiakhaté Kala à Keur Makala, Arrondissement de Niakhène
7. Mosquée et Zawia de El Hadji Malick Sy (la première construite en 1904)
8. Mosquée Serigne Babacar Sy
9. Mosquée et Zawia de la Famille Kounta de Ndiassane
10. Grande Mosquée de Pire
11. Mausolée de Khaly Amar Fall à Pire

Département de Mbour :

1. Résidence de Popenguine et le Cap de Naze
2. Les tumulus de la forêt de Bandia
3. Eglise et Sanctuaire de Popenguine
4. Ile Fadiouth, Ile Cimetière et Greniers sur pilotis
5. Fort du Comptoir de Saly Portudal
6. Thiémassas, site préhistorique
7. Petit Séminaire de Ngazobil
8. Maison familiale Senghor à Joal
9. Eglise de Ndianda
10. Sangomar, lieu de culte sereer, à Palmarin
11. Fangool et canon de Mbalamson
12. Tumulus sereer de Mbafaye, à Godaguène Fissel

#### **REGION DE ZIGUINCHOR**

Amas coquillers de la Basse Casamance suivant l'Inventaire des sites protohistoriques de la Sénégalie (Annexe)

Département de Ziguinchor :

Ville de Ziguinchor

1. Cathédrale Saint-Antoine de Padoue à Ziguinchor
2. Palais de Justice de Ziguinchor
3. Gouvernance de Ziguinchor
4. Bâtiment abritant le Conseil régional de Ziguinchor
5. Baobab « Front Bone » à Boutoupa Camaracounda, Arrondissement de Niaguis
6. Grande Mosquée de Santhiaba Ziguinchor
7. Cimetière mixte (musulman et chrétien), Route du Sud, Ziguinchor
8. Fromager Dialang Bantang à Niéfoulène Ziguinchor, lieu de culte pour les femmes diolas et mandingues

Ziguinchor Département :

9. Maisons à impluvium du royaume de Bandial

Département de Bignona :

1. Mausolée Ahoune Sané, Koundioughor, Arrondissement de Sindian
2. Fromager centenaire de Sindian, lieu de culte pour les rituels d'initiation
3. Site Bakolon Badji à Niankite, lieu de culte pour les cérémonies d'initiation.
4. Puits d'eau douce de Kafountine, Arrondissement de Diouloulou
5. Baobab Palmier de Baligname
6. Termitière Nankoray à Djilondine, lieu de culte des prêtresses animistes

#### **Département d'Oussouye :**

1. Karabane, centre historique, Arrondissement de Loudia
2. Bâtiment abritant la résidence du Préfet à Oussouye
3. Fromagers centenaires de Kagnout
4. Puits d'El Hadj Omar, à Elinkine, Arrondissement de Loudia
5. Maisons à étage de Mlomp

**Art. 2.** - Toute intervention (restauration, rénovation, destruction) sur un bien inscrit sur la liste des monuments historiques par le présent arrêté est soumise à autorisation préalable du Ministère chargé de la Culture et du Patrimoine historique classé.

**Art. 3.** - Le suivi et la conservation des biens inscrits par le présent arrêté incombent au Ministre chargé de la Culture et du Patrimoine historique classé lequel peut faire appel, pour l'exercice de cette mission, aux autorités municipales et locales concernées.

REPUBLIQUE DU SENEGAL  
Un Peuple – Un But – Une Foi

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MINISTERE DE L'ENVIRONNEMENT ET DU DEVELOPPEMENT DURABLE

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DIRECTION DES AIRES MARINES COMMUNAUTAIRES PROTEGEES



# PLAN D'AMENAGEMENT ET DE GESTION DE L'AIRE MARINE PROTEGEE DE SANGOMAR



Décembre 2013

## SIGLES ET ABREVIATIONS

ADAF-Yungar	Association pour le Développement de l'Arrondissement de Fimela
AMP	Aire Marine Protégée
ANA	Agence Nationale de l'Aquaculture
ANCAR	Agence Nationale de Conseil Agricole et Rural
ARD	Agence Régionale de Développement
ASC	Association Sportive et Culturelle
ASER	Agence Sénégalaise d'Electrification Rurale
CADD	Conseil des animateurs pour le Développement de Djirnda
CADL	Centre d'Appui pour le Développement Local
CCST	Conseil Consultatif Scientifique et Technique
CEM	Collège d'Enseignement Moyen
CLPA	Conseil Local de Pêche Artisanale
CMS	Crédit Mutuel du Sénégal
CO	Comité d'Orientation
CODEC	Collectif des Directeurs d'Ecoles
COGEPAS	Cogestion des Pêcheries Artisanales du Sénégal
COGERE	Comité de Gestion des Ressources et de l'Environnement
COSPE	Coopération pour le Développement des Pays Emergents
CG	Comité de Gestion
CR	Communauté Rurale
CRF	Conseil Régional de Fatick
CRODT	Centre de Recherches Océanographiques Dakar-Thiaroye
CSE	Centre de Suivi Ecologique
DAMCP	Direction des Aires Marines Communautaires Protégées
DMTA	Direction du Matériel et du Transit Administratif
DPC	Direction de la Protection Civile
DREEC	Division Régionale de l'Environnement et des Etablissements Classés
DPN	Direction des Parcs Nationaux
DPSP	Direction de la Protection et de la Surveillance des Pêches
EEDS	Eclaireuses et Eclaireurs du Sénégal
ENDA ENERGIE	Programme Energie, Environnement Développement d'ENDA -Tiers Monde
ENDA GRAF	Groupe de Recherche-Action-Formation d'ENDA -Tiers Monde
EVE	Eau-Vie-Environnement
FEM	Fonds pour l'Environnement Mondial
FENAGIE Pêche	Fédération Nationale des GIE de Pêche du Sénégal
FELOGIE	Fédération Locale des GIE
FIBA	Fondation Internationale du Banc d'Arguin
GIE	Groupement d'Intérêt Economique
GPF	Groupement de Promotion Féminine
IRD	Institut de Recherche pour le Développement



ISS	Interview Semi-Structurée
IUPA	Institut Universitaire de Pêche et d'Aquaculture
JICA	Japan International Cooperation Agency (Agence Japonaise de Coopération Internationale)
LERG	Laboratoire d'Etudes et de Recherche en Géomatique
MEDD	Ministère de l'Environnement et du Développement Durable
OCB	Organisation Communautaire de Base
ONG	Organisation Non Gouvernementale
PAG	Plan d'Aménagement et de Gestion
PAGEMAS	Projet d'Aménagement et de Gestion de la Mangrove dans le Delta du Saloum
PAMECAS	Partenariat pour la Mobilisation de l'Epargne et le Crédit Au Sénégal
PAPIL	Programme d'Appui à la Petite Irrigation Locale
PDIF	Programme pour le Développement Intégré de Fatick
PLAE	Plan Local d'Actions pour l'Environnement
PNAE	Plan National d'Actions pour l'Environnement
PRAE	Plans Régionaux d'Actions pour l'Environnement
PRCA	Programme de Renforcement et de Consolidation des Acquis
PRECEMA	Projet de Restauration et de Conservation de l'Ecosystème Mangrove dans le Delta du Saloum
PRODDEL	Programme d'Appui à la Décentralisation et au Développement Local
RBDS	Réserve de Biosphère du Delta du Saloum
SDA	Service Départemental de l'Agriculture
SDPM	Service Départemental des Pêches Maritimes
SDT	Service Départemental du Tourisme
RNC	Réserve Naturelle Communautaire
SEF	Secteur des Eaux et Forêts
SWOT	Strengths Weakness Opportunities Threats
UCAD	Université Cheikh Anta DIOP
UGB	Université Gaston Berger
UICN	Union Internationale pour la Conservation de la Nature
USAID	United States Agency for International Development (Agence des Etats-Unis pour le Développement International)
UTM	Universal Tranverse Mercator
WAAME	West African Association for Mangrove Ecosystem Conservation
WWF	World Wildlife Fund (Fonds Mondial pour la Nature)

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## **PREAMBULE**

Au sortir du V<sup>ème</sup> Congrès mondial des Parcs Nationaux, tenu en septembre 2003 à Durban (Afrique du Sud), l'Etat du Sénégal s'est davantage engagé dans la conservation de la biodiversité marine et côtière. Cet engagement a motivé la création en novembre 2004 cinq Aires Marines Protégées (AMP). Il s'agit des AMP de Joal-Fadiouth, de Saint-Louis, de Cayar, de Bamboung et d'Abéné. Pour une gestion durable et efficace de ces AMP, l'Etat du Sénégal a mis en place en 2012 une Direction des Aires Marines Communautaires Protégées sous la tutelle du Ministère de l'Environnement et du Développement Durable (MEDD).

Cette orientation politique vise à renforcer la conservation des écosystèmes marins et côtiers par la mise en place d'un réseau cohérent et fonctionnel d'AMP suffisamment représentatif des écosystèmes côtiers, estuariens et marins. La création de nouvelles AMP dotées d'organes de gouvernance, est l'option privilégiée par le Gouvernement, conformément aux recommandations de la Communauté Internationale notamment la Convention sur la Diversité Biologique. A travers cette orientation, la Direction des Aires Marines Communautaires Protégées (DAMCP) met en application la politique de l'Etat en la matière. Pour ce faire, elle a pour mission de développer et d'administrer de façon cohérente et participative, le réseau des AMP.

La DAMCP a actuellement sous sa tutelle les cinq AMP créées en 2004 (Saint Louis, Cayar, Joal-Fadiouth, Bamboung et Abéné) et deux Réserves naturelles communautaires situées dans la frange côtière (Somone et Palmarin). Elle s'est engagée depuis sa création dans un processus de création de nouvelles AMP dans la région de Fatick, notamment celle de « Sangomar » située entre les Communautés rurales de Palmarin et de Dionewar.

La gestion durable d'une AMP nécessite un dialogue permanent entre les gestionnaires et les populations locales. C'est la raison pour laquelle la DAMCP a associé toutes les parties prenantes dans le processus d'élaboration du présent Plan d'Aménagement et de Gestion (PAG). En effet, les populations, les Conseils Ruraux de Dionewar et de Palmarin, le Conseil Régional de Fatick ont été surtout associés à l'étude diagnostique du bilan des connaissances et à l'élaboration du Plan d'Actions dudit PAG.

Ce présent PAG, va guider toutes les activités de gestion du site pour l'horizon temporel 2014-2017. Il présente l'état des ressources naturelles et de l'environnement de la zone d'emprise de l'AMP au terme d'un long processus participatif, itératif et inclusif. A cet effet,

après avoir procédé à la présentation de la zone d'emprise de l'AMP sous ses différents aspects physiques et démographiques, il passe en revue l'ensemble des secteurs qui animent la vie socioéconomique de l'AMP, les objectifs de gestion, les axes stratégiques ainsi que les actions à mener à court et moyen termes.

## **METHODE D'ELABORATION DU PAG**

L'élaboration du document de PAG s'est faite sous deux phases. La première phase a débuté avec une mise à niveau des acteurs sur les outils de collecte de données dont l'objectif est de doter les acteurs locaux de capacités nécessaires pour collecter les informations pertinentes pour établir le bilan des connaissances sur la zone d'emprise de l'AMP. Pendant la phase diagnostique, les informations ont été obtenues à partir d'enquêtes de terrain complétées par la recherche documentaire. En ce qui concerne les enquêtes, deux équipes ont été constituées et réparties dans les villages des deux communautés rurales de Palmarin (Sessène-Sam-Sam, Ngounoumane-Ngéthie, Diakhanor-Djiffer) et de Dionewar (Dionewar, Falya et Niodior). Ainsi, un guide d'entretien a été administré aux populations (hommes, femmes, jeunes, patriarques, etc.) selon le principe de l'animation participative qui a l'avantage d'impliquer tous les acteurs aux processus d'analyse de leur milieu. En plus, des personnes ressources ont été identifiées et ont fait l'objet d'enquêtes individuelles. En outre, trois outils de collecte notamment la carte des ressources, le diagramme de Venn et le profil historique ont été utilisés. Au préalable et à la fin de chaque étape des focus groupes dans la phase terrain, les informations collectées ont été rappelées et soumises à l'appréciation des populations pour amendement et validation. C'était en fait un premier niveau de restitution à chaud et de validation à l'échelle des sites visités, avant l'atelier communautaire de restitution et de validation où les différentes parties prenantes ont été conviées.

La phase validation finale du Plan d'Aménagement et de Gestion (PAG) s'est faite dans chaque communauté rurale concernée et a été le lieu de discuter et de valider tout le travail abattu depuis le début du processus d'élaboration du document. Elle a noté la participation de tous les acteurs concernés (élus locaux, autorités administratives, Organisation Communautaires de Bases (OCB), représentants services techniques, projets et programmes intervenant dans la région) qui ont eu à nouveau fait leurs dernières suggestions et observations sur le travail afin de permettre aux membres de l'équipe chargés de la rédaction de procéder à la finalisation du document.

## **I. RAPPELS CONCEPTUELS ET OBJECTIFS D'UN PLAN D'AMENAGEMENT ET DE GESTION**

Selon l'UICN (2007), *une aire protégée est : «Un espace géographique clairement défini, reconnu, consacré et géré, par tout moyen efficace, juridique ou autre, afin d'assurer à long terme la conservation de la nature ainsi que les services écosystémiques et les valeurs culturelles qui lui sont associés ».*

Cette nouvelle définition générale d'une aire protégée s'applique aux AMP dans les zones marines (Dudley, 2008)<sup>1</sup>. Bien qu'elle ait perdu sa référence spécifique à l'environnement marin, elle garantit une démarcation plus claire entre les sites orientés vers la conservation et ceux dont la raison d'être première est une utilisation extractive, c'est-à-dire les zones de gestion de la pêche. Elle n'empêche pas l'inclusion des zones adéquates de protection de la pêche, mais celles-ci doivent respecter la nouvelle définition pour être acceptées comme AMP par la Commission Mondiale des Aires Marines Protégées de l'UICN (CMAP-Marine).

Cependant, la notion d'aire marine protégée est plus perceptible avec la définition de la Convention sur la Diversité Biologique (2004). Selon cette Convention, une Aire Marine Protégée renvoie à : *« toute zone située à l'intérieur ou à proximité du milieu marin, avec ses eaux sus-jacentes, la faune et la flore associées et les éléments historiques et culturels qui s'y trouvent, qui a été mise en réserve par une loi ou d'autres dispositions utiles, y compris la coutume, dans le but d'accorder à la diversité biologique, marine ou côtière, un degré de protection plus élevé que celui dont bénéficie le milieu environnant ».*

Le Plan d'Aménagement et de Gestion (PAG) est un outil conçu pour guider toutes les activités de gestion d'un site selon des séquences temporelles fixées. Il prend en compte les grandes orientations nationales et internationales en matière de gestion des ressources naturelles.

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<sup>1</sup>Dudley, N. 2008. Lignes directrices pour l'application des catégories de gestion aux aires Protégées Gland, Suisse : UICN. 96 p.

## **II. PRESENTATION DE L'AMP**

### ***2.1. Localisation et limites de l'AMP***

L'Aire Marine Protégée de Sangomar polarise les Communautés rurales de Palmarin et de Dionewar (fig.1).

La Communauté Rurale de Palmarin se trouve dans l'arrondissement de Fimela, région de Fatick et s'étend sur une superficie de 77km<sup>2</sup>. Elle est limitée au Nord par la Communauté rurale de Fimela, à l'Ouest par l'océan Atlantique qui longe toute cette partie occidentale, au Sud et à l'Est par le bras de mer du Saloum qui le sépare de l'arrondissement Niodior.

La communauté Rurale de Dionewar est située dans la zone insulaire de la région de Fatick. Elle est localisée dans le département de Foundiougne, arrondissement de Niodior. Elle est limitée au Nord par la Communauté rurale de Fimela, au Sud par la Communauté rurale de Toubacouta, à l'Ouest par l'océan atlantique, à l'Est par les Communautés rurales de Djirnda et de Bassoul. Elle couvre une superficie de 316 km<sup>2</sup>.

L'Aire Marine Protégée de Sangomar (fig. 2) est limitée au Nord par l'AMP de Joal Fadiouth, au Sud par le Parc National du Delta du Saloum et à l'Est par la Réserve Naturelle Communautaire (RNC) de Palmarin et les Communautés rurales de Bassoul et de Djirnda. A l'Ouest, elle est limitée par l'océan Atlantique. Elle couvre une superficie de 87 437 ha dont une grande partie se trouve dans la Réserve de Biosphère du Delta du Saloum.

Du côté de la Communauté Rurale de Dionewar, l'AMP comporte dans la partie estuarienne huit (08) bolongs et quatre (04) sites de reproduction des poissons et des arches (DAMCP, 2013). Dans la partie marine, elle englobe une zone de frayère (la fosse de Sangomar ou fosse de Bakina). Du côté de la Communauté rurale de Palmarin, elle s'étend sur douze (12) miles marins sur la façade maritime ouest (tableau 1).



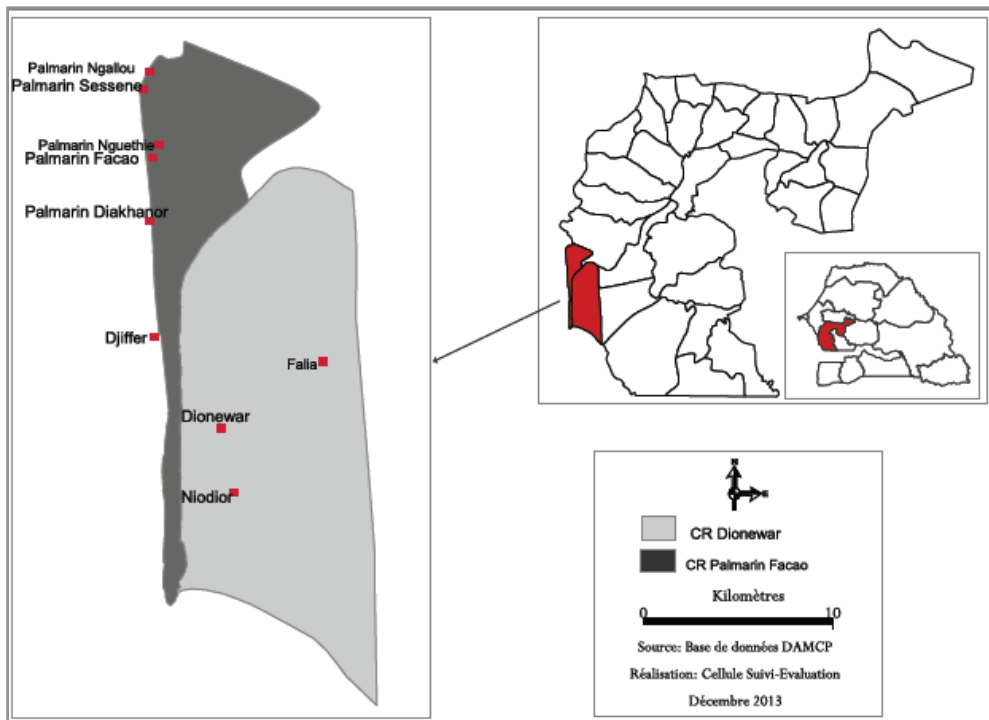


Figure 1 : Carte de localisation des villages des CR de Palmarin et de Dionewar  
(Source : DAMCP, 2013)

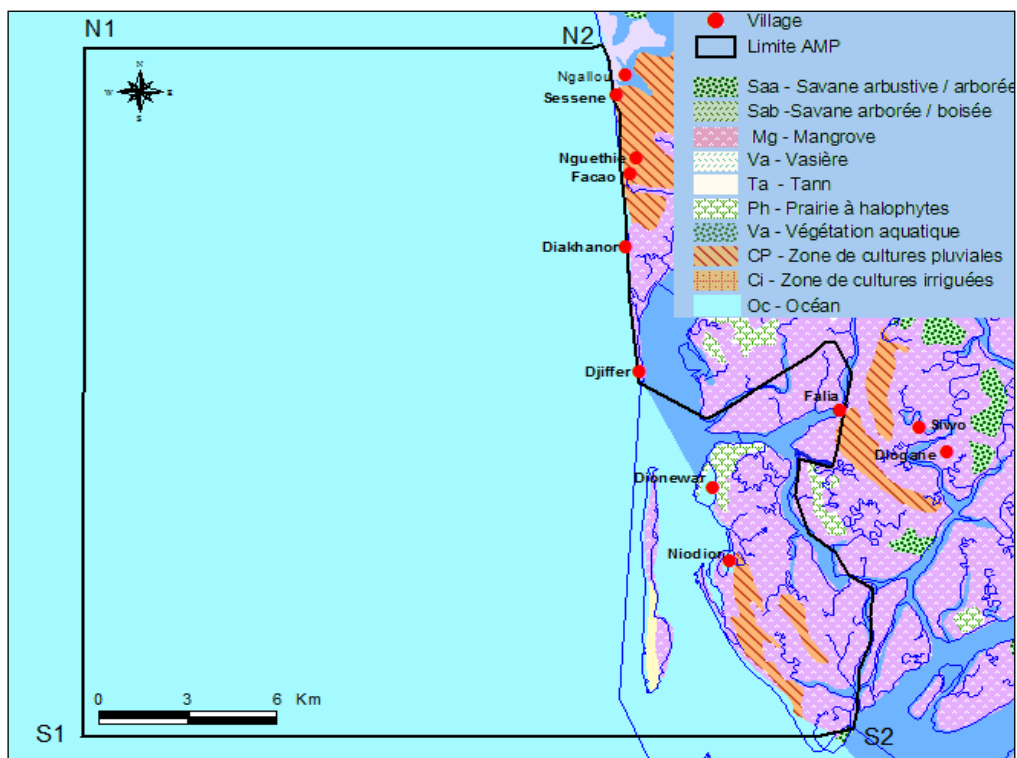


Figure 2 : Carte de localisation de l'AMP de Sangomar  
(Source : DAMCP, 2013)

Tableau 1 : Coordonnées des limites de l'AMP de Sangomar

N° d'ordre	Zone	Sites et Bolongs	Coordonnées UTM	
			X	Y
<b>Partie terrestre de l'AMP</b>				
1	Niodior- Dionewar	Fosse Bakina (zone de frayère)	310458	1530862
2	Niodior	Sofna début (zone de frayère)	313921	1527752
3		Sofna fin (zone de frayère)	316425	1524497
4		Sarékossi (zone de reproduction arche)	312687	1529830
5		Saréma (zone reproduction arche)	317927	1531919
6		Bonlong Diakarwett (Fadiong)	318769	1524940
7		Bolong Djihor	316552	1533808
8		Falia	Bolong Godane	317717
9	Bolong Sabou		315574	1539023
10	Bolong Fambang		317241	1540428
11	Dionewar	Bonlong Gokhor	314963	1537633
12		Bolong Thique	314953	1537532
13		Bolong Djimsane	314942	1537445
<b>Partie marine de l'AMP</b>				
14	Limite Nord	N1	285934	1555840
15		N2	308090	1555840
16	Limite Sud	S1	285934	1524469
17		S2	318678	1524469

(Source : DAMCP, 2013)

## 2.2. Cadre biophysique de l'AMP

### 2.2.1. Cadre physique

#### 2.2.1.1. Le Relief

Mis à part les bas fonds ou cuvettes localisés majoritairement dans les parties Est et Nord de son terroir, la zone d'emprise de l'AMP est caractérisée par un relief essentiellement plat.

#### 2.2.1.2. Le Climat

##### ☞ Les vents

Le climat de la zone d'emprise de l'AMP est largement influencé par les alizés maritimes du fait de la proximité de celle-ci avec l'océan Atlantique et de par sa situation géographique qui lui confère un caractère de presqu'île. Mais la zone est également sous influence des alizés continentaux et des vents de mousson.

- ✓ **Les alizés maritimes** soufflant de Novembre à Mai et qui contribuent très largement à la diminution des températures durant cette période. Ces masses d'air se déplacent généralement à des vitesses allant de 2 à 6 m/s en moyenne et sont de direction nord et nord-ouest.
- ✓ **Les alizés continentaux ou harmattan** soufflent d'avril à juin, installant la région dans un climat chaud et sec. Ils sont responsables des nuages de poussières qui envahissent l'atmosphère recouvrant ainsi tous les espaces traversés d'un dépôt de sable fin.
- ✓ **Les vents de mousson**, de direction ouest, avec des vitesses moyennes comprises entre 0,8 et 2,8 m/s, issus de l'anticyclone Sainte Hélène. Ils sont à l'origine des précipitations durant la saison des pluies.

#### ☞ **Les températures**

La zone d'emprise de l'AMP de Sangomar est caractérisée par deux saisons : une saison sèche et une saison pluvieuse.

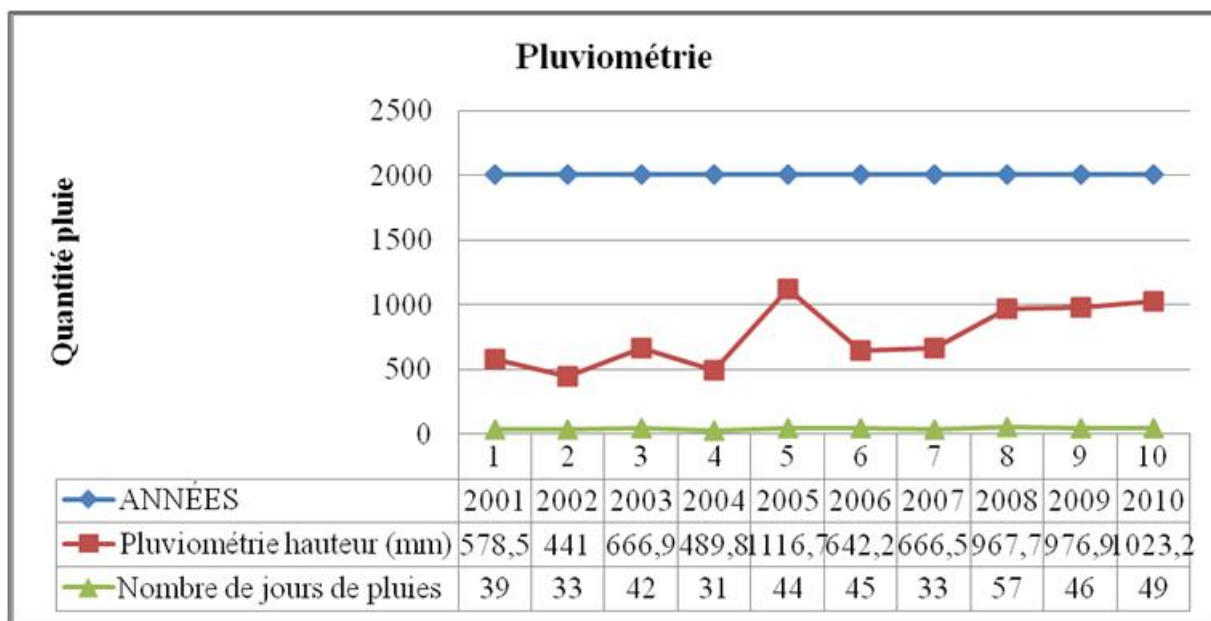
La saison sèche s'étale sur huit mois (octobre à juin) durant lesquels une combinaison régulière alizée maritime-harmattan, favorise la constance d'un climat relativement frais avec une température moyenne de 27°C. Les extrêmes sont de 17°C en janvier et 37°C en juin.

Quant à la saison des pluies, elle s'étale entre juin et octobre. Pendant cette période, les températures moyennes mensuelles enregistrées sont supérieures à 32 °C.

#### ☞ **La pluviométrie**

La pluviométrie de la zone d'emprise de l'AMP évolue en dents de scie. Entre 2001 et 2010, la plus faible hauteur d'eau a été enregistrée en 2002 avec **441,0 mm** pour **33 jours**. La plus grande hauteur a été enregistrée en **2005** avec **1116,7mm** pour **44 jours** (fig. 3).

La moyenne décennale de 2001 à 2010 enregistrée au niveau de l'arrondissement de Niodior est de **756,94 mm** pour **42 jours**.



**Figure 3** : Variation de la pluviométrie lors des 10 dernières années

(Source : Données Service Agriculture et PLD de Dionewar, 2003)

La figure 3 montre que la pluviométrie de la zone d’emprise de l’AMP est très instable. Cette instabilité se fait ressentir sur le secteur agropastoral qui dépend essentiellement du facteur pluviométrique. Selon les populations locales, cette instabilité serait liée aux changements climatiques auxquels elles imputent les autres changements environnementaux tels que l’érosion côtière (photo 1), l’avancée de la langue salée, la dégradation de la mangrove, etc.



**Photo 1** : Manifestation de l’érosion côtière au niveau de Dionewar

(Source : DAMCP, 2013)

### 2.2.1.3. Les Sols

La littérature scientifique fait état de quatre (04) types de sols dans la zone d'emprise de l'AMP. Ce sont:

- ✓ **Les sols *Dior* ou ferrugineux tropicaux lessivés** localisés dans le centre et le Nord Est du terroir, ils constituent la majeure partie des terres cultivables. Ces sols de nature meuble et perméable sont très favorables aux cultures pluviales essentiellement dominées par le mil et l'arachide ;
- ✓ **Les sols *Deck-Dior* ou ferrugineux tropicaux peu lessivés** qui n'occupent qu'une faible partie de la superficie totale du terroir. Ils sont très adaptés au maraîchage, à l'arboriculture et aux cultures pluviales ;
- ✓ **Les bas fonds ou cuvettes** localisés pour la majorité dans la partie Est et Nord du terroir. Ces sols constituent des zones à vocation rizicole et maraîchère. Pendant la saison des pluies, ils sont inondés et deviennent propices à la riziculture. Pendant la saison sèche, les bas fonds constituent les zones de pratique du maraîchage en raison de l'affleurement de la nappe d'eau;
- ✓ **Les sols halomorphes** rencontrés tout le long des bolongs. Ils ne permettent aucune activité agricole. En période de haute marée, ces sols sont occupés par les eaux qui, au retrait, laissent de fines couches de sel non exploitables. Ces sols qui ne cessent de s'étendre, abritent des « puits de sel » aménagés par les populations.

### 2.2.1.4. Les ressources en eau

#### 2.2.1.4.1. Les eaux de surface

On trouve d'importantes ressources en eau dans la zone d'emprise de l'AMP de Sangomar. Situées sur la côte atlantique, les Communautés rurales de Palmarin et de Dionewar abritent chacune un réseau de bolongs qui communique parfois avec des lagunes. L'eau des bolongs est salée à sursalée. Cette salinité affecte la nappe phréatique qui est peu profonde dans la zone. Cette situation réduit la disponibilité de l'eau de qualité pour les populations. Elle a d'ailleurs motivé l'intervention de certains partenaires dans la mise en place de dispositifs de Collecte d'Eaux Pluviales (CEP) afin d'augmenter la disponibilité d'eau douce pour les besoins de consommation des populations (photo 2).



Photo 2 : Dispositif de collecte d'eaux pluviales au niveau de Falia  
(Source : DAMCP, 2013)

Le réseau hydrographique est composé :

- ✓ **du bras de mer du Saloum** partiellement séparé de la mer par la flèche de Sangomar. Il présente depuis la rupture de celle-ci en 1987 deux embouchures dont l'une à Sangomar avec environ 1 800 m de large et l'autre à Lagoba avec 5 km de large. A partir de la mer, le Saloum prend une direction Sud-Nord sur environ 13 km. Sa largeur maximale sur ce bief est de 2 km. Il décrit ensuite, un grand coude (Nord-Est puis Sud-Est) et se dirige vers le Nord-Est jusqu'à Foundiougne ;
- ✓ **du bolong de Falia**, chenal qui prend sa source à partir du Saloum avant de se diviser en deux cours d'eau entre les villages de Dionewar et de Falia ;
- ✓ **du bolong de Diagne** qui passe dans la partie Est du village de Niodior après avoir pris sa source à partir du fleuve Saloum ;
- ✓ **des mares temporaires** au nombre de dix huit (18) dans les Communautés rurales de Palmarin et de Dionewar. Leurs eaux sont essentiellement utilisées pour le maraîchage et pour l'abreuvement du bétail.

Il est important de noter que les bolongs jouent un rôle crucial pour la pêche et le transport fluvio-maritime.

#### 2.2.1.4.2. Les eaux souterraines

Elles proviennent de la nappe continentale terminale dont la profondeur varie entre 4 et 7 m. L'eau de cette nappe captée avec les puits répond à tous les usages.

#### 2.2.1.5. La bathymétrie

Dans l'AMP de Sangomar, les profondeurs d'eau varient selon qu'on se situe dans la partie maritime ou dans la partie estuarienne. Dans les zones estuariennes, les fonds sont moins profonds et varient par endroit entre 0 et -10 m. En revanche, à l'observation de la carte bathymétrique (fig.4), on note à 100 km environ vers le large des profondeurs allant de -1000 à -1500 m. Pour une meilleure connaissance de la bathymétrie de l'AMP, des études complémentaires sont nécessaires.

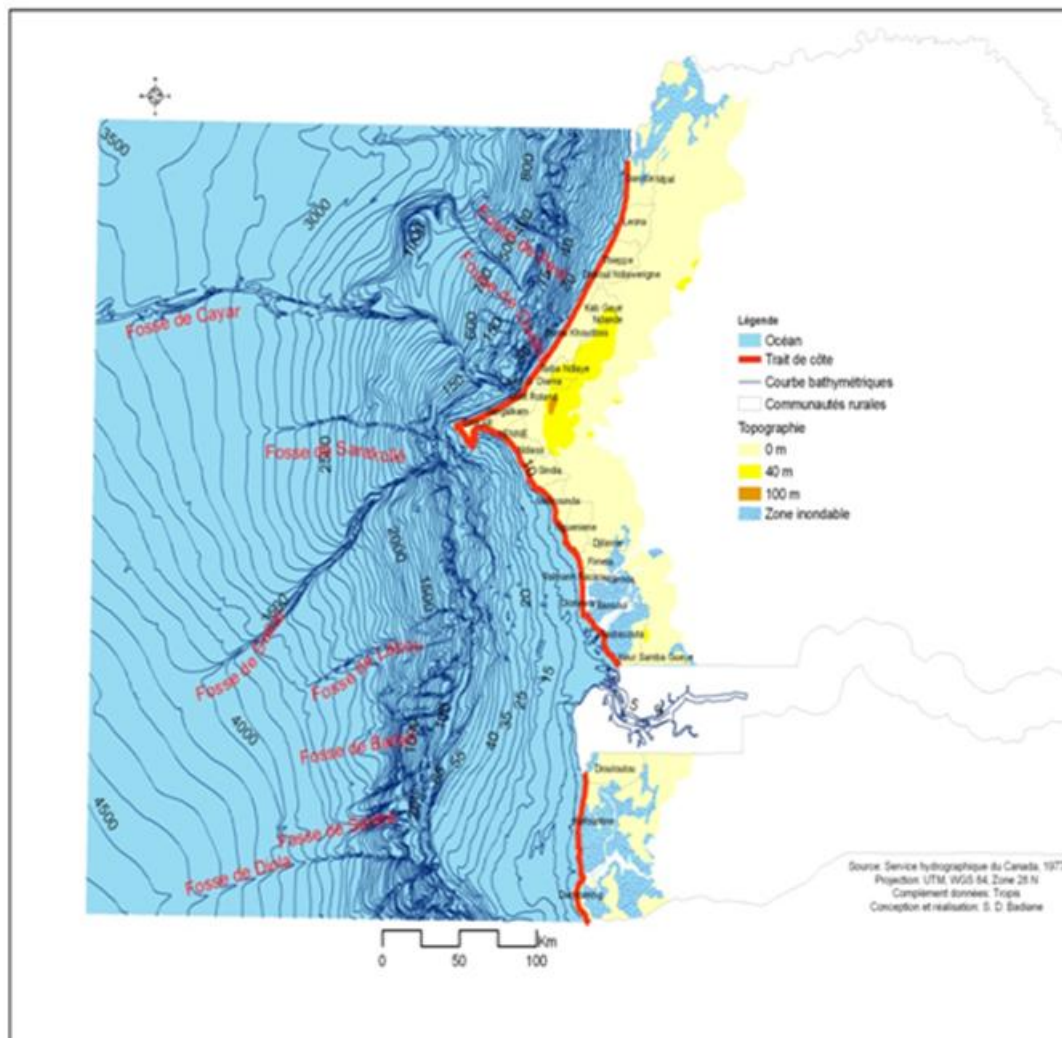


Figure 4 : Carte bathymétrique du littoral sénégalais  
(Source : Service hydrographique du Canada, 1977)

### 2.2.2. Cadre biologique

La flore et la faune de la zone d'emprise de l'Aire marine protégée ont subi une profonde modification au cours du temps. Cette modification est liée principalement aux activités de l'homme, à la sécheresse et aux changements climatiques.

La flore et la faune de l'Aire protégée ont subi de profondes modifications au cours de ces dernières années. Ces changements sont liés principalement aux activités humaines et aux changements climatiques.

#### 2.2.2.1. La flore

La végétation de la zone est essentiellement composée de trois strates :

##### ☞ La strate arborée

Cette strate se décompose en deux formes d'écosystèmes forestiers relativement bien conservés et en nette régénération (surtout en ce qui concerne celles de la mangrove).

##### ✓ La forêt littorale

Elle est constituée essentiellement des espèces arborées de l'écosystème de la mangrove. Elle est composée des espèces *Rhizophora racemosa*, *Rhizophora mangle*, *Avicenia germinans*, *Laguncularia racemosa* et *Conocarpus erectus*. L'écosystème de la mangrove très important, est aussi le lieu de reproduction et de développement de certaines espèces de faune et de flore, d'où cette prise de conscience de la population pour sa protection. Vers la terre ferme, *Tamarix senegalensis*, une espèce halophile, occupe l'interface entre la mangrove et la végétation de terre ferme.

##### ✓ La forêt sur la terre ferme

Elle se localise dans la zone continentale après le rideau de mangrove. Elle abrite les activités d'agriculture et de l'élevage. Elle est composée d'essences soudano-guinéennes telles que *Parinari macrophylla* (new), *Detarium senegalense* (ditakh), *Borassus aethiopum* (ronn), *Parkia biglobosa* (nété) », *Elaeis guineensis* (tiir), *Adansonia digitata* (guy), *Tamarindus indica* (dakhar), *Daniellia oliveri* (santan»), *Faidherbia albida* (kadd), *Prosopis juliflora* (neb neb tubab). A côté de ces espèces locales, existent principalement les espèces exotiques suivantes : *Casuarina equisetifolia* (filao), *Eucalyptus camaldilensus* (khot butel), *Cocos nucifera* (coco), *Mangifera indica* (mango), *Azadirachta indica* (neem), etc.



### ☞ **La strate arbustive**

Comme espèces arbustives, nous retrouvons essentiellement *Ziziphus mauritiana* (*sidem*), *Maytenus senegalensis* (*guen gui dek*), *Dialium guineensis* (*solom*), *Calotropis procera* (*paftan*), *Raphia sp.*, *Citrus sp.*, etc.

### ☞ **La strate herbacée**

Elle est saisonnière et est fonction de la pluviométrie qui s'étale de juin à octobre. Ainsi, pendant la période hivernale le tapis herbacé est bien fourni et très varié.

Elle est composée entre autres de : *Pennisetum pedicellatum*, *Digitaria horizontalis*, *Aristida mutabilis*, *Schoenefeldia gracilis*, *Eragrostis tremula*, *Cenchrus biforus*, *Eleusine indica*, *Commelina benghalensis*, *Cassia obtusifolia*, *Zornia glochidiata*, *Hypomea asarifolia*, *Alysicarpus ovalifolius*, *Borreria stachydea*, *Leptadenia astata*, *Cyperus maritimus*, etc. Cette diversité herbacée est d'une grande utilité pour la localité car constituant une source d'alimentation du bétail dont la survie est étroitement liée à l'abondance de cette dernière.

Le potentiel végétal de la collectivité locale est fortement menacé par l'action anthropique combinée aux aléas climatiques de plus en plus pressants. La coupe abusive est effectuée pour la satisfaction des besoins liés à l'approvisionnement en bois de chauffe et en bois d'œuvre mais surtout pour les besoins d'extension des superficies de culture et autres activités liés à la pêche et la construction des habitats.

Fort heureusement, ces dix dernières années, une prise de conscience des enjeux climatiques s'est effectuée, poussant les populations au reboisement à l'exploitation rationnelle des espèces forestières menacées (mangrove).

## **2.2.2.2. La faune**

### ☞ **La faune terrestre**

Jadis très variée, la faune est aujourd'hui en nette régression (DAMCP, 2013). Selon les témoignages reçus auprès de vieilles personnes, des espèces comme le lion, la panthère et d'autres antilopes étaient souvent rencontrées dans la zone. Mais aujourd'hui, elles ne sont plus signalées. Toutefois, on y rencontre des oiseaux migrateurs (les flamants roses, les pélicans, les sternes, les guépiers verts, les hérons cendrés, etc.), et des d'autres mammifères tels que l'hyène, le chacal, le ratel, la genette, le singe patas, etc.) et des reptiles (tortue marine, crocodile, varan du Nil, python, couleuvre, etc.).

## ☞ La faune aquatique

Elle est très diversifiée et peut être répartie en deux grands groupes : les espèces évoluant en zone estuarienne et celles évoluant en zone maritime (tableau 2).

Tableau 2 : Espèces capturées ou observées au niveau des estuaires et de la mer

Milieux	Poissons	Mollusques	Crustacées
<b>Estuaire</b>	Carpes rouges (yax) Carpe noir (nawrex) Mérrou blanc (thiof) Carpe grise (waas) Capitaine (jum) Mulet (gris) Soles (sapal) Poisson chat (kong) Sardinelles (yaboy) Ceinture (tallar) Ethmalose (cobo) Chinchard (diaï) Drepane (tapandar) Raie (rayartar) Barracudas (senda) Carangue (saaka) Lamantin (lemar),	Murex (touffa) Cymbium (yet) Arche (pagne) Huitre (yokos) Seiche (yeuredeu) Poulpe (yaranka)	Crevettes (sipaax) Crabes
<b>Mer</b>	Carpes rouges (yax) Carpe noir (nawrex) Mérrou blanc (thiof) Thon Carangue (saaka) Capitaine (jum) Carpe blanche (sompat) Sardinelles (yaboy) Poisson chat Requin (gaïndé guèdj)	Poulpe (yaranka) Seiche (yeuredeu) Langouste (sum) Oursin (sohsohoor) Hippocampe. (fassou guedj)	

(Source : DAMCP, 2013)

## III. CONTEXTE SOCIOECONOMIQUE

### 3.1. Population

#### 3.1.1. Démographie

Les Interviews Semi-Structurées (ISS) effectuées dans l'ensemble des villages des CR de Palmarin et de Dionewar (tableau 3), révèlent un effectif total de 23 671 habitants en 2011

dont 10 143 habitants de la CR de Palmarin et 13 528 habitants de la CR Dionewar (PLD CR Dionewar et Palmarin, 2011).

Tableau 3 : Répartition par village de la population dans les CR de Palmarin et de Dionewar

Communauté rurale	Villages	Population
<b>DIONEWAR</b>	Dionewar	5 395
	Niodior	7 235
	Falia	898
<b>PALMARIN</b>	Palmarin Ngoundoumane	1 360
	Palmarin Nguethie	668
	Diakhanor	556
	Hameau de Djiffer	4 781
	Sessène	1 124
	Ngallou	1 654
<b>Total</b>		<b>23 671</b>

(Source: PLD CR Palmarin / Dionewar, 2011)

Dans la Communauté rurale de Palmarin, la structure de la population par sexe révèle 5 885 hommes contre 4 258 femmes, soit un rapport de masculinité de 138 hommes pour 100 femmes. Dans la Communauté rurale de Dionewar, la structure de la population laisse apparaître un effectif de 7 210 hommes contre 6 318 femmes, soit un sexe-ratio de 114 hommes pour 100 femmes. Les graphiques ci-dessous (fig.5) illustrent la répartition par sexe de la population de la CR de Palmarin et celle de la CR de Dionewar.

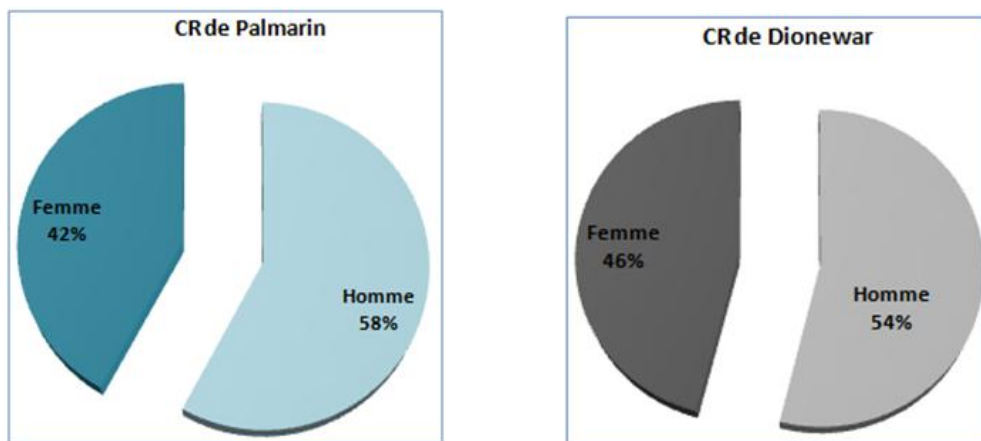


Figure 5 : Répartition de la population par sexe dans les CR de Palmarin et de Dionewar  
(Source: PLD CR Palmarin / PLD CR Dionewar, 2011)

A Palmarin, il faut préciser que la prédominance des hommes s'explique en partie par le fait que le hameau de Djiffer (quai de pêche qui reste largement plus peuplé que les autres villages) est pratiquement peuplé d'hommes (3150 hommes contre seulement 1631 femmes en 2011 selon le *PLD de Palmarin, 2011*). En effet, le hameau de Djiffer est essentiellement peuplé de pêcheurs migrants qui s'installent généralement sans leur famille. Il en est de même pour le village de Ngallou (photo 3).



Photo 3 : Vue paysagère du hameau de Djiffer

(Source : DAMCP, 2013)

### **3.1.2. Mouvements migratoires**

Au niveau des CR de Palmarin et de Dionewar, les migrations (flux externes mais aussi internes à la collectivité locale) se résument à l'exode rural et à l'émigration définitive ou saisonnière des pêcheurs.

#### ✓ **L'exode des jeunes**

Une bonne partie des jeunes des deux CR se déplacent vers les grands centres urbains où ils s'installent temporairement et parfois définitivement. Ce phénomène est plus accentué chez les filles car près de 80% d'entre elles demeurent dans les grandes villes et ne reviennent que lors des cérémonies traditionnelles ou des fêtes religieuses. Les jeunes migrent vers Joal, Kaolack, Dakar et même en Gambie pour des raisons économiques ou pour poursuivre leurs études dans des établissements d'enseignement secondaire ou supérieur (lycée, université, ...). Certains d'entre eux finissent pas s'installer définitivement dans ces centres urbains et accentuent ainsi le dépeuplement de leurs localités d'origine.

#### ✓ **Les mouvements des pêcheurs**

Des pêcheurs arrivent saisonnièrement dans les Communautés rurales de Palmarin et de Dionewar. Ils s'y installent temporairement et parfois même définitivement. Le hameau de

Djiffer et son village centre (Ngallou), constituent les principales zones d'attraction de groupes de pêcheurs, originaires pour la plupart des villes de Thiès et de Saint-Louis. Ces migrants saisonniers ou définitifs, dépassent 20 % de la population (*PLD, CR Palmarin, 2011*).

A l'inverse, on note des déplacements saisonniers de pêcheurs originaires des CR de Palmarin et de Dionewar vers l'intérieur du pays ou vers les pays limitrophes comme la Gambie, la Guinée Bissau et la Mauritanie.

### **3.1.3. Caractéristiques socioculturelles**

#### **3.1.3.1. Les ethnies**

Les collectivités locales de Dionewar et de Palmarin sont majoritairement peuplées de *Sérères*. Ces derniers représentent 95% de leur population. Toutefois, du fait de l'importante colonie de migrants, surtout à Djiffer, ainsi que des flux migratoires, on y trouve des Wolofs et des *Manjaques*.

#### **3.1.3.2. Religions**

Dans la CR de Palmarin, la religion dominante est le christianisme avec plus de 70% de chrétiens. L'Islam vient en seconde position et les musulmans sont particulièrement localisés dans les villages de Ngallou et de Djiffer où ils sont majoritaires. La Communauté rurale compte trois (03) grandes mosquées, neuf (09) petites mosquées, trois (03) chapelles et une église (*PLD, CR de Palmarin, 2011*).

Dans la CR de Dionewar, l'Islam est la seule religion pratiquée. Cette collectivité compte 17 mosquées dont 04 grandes. Sur le plan de l'éducation et de l'organisation religieuse, on note 06 écoles arabo-coraniques et 18 associations religieuses ou Dahiras (*PLD, CR de Dionewar, 2011*).

### **3.2. Activités économiques**

#### **3.2.1. La pêche et les activités de cueillette malacologique**

De par leur configuration géographique, les collectivités locales de Palmarin et de Dionewar disposent d'atouts et de potentialités importantes dans le secteur de la pêche, composante essentielle de leur développement économique et social. Ces atouts et potentialités sont entre autres:

- la proximité de l’océan Atlantique ;;
- le bras de mer du fleuve Saloum qui longe la façade Est de la CR de Palmarin ;
- les deux (02) principaux bolongs de Diagne et de Falia ;
- la trentaine de bolongs à l’intérieur des terroirs de la CR de Dionewar ;;
- les importantes formations de mangrove ;;
- l’existence de côtes marécageuses ;;
- les frayères (*Fosse Bakina*, « *parc Sofna* », *Bosdo*, *Djokholo*, *Fossémou*, *Foukhème*, *Fafando*) ; etc.

Ainsi, de Palmarin à Dionewar, les activités de pêche sont pratiquées tout au long de l’année. Ces activités génèrent des emplois permanents et saisonniers et procurent d’importants revenus aux populations.

### **3.2.1.1. Les zones de pêche**

La pêche occupe la presque totalité de la population active dans les collectivités locales de Dionewar et de Palmarin. C’est d’ailleurs la raison pour laquelle, les *Sérères* des îles du Saloum, essentiellement des pêcheurs de profession, sont appelés communément « *sérères ñomijka* » qui veut dire littéralement « sérère pieds dans l’eau ».

Dans ces deux collectivités, l’activité de pêche est pratiquée au niveau de l’océan, des bolongs et dans les vasières. Au niveau de la CR de Palmarin, elle est particulièrement développée dans les zones de Ngallou, de Sessène, de Diakhanor et de Djiffer. Dans la CR de Dionewar, elle est effectuée surtout au niveau des bolongs de *Fandiong*, *Djihor*, *Godane*, *Fambang*, *Sabou*, *Gokhor*, *Thique*, *Falia*, *Diagne* et *Djimsane*...

Il est important de souligner que certaines zones comme « parc sofna », Fosse de Bakina (CR de Dionewar), Bosdo, Djokholo, Fossémou, Soukhème, Fafando (CR de Palmarin) constituent des frayères. Dans les frayères de la CR de Dionewar, un repos biologique sur les arches et les huitres est observé respectivement du 30 juin au 1<sup>er</sup> octobre et du 30 juin au 1<sup>er</sup> janvier afin de favoriser une bonne régénération des ressources malacologiques.

### **3.2.1.2. Types de pêches**

Dans les CR de Palmarin et de Dionewar, l’introduction des nouvelles techniques de pêche (sennes tournantes et bateaux) daterait de 1977 (*PLD, CR Dionewar, 2011*). Bien que les pratiques de pêche, tendent à se moderniser avec notamment l’acquisition de pirogues à

moteur, la collecte des produits de mer se fait essentiellement de façon traditionnelle. On distingue dans la zone deux types de pêche :

- **la pêche à la ligne** qui est pratiquée en haute mer par un grand nombre de pirogues et nécessite un long séjour (deux à quinze jours) ;
- **la pêche au filet** pratiquée par peu de pêcheurs et portant le plus souvent sur des produits comme les crevettes, les carpes, les murex, les cymbium, les machoirons, les mulets, etc. La pêche crevettière, en ce qui la concerne, s'effectue en pleine nuit en période de marée basse le long de la côte.

Selon Bousso (1994), les différents filets utilisés par les pêcheurs sont les suivants :

- **les filets tournants** « *fila tourné*<sup>2</sup> », engins utilisés en mer. Ils permettent de capturer plus facilement les *Sardinella spp.* ainsi que d'autres espèces côtières comme *Pomadasys spp.*, *Caranx rhonchus*, *Scorneromorus tritor*, *Brachydeuterus autitus*, *Chloroscombrus chysurus*, *Sphyraena spp.*, *Euthynnus alleteratus*, *Caranx hippos* et *Trichiurus lepturus*.
- **la senne** « *mbaal laaw* » avec ses deux variantes :
  - le « *mbaal laaw opane* » qui est plus efficace en marée basse. Les zones de pêche où il est utilisé sont les bolongs, les bras du fleuve et les passes ;
  - le « *mbaal laaw diguel* » qui est une variante proche du « *mbaal laaw opane* » mais moins longue.
- **les filets maillants** avec quatre catégories :
  - **les filets maillants fixes** « *mbaal sër* » qui sont plus sélectifs quant au choix de l'espèce et à la taille du poisson ou du mollusque ;
  - **les filets maillants dérivants de surface** « *félé félé* », plus adaptés pour pêcher les mulets, les tilapias, les ethmaloses; ce sont les engins les plus répandus dans la région de Fatick ;
  - **les filets maillants dérivants de fond** « *yolal* » utilisés pour pêcher principalement les barracudas ;
  - **les filets maillants encerclant** « *saïma* » dont 80 % des prises sont constituées par *Ethmalosa fimbriata* et *Sardinella spp.*, le reste pouvant être constitué d'*Arius spp.*, de *Caranx spp.*, de *Pseudotolithus spp.*, de *Sphyraena spp.*, etc.
- **les engins retombants** constitués par les éperviers à mulets, ethmaloses, tilapias, etc ;
- **le filet soulevé** « *dialla* » avec comme espèce cible le tilapia ;

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<sup>2</sup> Nom local Ouolof donné à ce type d'engin  
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- **les chaluts** dont la cible est la crevette, mais qui capturent également d'autres espèces de poissons juvéniles ;
- **les filets à l'étalage « moudiasse »** encore appelés filets fixes à crevette ;
- **les lignes et hameçons** parmi lesquels on distingue les lignes à main « *o' diaro* » et les palangres « *armandingue* ». Les espèces ciblées sont *Sphyraena spp.*, *Lutjanus spp.*, *Epinephelus aenus*, *Polydactylus quadriilis*, *Rachycendron canadum*, *Trichiurus lepturus*, *Echeneis naucrates*.
- **les pièges :**
  - le « *ippou* » ou « *sarap* » qui est un engin avec de très petites mailles, et par conséquent pas du tout sélectif ;
  - le « *warande* » qui est un panier-piège en fibres ou feuilles de rônier tressées, utilisé le plus souvent par les femmes et les enfants ;
  - **les casiers à seiches ;**
  - **les pièges à poulpes** qui sont des instruments permettant de pêcher les pieuvres
- **les harpons** qui sont des engins de pêche par accrochage ou par blessure. Jadis largement utilisée, la pêche au harpon n'est pratiquée aujourd'hui que par des adolescents qui en font une activité récréative.
- **les autres engins :**
  - le « *o'sag* », engin filtrant l'eau afin de retenir les petits poissons ;
  - **la calebasse**, qui est un engin utilisé surtout par les enfants et les femmes. Grâce à ses trous, elle laisse passer l'eau pour ne retenir que les poissons.

Parmi ces engins, certains sont utilisés avec des mailles non réglementaires par des pêcheurs allochtones, en provenance notamment de la Guinée.

### 3.2.1.3. Les débarquements

La nature des produits débarqués varie en fonction des saisons. Ainsi durant la saison des pluies, les espèces débarquées sont les crevettes, le poisson chat, les sardinelles, les seiches, la carpe grise, le mérou, la carangue et le poulpe. Le tableau 4 ci-après, montre les principales espèces débarquées ainsi que leur lieu d'acheminement.



Tableau 4 : Récapitulatif des principales espèces halieutiques débarquées au niveau de quelques villages des collectivités locales de Palmarin et de Dionewar

Localité	Principales espèces débarquées	Lieu de débarquement	Destination des produits frais	Types de produits transformés	Destination des produits transformés
Niodior	Ethmalose, Sardinelle, Mulet, Carpe	Niodior	Autoconsommation, transformation artisanale	Guédj, poisson fumé, tambadiang	Kaolack, Sokone, Dakar
Dionewar	Brochet, Ethmalose, Sardinelle, Mulet	Dionewar, Djiffer, Joal	Autoconsommation, mareyage, transformation artisanale	Guédj, poisson fumé	Marchés hebdomadaires, Dakar, Burkina Faso, Guinée
Falia	Ethmalose, Sardinelle, Mulet, Carpe	Falia, Djiffer, Banjul (Gambie)	Autoconsommation, mareyage, transformation artisanale	Guedj, poisson fumé	Marchés hebdomadaires, Kaolack, Dakar, Burkina Faso, Bénin, Guinée
Palmarin Ngallou	Carpe, Mulet	Palmarin Ngounoumane	Autoconsommation, mareyage	Néant	Néant
Djiffer	Carpe, Machoiron, Mérrou, Capitaine, <i>Cymbium</i> , Murex	Djiffer	Autoconsommation, mareyage, transformation artisanale	<i>Guédj, tambadiang, yeet, touffa</i>	Dakar, Kaolack
Palmarin Diakhanor	Carpe, Seiche, Mulet, <i>Cymbium</i>	Palmarin Diakhanor	Autoconsommation, mareyage, transformation artisanale	<i>Guédj, yeet</i>	Joal
Palmarin Ngouloumane	Sole, Lotte, Seiche, Yeet	Palmarin Ngallou	Autoconsommation, mareyage, transformation artisanale	<i>Guédj, tambadiang, yeet</i>	Palmarin Ngallou

(Source : Dème, 2009)

Selon les populations de ces zones, les captures sont à la baisse depuis 1987 suite à la rupture de la flèche de Sangomar. Cette rupture aurait entraîné d'importantes perturbations (érosion côtière, ensablement des bolongs, diminution des algues et herbiers marins, etc.). En effet, les fonds sableux libérés par la rupture de la brèche sont aujourd'hui omniprésents et bouchent les principaux points de passage des pirogues au niveau de l'estuaire. Ils envahissent également les zones de repos biologique et de reproduction des espèces halieutiques (*PLD CR Palmarin, 2011*).

En plus de la diminution des captures, l'ouverture de la flèche serait également à l'origine de:

- la réapparition de quelques espèces de poissons comme « kothie », « waragne » et « kibaro » ;
- la raréfaction d'autres espèces de poissons telles que « saka », « todjié », et « yanda » ;
- la rareté des ressources et la diminution des stocks ;
- la diminution de l'ensemble des coquillages à part les arches.

#### 3.2.1.4. La cueillette malacologique

La cueillette malacologique a lieu au niveau des vastes étendues de vasières appelées « saré » en nom local. Elle se fait avec des outils rudimentaires (photo 3) et s'effectue dans des conditions difficiles avec peu de sécurité. Les femmes utilisent de petites pirogues non motorisées pour naviguer à la recherche de zones plus productives.



Photo 4 : Activité de cueillette malacologique

(Source : DAMCP, 2013)

Appelée pêche à pied, elle concerne l'exploitation des mollusques tels que le « yokhoss » huître (*Crassostrea gasar*), le « yet » cymbium (*Cymbium sp.*), le « touffa » et « sangaradj » (*Murex sp.*, *Thais sp.*), la seiche (*Sepia officinalis*), le « pagne » arche (*Arca senilis*). Cette activité revêt une grande importance dans la zone. Cependant elle est limitée par l'ensablement des vasières qui résulte de la rupture de la flèche de Sangomar. En effet, cet ensablement retarde la reproduction et la croissance des fruits de mer. En vue de pallier ce phénomène, les populations de la CR de Dionewar procèdent à desensemencements d'arches et ont instauré un repos biologique sur ces produits ainsi que sur les huîtres afin de leur assurer une bonne régénération.

Le tableau 5 donne la liste des produits récoltés ainsi que leurs lieux de cueillette.

Tableau 5 : Types de produits récoltés dans quelques villages des CR de Dionewar et de Palmarin

Localité	Types de produits collectés	Lieux de cueillette	Nombre d'acteurs	Organisation de la filière
<b>Niodior</b>	Huître, touffa, pagne, yeet	Diombass, Akat, Boubo, Ndiare Diamba, Ndiaré Tombé, Sangomar, Kad Raoussy, Diandofo	420 dont 400 femmes et 20 hommes	Repos biologique observé pour la cueillette des huîtres en hivernage, Fermeture d'une zone de frayère pour les poissons (Parc <i>Sofna</i> )
<b>Dionewar</b>	Huîtres, pagne, touffa, yeet	Akess, Dioudiouré, Lakass, Boubo	700 (toutes des femmes)	Repos biologique observé pour la cueillette des huîtres en hivernage
<b>Falia</b>	Huîtres, pagne, touffa, yeet	Saré Mambirame, Saré Lembériné, Bourédiène, Ndiathiaré, Asséné Aradj Fodé, Ciokoki Lofine, Gokok Sébégne, Saré Mariam, Saré Mackalé, Saré Iboua	200 (toutes des femmes)	Repos biologique observé pour la cueillette des huîtres en hivernage
<b>Palmarin Ngallou</b>	touffa, yeet	Fafanda, Katodonga, Diokholo	42 dont 30 femmes et 12 hommes	Aucune
<b>Palmarin Diakhanor</b>	Yokhoss, pagne, touffa, yeet	Bolong de Ndimrane	56 dont toutes des femmes	Les femmes cueilleuses sont organisées en GIE
<b>Palmarin Ngouloumane</b>	Yokhoss, pagne, touffa, yeet	Soukhème, Fafanda, Sango-Sango	Environ 75 dont toutes des femmes	Les femmes cueilleuses sont organisées en GIE
<b>Palmarin Nguett</b>	Yokhoss, pagne, touffa, yeet	Soukhème, Fafanda, Sango-Sango	Environ 45 dont toutes des femmes	Les femmes cueilleuses sont organisées en GIE
<b>Djiffer</b>	Néant	Néant	Néant	Néant

(Source : Dème, 2009 et DAMCP, 2013)

### 3.2.1.5. La transformation des produits halieutiques

La transformation des produits halieutiques est une activité essentiellement féminine (photo 4). Elle se fait de façon artisanale, dans des conditions précaires, faute d'unités modernes de transformation et de conservation. Nonobstant ces contraintes, la Fédération des GIE

(FELOGIE) de Dionewar a reçu en 1996 et en 2003, le grand Prix du Chef de l'Etat pour la promotion de la Femme. Dans la CR de Palmarin, les femmes de Palmarin Ngallou sont beaucoup plus actives dans ce secteur d'activité par rapport à celles des autres villages.

La transformation concerne les produits débarqués dans les îles et porte essentiellement sur les mollusques et les crustacés. Elle concerne également les méventes de poissons, et constitue à ce titre un palliatif à la perte de produits invendus. L'essentiel des produits transformés est écoulé dans les différents marchés hebdomadaires et centres urbains du Sénégal, en particulier au niveau de Djiffer. Une autre partie est vendue aux « *bana bana*<sup>3</sup> » qui viennent s'approvisionner au niveau des lieux de transformation.



Photo 5 : Site de transformation et de séchage des produits halieutiques à Falia

(Source: DAMCP, 2013)

Malgré son importance économique et sociale (tableau 5), la transformation artisanale des produits halieutiques se heurte à certaines difficultés parmi lesquelles l'accès limité à l'eau potable, l'enclavement de la zone et l'état défectueux des routes surtout pour la CR de Palmarin, l'absence d'aires de transformation modernes dans la plupart des centres de pêche, ainsi que le sous-équipement des transformatrices. Ces dernières sont exposées aux brûlures et à l'inhalation des fumées.

La transformation des produits halieutiques telle que pratiquée dans la zone nécessite une forte consommation en bois de chauffe. Elle constitue par conséquent un des principaux facteurs de dégradation de la mangrove. Aussi, il s'avère urgent de former les acteurs concernés en techniques de fabrication de foyers améliorés (PLD CR Palmarin, 2011).

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<sup>3</sup> Nom local donné aux grossistes et demi-grossistes  
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Le tableau ci-dessous donne les poids des produits halieutiques transformés entre 2007 et 2010.

Tableau 6 : Poids (en kg) des produits transformés de 2007 à 2010 au niveau de la CR de Dionewar

Types	2007	2008	2009	2010
Cymbium ( <i>Yeet</i> )	1 600	838	507	92
Huitre ( <i>Yokhoss</i> )	5 434	33 129	59 000	97 250
Murex ( <i>Touffa, Sangarandja</i> )	7 501	1 324	951	515
Coque ( <i>Pagne</i> )	137 339	132 217	160 210	209 055
Poisson salé et séché ( <i>Guédj</i> )	9 206	16 631	70 121	69 102

Source : PLD, CR Dionewar, 2011

### 3.2.2. L'agriculture et l'élevage

#### 3.2.2.1. L'agriculture

A l'origine de la création des villages des CR de Dionewar et de Palmarin, la base alimentaire était essentiellement constituée de produits halieutiques et forestiers. Progressivement, l'agriculture s'est ajoutée à leurs activités vers les années 1800. De type pluvial et extensif, l'agriculture se développe durant la saison des pluies au niveau des formations forestières. A la différence de la pêche qui est une activité essentiellement de rente, l'agriculture est caractérisée par une prédominance des cultures vivrières. Celles-ci concernent principalement le riz, le mil, le sorgho, le niébé, l'arachide et le bissap. Ces cultures, notamment les céréales, sont particulièrement attaquées par les oiseaux granivores tels que les mange-mil (*Quelea quelea*). En plus de l'agriculture pluviale, le maraîchage et l'arboriculture sont pratiqués, notamment par les femmes.

Dans la Communauté rurale de Dionewar, la culture du mil est très développée grâce à l'existence de terres très propices. En revanche, à cause de la salinisation des terres, la riziculture se pratique actuellement à petite échelle avec une régression nette des superficies emblavées.

Dans la Communauté rurale de Palmarin, l'arachide est la principale culture de rente. Mais face aux difficultés que rencontre cette filière, notamment les problèmes liés à sa commercialisation, sa production tend à baisser.

Par ailleurs, dans la CR de Palmarin, le potentiel en terres cultivables est limité du fait de sa configuration géographique (terres salées, tannes, érosion côtière, etc.). Ainsi, certains espaces de culture utilisés par les populations sont localisés dans la collectivité voisine de Fimela (PLD, CR de Palmarin, 2011).

De manière globale, le développement de l'agriculture dans les deux communautés rurales nécessite la levée de certaines contraintes comme :

- l'augmentation de la population de singes rouges ;
- l'avancée de la langue salée ;
- la diminution des surfaces rizicoles ;
- la divagation du bétail ;
- la faible capacité organisationnelle des agriculteurs ;
- la sous valorisation des produits maraichers ;
- l'accès difficile aux intrants de qualité et en matériel agricole moderne.

#### **3.2.2.2. L'élevage**

Comme l'agriculture, l'élevage est une activité qui vient en appoint à la pratique de la pêche dans la vie socio-économique des populations locales de Palmarin et de Dionewar. L'ampleur de sa pratique varie d'un ménage à l'autre suivant l'importance et la diversité du cheptel. Si la pêche est considérée essentiellement comme une activité de rente et l'agriculture une activité assurant en priorité la sécurité alimentaire du ménage par la production de céréales vivrières, l'élevage quant à lui est un mode de thésaurisation. C'est un élevage de type semi-extensif, caractérisé par des déplacements des troupeaux dans les terroirs villageois. Ces déplacements s'effectuent en saison des pluies à la recherche de pâturage, vers la collectivité voisine de Fimela (pour la CR de Palmarin) et vers l'île de Sangomar à travers le bras de mer le Saloum (pour la CR de Dionewar).

Par ailleurs, on constate une parfaite intégration entre agriculture et élevage. La pratique de ce dernier permet l'amendement des parcelles de culture en fumure organique à travers le parcage du bétail selon que le ménage dispose d'un cheptel de grande taille ou non. En outre, l'âne et le cheval sont essentiellement élevés pour le transport et la culture attelée.

L'analyse de la composition du cheptel laisse apparaître une prédominance de la volaille et des ovins alors que la présence d'équins est très faible. Cette situation limite les possibilités

de transport intérieur et la pratique de la culture attelée. Elle s'explique toutefois par l'insuffisance des zones de pâture liée au caractère insulaire de la localité.

En plus de l'insuffisance des zones de pâture, l'un des problèmes majeurs dans le domaine de l'élevage est le manque de suivi vétérinaire dû à l'absence d'agent dans la localité ; ce qui rend le cheptel très vulnérable. A cela, il faut ajouter la mauvaise qualité de l'eau d'abreuvement du bétail, surtout pendant la saison sèche où elle est souvent trouble et insalubre d'après les populations.

### **3.2.3. L'exploitation du sel**

L'extraction du sel est une activité très développée dans les CR de Palmarin et de Dionewar. Elle est essentiellement pratiquée par les femmes dont la quasi-totalité dispose d'un « puits de sel » (photo 5). Rien que dans le village de Niodior, on estime à plus de 1000 les « puits de sel » avec chacun un diamètre moyen de 5 m et une profondeur de 1,5 m (Gaye, 2012).

Cette exploitation est facilitée par le bras de mer du fleuve Saloum qui renferme une très forte teneur en sel pendant la saison sèche.

Il est difficile de chiffrer les quantités et les surfaces exploitées de même que les retombées économiques issues de l'extraction du sel, du fait du caractère informel de cette activité. Bien que mobilisant actuellement plus d'une centaine d'individus, son exploitation est faite de manière traditionnelle et gagnerait à être mieux modernisée et organisée.

Cette activité est pratiquée sans équipements de protection (gants, bottes, lunettes de protection) et présente ainsi d'énormes risques sur la santé des exploitants (affection des yeux et de la peau).



Photo 6 : Puits de sel au niveau de Palmarin

(Source : DAMCP, 2013)

Ce sous secteur, malgré son ampleur ces dernières années, souffre d'un manque d'organisation, ce qui est à l'origine des difficultés d'écoulement. En outre, l'absence de magasin de stockage constitue une contrainte majeure pour la conservation du sel.

#### **3.2.4. L'exploitation des produits forestiers**

De par leur caractère insulaire et leur position géographique sur la zone de transition soudano-sahélienne, les CR de Dionewar et de Palmarin abritent des formations de mangrove et des formations forestières continentales. Celles-ci comptent une diversité d'espèces parmi lesquelles on peut citer *Detarium senegalense*, *Neocarya macrophylla*, *Adansonia digitata*, *Tamarindus indica*, *Dialium guineense*, *Coconus nificera*, *Elaeis guineensis*, *Ziziphus mauritiana*, *Borassus aethiopicum*, etc. Les produits non ligneux issus de ces espèces font l'objet d'une importante activité commerciale. Selon les estimations, la production de *Detarium senegalense* « ditakh » à elle seule est évaluée à près de trente (30) tonnes par mois durant la saison d'exploitation (octobre à décembre) et cette quantité n'est que celle qui est déclarée officiellement au service des Eaux et Forêts de Niodior (PLD, CR Dionewar, 2011). Au niveau de la CR de Palmarin, les populations s'adonnent à l'exploitation de la sève de *Elaeis guineensis* pour en faire du vin de palme.

Il faut noter que les coupes abusives pour l'approvisionnement en bois de chauffe (notamment pour la transformation des produits halieutiques), en bois d'œuvre, les besoins d'extension des surfaces de culture et autres activités liées à la pêche, ainsi que la construction d'habitat menacent ces formations forestières jadis densément peuplées.

Conscient de ces menaces, les populations de la CR de Dionewar se sont organisées en comités (Comité de Gestion des Ressources et de l'Environnement ou COGERE, Comité de plage, Comité de surveillance, CLPA...) au niveau de chaque village. Ces comités s'investissent dans la surveillance, le reboisement de la mangrove, la sensibilisation et l'éducation des populations dans l'exploitation rationnelle et durable des produits forestiers, etc. C'est ainsi qu'ils sont parvenus à trouver un accord consensuel sur la période d'exploitation des produits forestiers non ligneux comme le « ditakh ».

Cependant, malgré ces initiatives de gestion des ressources, un certain nombre de problèmes demeurent. Il s'agit, entre autres :

- du manque de valorisation de certains produits forestiers non ligneux comme le *Neocarya macrophylla* ;



- de la réduction des populations de certaines espèces végétales (baobab, tamarinier, jujubier, rônier, etc.) ;
- de la difficulté d'obtention du permis de circulation pour les produits forestiers non ligneux liée à l'éloignement du secteur forestier qui se trouve à Mbour.

### **3.2.5. Le tourisme**

La zone d'emprise de l'AMP de Sangomar dispose d'importantes potentialités touristiques grâce à ses richesses naturelles et culturelles, ses sites historiques et archéologiques. Parmi ces potentialités, on peut citer :

- la richesse de son patrimoine naturel (la CR de Palmarin abrite la Réserve naturelle éponyme, un des noyaux de la Réserve de Biosphère du Delta du Saloum, d'importantes formations de mangrove et plusieurs sites de reproduction d'oiseaux migrateurs) ;
- un riche patrimoine culturel ;
- l'attractivité de ses îles et de ses bolongs ;
- sa proximité avec la baie du Saloum, l'une des plus belles baies du monde et avec le Parc National du Delta du Saloum, Site Ramsar ou zone humide d'importance internationale et site du Patrimoine mondial culturel de l'UNESCO;
- les conditions climatiques favorables au tourisme balnéaire;
- la présence de nombreux cours d'eau et plages de sable clair et fin ;
- de nombreuses infrastructures touristiques (trois hôtels, quatorze campements, dix bars/restaurants, vingt deux résidences) ;
- une bonne organisation des hôteliers.

On retrouve ainsi dans la zone plusieurs formes de tourisms que sont le tourisme balnéaire (Palmarin, Dionewar), le tourisme sportif (Djiffer), le tourisme culturel, le tourisme de découverte, etc.

Malgré toutes ces potentialités et la forte volonté des populations locales à promouvoir le tourisme, on note des entraves au développement de ce secteur. Il s'agit :

- de l'état défectueux des routes (Joal-Djiffer par exemple) rendant difficile l'accès à la zone ;
- de l'insuffisance du réseau d'adduction d'eau potable et du réseau d'électricité ;

- de l'insuffisance de promotion des petits réceptifs de la CR de Palmarin ;
- de la prolifération de guides et de structures d'hébergement clandestines ;
- de l'insalubrité grandissante ;
- de la faible valorisation des potentialités touristiques de la localité ;
- de la vétusté ou le délabrement avancé de certains réceptifs touristiques comme en atteste le campement de Falia (photo 6) construit en 2004 avec l'appui de l'UICN.



Photo 7 : Débris du campement construit par l'UICN au niveau du village de Falia  
(Source : DAMCP, 2013)

### **3.2.6. Le commerce**

Le secteur du commerce présente des atouts significatifs malgré l'inexistence de marchés hebdomadaires dans les collectivités locales de Dionewar et de Palmarin. En effet, la diversité des produits locaux (halieutiques, horticoles, forestiers, miniers, etc.) a fini d'inciter une bonne partie des habitants à devenir des commerçants itinérants. Ceux-ci font le tour des marchés hebdomadaires des localités voisines (Samba Dia, Ngohé, Dioffior, Diouroup, Nguéniène et Joal). Certains villages comme Djiffer et Ngallou, représentent les centres commerciaux de la zone. Le hameau de Djiffer compte le nombre de boutiques le plus élevé. Au total, 53 boutiques y sont dénombrées ; ce qui témoigne du dynamisme du commerce dans ce hameau plus que dans tout autre village de ces deux collectivités.

La commercialisation des produits halieutiques se fait essentiellement à Djiffer et entraîne ainsi une forte évasion fiscale au détriment de la Communauté rurale de Dionewar (PLD, CR Dionewar, 2011), tandis que les produits transformés sont écoulés dans les différents marchés hebdomadaires et centres urbains du pays.

La principale contrainte pour le développement du commerce constitue l'enclavement de la zone, à cause du caractère insulaire de la plupart des villages et du mauvais état des routes. Cette situation limite l'écoulement des produits. A cela, il faut ajouter le manque

d'organisation des acteurs, l'absence de marchés communautaires viable et le faible pouvoir d'achat des populations.

#### **IV. CADRE LEGISLATIF ET REGLEMENTAIRE**

##### ***4.1. Les textes législatifs et réglementaires***

Sur le plan national, l'Aire Marine Protégée de Sangomar est essentiellement régie par le Code de la Chasse et de la Protection de la Faune, le Code Forestier, le Code de la Pêche, le Code de l'Environnement, le Code du Domaine Public maritime, le Code minier, le Code de la Marine marchande, etc. En plus de ces codes, les lois 96-06 et 96-07 relatives respectivement à la décentralisation et au transfert de compétences aux collectivités locales s'appliquent à l'AMP. En effet, l'AMP englobe une bonne partie du terroir de la Communauté rurale de Dionewar. Par conséquent, en vertu de la loi relative au transfert de compétences, les ressources naturelles situées dans les zones de terroir incluses dans l'AMP doivent être exploitées sous le contrôle des services techniques concernés.

Parallèlement à ces codes, des règles communautaires, sous forme de chartes ou de conventions locales, sont également appliquées par les populations dans la gestion des ressources naturelles. Ces chartes et conventions se situent dans le prolongement des règles coutumières qui ont toujours guidé la gestion des ressources dans la zone, et cela bien avant l'avènement des codes. A cet égard, on peut citer le cas des amas coquilliers, considérés par les populations, comme des biens collectifs légués par les ancêtres. Ils sont placés sous la surveillance des autorités coutumières, qui en réglementent l'exploitation.

Sur le plan international, la gestion de l'AMP devra tenir compte des principes et dispositions des Accords Environnementaux Multilatéraux (AEM) ratifiés par le Sénégal, et relatifs à la gestion des aires protégées. Il s'agit notamment de :

- la Convention d'Alger ou convention africaine sur la conservation de la nature et des ressources naturelles (Alger, 1968) ;
- la Convention de Ramsar relative aux zones humides d'importance internationale particulièrement comme habitats d'oiseaux d'eau (Ramsar, 1971) ;
- la Convention de Paris relative à la protection du patrimoine mondial, culturel et naturel (Paris, 1972) ;
- la Convention de Washington sur le commerce international des espèces de faune et de

flore sauvages menacées d'extinction (CITES, Washington, 1973) ;

- la Convention de Bonn (CMS) sur la conservation des espèces migratrices (Bonn, 1979) ;
- la Convention de Berne sur la conservation de la vie sauvage et du milieu naturel de l'Europe (Berne, 1979) ;
- la Convention d'Abidjan sur la coopération en matière de protection et de mise en valeur du milieu marin et des zones côtières de l'Afrique de l'Ouest et du Centre (Abidjan, 1981) ;
- la Convention des Nations Unies sur le droit de la mer (Montego Bay, 1982) ;
- la Convention sur la Diversité Biologique (Rio, 1992) ;
- la Convention Cadre des Nations Unies sur les Changements Climatiques (Rio, 1992) ;
- la Convention des Nations unies sur la lutte contre la désertification (Rio, 1992) ;
- l'Accord sur la conservation des oiseaux d'eau migrateurs d'Afrique –Eurasie ou AEWA (La Haye, 1996) ;
- le Mémoire d'Abidjan sur la conservation des tortues marines de la Côte atlantique (Abidjan, 2002) ;
- le Mémoire sur les requins migrateurs (Manille, 2010) .

En plus des textes nationaux et internationaux cités ci-dessus, l'AMP devra disposer d'un règlement intérieur élaboré de manière participative avec les populations et conforme aux dispositions législatives et réglementaires en vigueur en matière de conservation de la biodiversité marine et côtière.

#### **4.2. Mesures et initiatives locales de gestion des ressources naturelles**

Les populations locales participent activement à l'effort de conservation et d'utilisation durable des ressources naturelles, notamment à travers les différentes organisations communautaires de base (OCB) telles que les COGERE et les comités de plage. A cet égard, des initiatives locales pour réglementer l'exploitation des ressources halieutiques et forestières sont entreprises dans les deux Communautés rurales. Ces initiatives portent entre autres sur l'institution de réserves biologiques, la réglementation des engins de pêche, le zonage des lieux de pêche, la volonté de disposer d'une AMP, le reboisement de la mangrove, la réglementation de l'exploitation de certains produits forestiers non ligneux, etc. Elles sont appuyées par des partenaires tels que la Cogestion des Pêcheries Artisanales du Sénégal (COGEPAS), la Fondation Luis Lach, la Fédération Nationale des GIE de Pêche (FENAGIE),  
AG AMP de Sangomar 2014-2017

le West African Association for Mangrove Ecosystem (WAAME), l'Association pour le Développement de l'Arrondissement de Fimela (ADAF Yungar), Eau Vie Environnement (EVE), Environnement Développement en Afrique Tiers Monde / Groupe de Recherche Action-Formation (Enda/Graf), le Crédit Mutuel du Sénégal (CMS), le Partenariat pour la Mobilisation de l'Épargne et le Crédit Au Sénégal (PAMECAS), etc.

Toutefois, en dépit de leur importance, ces initiatives ne sont pas encore à même d'inverser la tendance de dégradation des ressources naturelles dans la zone. En effet, les manifestations de plus en plus intenses des changements climatiques, accentuent l'ampleur de la dégradation du milieu naturel en général et particulièrement du littoral depuis la rupture de la flèche de Sangomar en 1987. Au regard de la vulnérabilité des collectivités locales de Dionewar et de Palmarin, ces dernières doivent inscrire parmi leurs priorités, l'adoption et la mise en œuvre de mesures d'adaptation aux changements climatiques.

Ainsi, conscient de l'importance de ce secteur et des menaces qui le guettent, les populations de la collectivité locale de Dionewar se sont regroupées pour la plupart dans des Groupement d'Intérêt Economique (GIE) coiffés par une fédération locale, (la FELOGIE), bénéficiant ainsi de l'appui technique et financier de certains organismes. Le secteur de la pêche dispose du soutien technique et matériel de plusieurs partenaires au développement qui le soutiennent à travers divers appuis dont l'achat de matériel, le renforcement en matériel d'assainissement, l'acquisition d'équipements pour les femmes transformatrices des produits halieutiques, etc.

## **V. VALEURS ET ENJEUX DE L'AMP**

### ***5.1. Valeurs de l'AMP***

Les zones insulaires et maritimes renferment des formations de mangrove au niveau de la côte, le long des rivières, bolongs et des marigots. Elles présentent de grandes potentialités éco-touristiques grâce à leurs diversités écologique et biologique, à leurs richesses historique, archéologique et culturelle ainsi qu'à leurs potentialités économiques.

#### **5.1.1. Valeur écologique**

L'Aire Marine Communautaire de Sangomar dispose d'un important réseau de plans d'eau douce, saumâtre à salé (mares, bolongs, océan Atlantique, etc.). Elle regroupe un ensemble d'écosystèmes particuliers (mangrove, forêts, savanes herbeuses, tannes, vasières, île de Sangomar, etc.) qui abritent une faune très diversifiée. Elle accueille des oiseaux migrateurs

paléarctiques et afro-tropicaux (oiseaux migrateurs interafricains). On y trouve des reptiles (crocodile du Nil, varan du Nil, python, etc.), des mammifères (hyène, phacochère, chacal, singe patas, dauphin, lamantin, etc.) et une ichthyofaune très riche. L'AMP abrite également une fosse que les populations appellent communément fosse de Sangomar ainsi que d'importantes frayères comme celle de Sofna et un réseau de bolongs dont celui de Diakarwett.

### 5.1.2. Valeur historique

Les communautés rurales de Dionewar et de Palmarin abritent de nombreux sites historiques et archéologiques. Parmi ces derniers, on peut citer :

- les puits anciens de *Mbind Maak* et de *Cosaan*. Dans la coutume, il est recommandé de s'y abreuver avant d'entreprendre un voyage. En outre, les lutteurs font de l'eau de ces puits un usage lustral avant leurs combats ;
- les amas coquilliers. Il est de pratique ancestrale dans la localité d'enterrer les morts sous des amas de coquillages disposés par couche les uns sur les autres (photo 8). Ainsi au fil des millénaires, d'importants tumulus de gisements de coquillages se sont formés dans les anciens cimetières. *Fandanga* figure parmi les 17 amas coquilliers surmontés de tumulus qui ont été inscrits sur la liste des monuments historiques du Sénégal (arrêté n°10787 du 11 décembre 2000) ;



Photo 8 : Amas coquilliers au niveau de Dionewar

(Source : DAMCP, 2013)

- L'île de Sangomar. C'est un site historiquement «chargé», connu comme une des étapes de la migration Gelwaar, et plus particulièrement celle, vers les îles du Saloum, de la princesse Gelwaar Bandé Niambo, fondatrice de Niodior. Des lieux symboliques s'y trouvent et des cultes sont jusqu'à présent rendus aux «*Pangool*», sorte de divinités transcendantes qui permettent de dominer les forces hostiles de la nature.,

Chaque année, a lieu sous l'égide du matriclan des *Jaxanoora*, un sacrifice au génie de la mer, *Maama Yungume* à Sangomar, qui « commande » de Djiffer à Mbour et, a sous sa tutelle Maam Mindiis, qui réside dans le bras de mer de Fatick. Tous deux reçoivent en sacrifice un taureau noir.

Sangomar est aussi considéré comme le lieu de rencontre des génies et des morts. Les morts se retrouvent sur les flots de Sangomar, la porte d'entrée à Jaanif, le monde nocturne éternel ; les vivants plongent dans les eaux coulantes de la basse marée à la fois purificatrices et régénératrices (Bruzzone, 1997).

### **5.1.3. Valeur cultuelle et culturelle**

Les Communautés rurales de Palmarin et de Dionewar abritent des *Pangool*, D'après H. Gravrand (1990), il en existe deux types : ceux qui sont une personnification des forces naturelles, et ceux qui correspondent aux tombes des ancêtres fondateurs. Dans chaque village, il existe des lieux de culte sacralisés où les populations viennent prier collectivement, généralement à l'approche de l'hivernage. A ce propos, on peut citer le cas du village de Falia où on trouve une concentration assez importante de *Pangools*. Ceux-ci ont contribué à faire de ce village un lieu de haute spiritualité traditionnelle, redouté dans l'ensemble des îles, malgré la présence très marquée de l'Islam. Les villages de Niodior, Bassoul et Thialane, abritent aussi de nombreux arbres sacralisés le baobab (*Adansonia digitata*) ou *baak* en Seereer, arbre particulièrement apprécié par les génies et qui sert souvent de réceptacle aux *Pangool*. C'est le cas notamment de Ndafafé, Tioupane et Ndañ Sireh à Falia et de Fandanga et Toumbé à Niodior.

Aujourd'hui, avec l'islamisation des îles, certaines de ces croyances et pratiques sont en recul et la plupart des villageois répugnent à les évoquer. Néanmoins, certains rituels continuent d'être pratiqués dans la confidentialité des familles gardiennes des cultes et exceptionnellement lors d'évènements frappant l'ensemble de la communauté (sécheresse, épidémie, etc.).

La lutte traditionnelle fait également partie du patrimoine culturel dans la zone. En effet, plusieurs localités disposent d'arènes et des séances de lutte sont organisées selon un calendrier régional, après paiement d'une taxe auprès du Comité de lutte qui se trouve à Foundiougne. Ces séances sont le théâtre d'animations diverses (chants, danses, journées d'étude sur des thèmes divers) et sont des valeurs sûres qui soutiennent jusqu'à présent le

patrimoine culturel des insulaires. Des tournois de lutte sont aussi organisés dans le cadre de la semaine culturelle des îles du Saloum. Ces tournois sont organisés au mois de juin et enregistrent la participation de l'ensemble des villages insulaires et quelques villages continentaux. Ils se déroulent simultanément avec les régates.

## **5.2. Enjeux**

### **5.2.1. Enjeux scientifiques**

L'Aire Marine Protégée de Sangomar constitue un milieu naturel peu artificialisé et par conséquent très favorable à la recherche pour comprendre les processus biophysiques et écologiques. Elle a fait l'objet d'importants travaux de recherche. C'est le cas avec l'ONG WAAME et le Projet Mangrove qui disposent d'une série de données sur la salinité, la température de surface de l'eau et sur le pH pour certaines zones du delta du Saloum et sur le milieu marin. En outre, l'UICN y a conduit, entre 2003 et 2004, des travaux sur la gestion et l'aménagement participatif et durable des pêcheries de crevette, en partenariat avec le CRODT sur financement de l'USAID.

Par ailleurs, Enda Graf sahel et l'IRD se sont beaucoup investis dans l'étude de l'éco-biologie des ressources conchylicoles, notamment sur les niveaux d'abondance et de biomasse par espèce et par localité. Leurs travaux ont été réalisés à Dionewar dans le cadre du projet Femmes et coquillages en vue d'améliorer les modes d'exploitation des ressources conchylicoles.

De manière globale, sur le plan de la recherche, beaucoup d'efforts ont été consentis dans la zone. Cependant, d'autres préoccupations comme l'étude des impacts de la rupture de la flèche de Sangomar méritent d'être abordées.

### **5.2.2. Enjeux pédagogiques**

Du fait de sa richesse sur le plan écologique, l'Aire Marine Protégée de Sangomar se prête à des visites pédagogiques et des travaux d'application, notamment sur des thématiques telles que l'ornithologie, la botanique, l'ichtyologie, etc.

### **5.2.3. Enjeux socioéconomiques**

Les potentialités écologiques, culturelles et historiques sont autant de leviers pertinents sur lesquels les populations locales peuvent s'appuyer pour améliorer leurs revenus. En effet,



certains produits forestiers et éco-touristiques qui pourraient booster l'économie locale restent pour l'instant faiblement valorisés.

## **VI. FACTEURS INFLUENÇANT LES RESSOURCES**

On distingue les facteurs naturels et les facteurs anthropiques :

Sur le plan naturel, la rupture de la flèche de Sangomar a entraîné d'importantes modifications sur les différents écosystèmes. Parmi celles-ci, on peut noter l'élargissement de la surface des vasières résultant de l'accroissement de la vitesse et de la puissance des courants, la « marinisation » du Saloum, la disparition de nombreux îlots en face de Djiffer, l'ensablement des chenaux d'accès aux villages de Falia, Dionewar (qui connaît l'existence d'une deuxième flèche sableuse), Niodior, ainsi que celui de l'embouchure du fleuve Saloum gênant considérablement le passage des navires et chalands se rendant à Foundiougne et au port de Kaolack, l'accentuation de l'érosion sur les points de la côte les plus exposés avec comme conséquences la destruction de certaines infrastructures à Djiffer et à Palmarin (campement hôtelier, Poste de garde des parcs nationaux, poste de douane, usine de poissons), le déménagement de pans entiers des villages, etc.

De plus, l'action combinée de l'érosion et la montée des eaux surtout en période d'hivernage, ont entraîné la salinisation des terres de culture et de l'eau des puits, la disparition d'importantes superficies végétales (mangrove, palmier, baobab, etc.) à Sangomar et le long de la flèche (Djiffer, Palmarin, etc.), l'érosion des vasières à mangrove des zones adjacentes au chenal du Saloum, la raréfaction des ressources et la réduction des vasières à arches.

Sur le plan humain, la modernisation de la pêche (motorisation des pirogues, typologie du maillage des filets au niveau des embarcations), le non respect de la réglementation, la déforestation et la coupe abusive de la mangrove, etc. ont entraîné une surexploitation des ressources halieutiques.

## **VII. OBJECTIFS DU PLAN D'AMENAGEMENT ET DE GESTION**

### **7.1. Objectif général.**

L'objectif général du Plan d'Aménagement et de Gestion est de contribuer à la conservation de la biodiversité marine et côtière dans une perspective de développement socioéconomique des communautés locales.

## **7.2. Objectifs spécifiques.**

De manière spécifique, le plan vise à :

- O.S.1. Conserver les ressources biologiques et les habitats ;
- O.S.2. Favoriser une participation efficace des acteurs à la gestion de l'AMP ;
- O.S.3. Améliorer la valorisation des ressources de l'AMP.

## **7.3. Résultats attendus**

Les résultats attendus de la mise en œuvre du PAG sont :

O.S.1. Conserver les ressources biologiques et les habitats

- R.1.1. Les effets négatifs liés à la rupture de la flèche de Sangomar sont atténués ;
- R.1.2. La protection des ressources de l'AMP est améliorée ;
- R.1.3 Les connaissances sur les ressources et les habitats sont améliorées ;

O.S.2. Favoriser une participation efficace des acteurs à la gestion de l'AMP

- R.2.1. Un système de gouvernance de l'AMP est mis en place ;
- R.2.2. La fonctionnalité des organes de gouvernance de l'AMP est assurée ;

O.S.3. Améliorer la valorisation des ressources de l'AMP

- R.3.1. Les biens et services rendus par l'AMP aux communautés locales sont mieux valorisés

## VIII. PLAN D' ACTIONS

Activités	Sous Activités	IOV	Extrants/Produits	Chronogramme				Responsable	Partenaires	Budget
				A1	A2	A3	A4			
<b>OS1: Conserver les ressources biologiques et les habitats</b>										
<b>R.1.1 : Les effets négatifs liés à la rupture de la flèche de Sangomar sont atténués</b>										
A1.1.1. Stabiliser le cordon littoral	A.1.1.1.1. Installation de cordons de sacs de sable	au moins 5km du cordon littoral sont stabilisés	Ouvrages en place	X	X	X	X	PCRs de Palmarin et Dionewar	CG, Population, Rotary Club de Dakar, Commission Française,	10000000
	A.1.1.1.2. Construction de digues de protection	au moins 3 digues sont construites	03 digues construites			X	X	PCRs de Palmarin et Dionewar	CG, Population, PAPIL, DPC, EVE, DREEC, Conseil Régional, Conseil Rural	30000000
	A.1.1.1.3. Réhabilitation de digues de protection	au moins 2 digues sont réhabilitées	02 digues réhabilitées		X	X		PCRs de Palmarin et Dionewar	CG, Population, PAPIL, DPC, EVE, DREEC, DAMCP, Conseil Régional, Conseil Rural	4000000

	A.1.1.1.4. Mise en défens et Reboisement de la bande côtière ( <i>mandara, baki, etc.</i> )	au moins 7ha de la bande sont mis en défens et/ou reboisés	Nombre d'ha reboisé ou mis en défens		X	X	X	Conservateur /CG	DAMCP, WWF, Océanium, ADAF Yungar, UICN, DREEC, Population	3000000
A1.1.2. Former et sensibiliser les acteurs sur les risques climatiques	A.1.1.2.1. Sensibilisation des acteurs sur les risques liés aux CC	au moins 90% des acteurs sont informés des risques liés au CC	PV de réunion/ Rapport de sensibilisation	X	X	X	X	Conservateur /CG	DAMCP, DREEC, Population, Service Départemental Pêche, Radios communautaires, etc.	4000000
	A.1.1.2.2. Formation des acteurs sur les stratégies d'adaptation et d'atténuation	au moins 30% des acteurs sont formés sur les stratégies d'adaptation au CC	PV de formation/rapport de formation		X	X	X	Conservateur /CG	DAMCP, DREEC, Population, Service Départemental Pêche, etc.	15000000
A1.1.3. Conserver et restaurer la faune et la flore	A.1.1.3.1. Reboisement (mangrove, niaouli, <i>Acacia nilotica</i> , etc.)	au moins 20 ha sont reboisés d'ici à 2017	Nombre d'ha reboisé	X	X	X	X	Conservateur /CG	DAMCP, WWF, Océanium, ADAF Yungar, UICN, DREEC, Population,	8000000

										Secteur Eaux et Forêts, etc.	
	A.1.1.3.2. Ensemencement des vasières en arches	au moins 7 vasières sontensemencées	07 vasièresensemencées/ Rapport d'activités		X	X	X		Conservateur /CG	Populations , Partenaires techniques, etc.	10000000
	A.1.1.3.3. Mise en place de parcs ostréicoles	au moins 02 parcs ostréicoles sont mis en place par an	06 parcs en place/Rapport d'activités		X	X	X		Conservateur /CG	Populations , Partenaires techniques, etc.	6000000
	A.1.1.3.4. Création de bois villageois ( <i>Eucalyptus sp</i> )	Au moins 02 ha reboisés/village/an	Nombre d'ha reboisés et réussis	X	X	X	X		Conservateur /CG	Populations , Partenaires techniques, etc.	10000000
<b>Sous total 1.1</b>											<b>10000000</b>
<b>R.1.2 : La protection des ressources de l'AMP est améliorée</b>											
A.1.2.1. Matérialiser les limites de l'AMP	A.1.2.1.1. Pancartage des limites terrestres	au moins 20 pancartes sont mises en place	Pancartes en place/Rapport de pancartage	X	X				Conservateur/CG	DAMCP, Population, WWF, UICN, etc.	2000000
	A.1.2.1.2. Balisage de la partie marine	au moins 4 balises lumineuses et 26 balises intermédiaires sont mises en place	Balisés mises en place/Rapport de balisage	X	X				Conservateur/CG	DAMCP, CG, Population, WWF, UICN, Service départemental des Pêches, DSPM, Phares et balises, etc.	20000000

A.1.2.2. Assurer la surveillance de l'AMP	A.1.2.2.1. Organisation de patrouilles de surveillance de l'AMP	au moins 03 sorties sont effectuées par mois	Rapport de patrouille	X	X	X	X	Conservateur/CG	DAMCP, CG, DSPM, Brigade de Gendarmerie Environnement, etc.	15000000
	A.1.2.2.2. Acquisition de matériel de surveillance (1 barque motorisée, véhicule 4x4, 2 quads, 20 gilets, etc.)	le matériel est disponible	PV de réception	X	X			Conservateur/CG	DAMCP, UICN, WWF, DMTA, etc.	40000000
	A.1.2.2.3. Construction de miradors	au moins 6 miradors sont construits	PV de réception	X	X	X		Conservateur/CG	DAMCP, CG, WWF, UICN etc.	15000000
	A.1.2.2.4. Construction et équipement d'un Poste de Commandement	le poste est construit et équipé	PV de réception	X	X			DAMCP	DAMCP, CG, WWF, UICN etc.	30000000
A.1.2.3. Renforcer la sensibilisation des acteurs sur la gestion des ressources marines et côtières	A.1.2.3.1. Organisation de séances de sensibilisation pour les catégories socioprofessionnelles	2 séances de sensibilisation sont organisées par mois	PV de réception	X	X	X	X	Conservateur/CG	DAMCP; CG, CLPA, OCB, CRODT, Radios communautaires, Service Pêche, DREEC, SEF, etc.	5600000
	A.1.2.3.2. Elaboration d'un programme d'Education Relative à l'Environnement (ERE)	Programme ERE disponible	Document est disponible		X			Conservateur/CG	DAMCP; CG, CLPA, Radios communautaires, Service Pêche, DREEC, SEF, IDEN,	1000000

									Mouvements associatifs (ASC, Eclaireurs, Scouts, etc.)	
	A.1.2.3.3. Mise en œuvre du programme d'éducation relative à l'environnement	au moins 5 thématiques relatives à la conservation sont déroulées dans des écoles	Rapport d'activité		X	X	X	Conservateur/CG	DAMCP; CG, CLPA, Radios communautaires, Service Pêche, DREEC, SEF, IDEN, Mouvements associatifs (ASC, EEDS, Scouts, etc.), CODEC-CR	2000000
	A.1.2.3.4. Conception et diffusion de supports d'information et de communication sur l'AMP	1000 dépliantés confectionnés et diffusés	Dépliantés	X	X			Conservateur/CG	DAMCP, CG, UICN, WWF, Adaf Yungar, etc.	1000000
	A.1.2.3.5. Réalisation de tranches horaires périodiques sur la gestion des RNE au niveau des radios communautaires	au moins 01 tranche organisée par mois	PV émission radio	X	X	X	X	Conservateur/CG	DAMCP; DPN, CG, CLPA, Radios communautaires, Service Pêche, DREEC, SEF, IDEN, OCB, Mouvements associatifs (ASC,	4800000

										Eclaireurs, Scouts, etc.)	
<b>Sous total 1.2</b>											<b>334400000</b>
<b>R .1.3 : Les connaissances sur les ressources et les habitats sont améliorées</b>											
A.1.3.1. Faire le suivi scientifique des espèces et des habitats	A.1.3.1.1. Réalisation de l'Etat de référence de l'AMP	Etude de l'état de référence	Document disponible	X					DAMCP	DAMCP, Conseil Régional Fatick, ARD, CRODT, IRD, UGB, UCAD, UIPA, etc.	20000000
	A.1.3.1.2. Cartographie thématique (vasières, mangrove, zones de pêche, de nidification, etc.)	au moins toutes les zones sont cartographiées	Cartes disponibles	X					Conservateur/CG	DAMCP, ARD, Conseil Régional de Fatick, CSE, LERG, FIBA, IRD, DPN, etc.	5000000
	A.1.3.1.3. Suivi des espèces (lamantins, tortues, dauphin, oiseaux, poissons, coquillage, etc.)	au moins 03 sorties de suivi sont effectuées par mois	Données de suivi, Rapport de suivi	X	X	X	X		Conservateur/CG	DAMCP, DPN, CRODT, IRD, UIPA, CG, Service des Pêches, UICN, FIBA, Wetlands, etc.	14400000



	A.1.3.1.4. Elaboration d'un plan de gestion de la mangrove	Plan de gestion disponible	Document disponible			X			Conservateur/CG	DAMCP, WWF, CG, SEF, PRECEMA, UICN, ADAF Yungar, FEM, WAAME, DPN, etc.	4000000
	A.1.3.1.5. Mise en œuvre du plan de gestion de la mangrove	70% des actions prévues dans le plan sont mises en œuvre d'ici fin 2017	Document mis en œuvre/Rapport d'activités				X	X	Conservateur/CG	DAMCP, WWF, CG, SEF, OCB, CRF, EVE, PRECEMA, UICN, ADAF Yungar, FEM, WAAME, DPN, FIBA, etc.	10000000
A.1.3.2. Renforcer les capacités des acteurs en techniques d'identification et de suivi des espèces	A.1.3.2.1. Formation des acteurs en techniques d'identification et de suivi de la faune (poissons, coquillages, oiseaux, tortues, etc.)	au moins 05 sessions de formation par an	TDR, Rapport de formation	X	X	X	X		Conservateur/CG	DAMCP, CG, WWF, UICN, IRD, CRODT, SDP, EVE, ADAF Yungar, WAAME, DPN, etc.	80000000
	A.1.3.2.2. Renforcement en matériel des équipes de surveillance (8 jumelles, 2 télescopes, 4 GPS, 4 PMT, etc.)	Jumelles, télescopes, GPS, PMT disponibles	PV de réception	X	X				DAMCP	DAMCP, EVE, WWF, UICN, FIBA, etc.	10200000
<b>Sous total 1.3</b>											<b>143600000</b>

<b>OS 2 : Favoriser une participation efficace des acteurs dans la gestion de l'AMP</b>											
<b>R2.1. Un système de gouvernance de l'AMP est mis en place</b>											
A.2.1.1 Mettre en place les organes et outils de Gouvernance	A.2.1.1.1. Mise en place du Comité d'Orientation de l'AMP	Le comité d'orientation en place	Comité en place, PV réunion/Rapport	X					DAMCP	DAMCP, DPN, SDP, SEF, CRODT, UICN, WWF, etc.	2000000
	A.2.1.1.2. Mise en place du Comité de gestion de l'AMP	Le comité de Gestion en place	PV réunion/Rapport	X					DAMCP	DAMCP, OCB, Chefs coutumiers et religieux, etc.	3000000
	A.2.1.1.3. Elaboration du règlement intérieur de l'AMP	Un règlement intérieur élaboré et validé	Règlement intérieur disponible', PV de réunion	X					Conservateur/CG	DAMCP, CG, DPN, CRODT, UICN, WWF, SDP, SEF, etc.	2000000
<b>Sous total 2.1</b>											
<b>R2.2. La fonctionnalité des organes de gouvernance de l'AMP est assurée</b>											
A.2.2.1. Mettre en place un mécanisme de financement durable de l'AMP	A.2.2.1.1. Allocation d'un budget à l'AMP	une ligne budgétaire dédiée à l'AMP de Sangomar figure dans le document de budget du MEDD	Budget alloué		X				DAMCP	DAMCP, MEDD, MEF	1000000
	A.2.2.1.2. Mise en place d'un mécanisme local de financement complémentaire	Mécanisme en place	Mécanisme en place		X	X			Conservateur/CG	DAMCP, CG, FIBA, UICN, WWF, population,	2000000

										DPN, etc.	
A.2.2.2. Renforcer les capacités des acteurs sur la gouvernance et la gestion des conflits autour des ressources	A.2.2.2.1. Formation des parties prenantes sur la gouvernance participative des AMP (décideurs, acteurs locaux...)	au moins 20 acteurs formés sur la gouvernance des AMP par an	TDR/Rapport de formation	X	X	X	X	Conservateur/CG		DAMCP, DPN, EVE, SDP, etc.	12000000
	A.2.2.2.2 Organisation de sessions de formation sur la gestion des conflits autour des ressources marines et côtières	au moins 02 sessions de formation sur la gestion des conflits organisées par an	TDR/Rapport de formation	X	X	X	X	Conservateur/CG		DAMCP, FIBA, DPN, SDP, DSPM, CLPA, UICN, etc.	8000000
<b>Sous total 2.2</b>											<b>23000000</b>
<b>OS 3 : Améliorer la valorisation des ressources de l'AMP</b>											
<b>R.3.1. Les biens et services rendus par l'AMP aux communautés locales sont mieux valorisés</b>											
A.3.1.1. Améliorer les filières existantes	A.3.1.1.1. Etude des filières existantes (ethmalose, huitre, crevette, produits forestiers non ligneux, etc.)	au moins 04 filières sont étudiées d'ici à 2015	TDR, Rapport d'étude	X	X			Conservateur/CG		DAMCP, WWF, CRODT, UICN, SEF, Conseil Régional, CG, etc.	12000000
	A.3.1.1.2. Renforcement des capacités matérielle, financière, organisationnelle et technique des acteurs impliqués dans les différentes filières	les capacités matérielles, financières, organisationnelles et techniques sont renforcées au	PV de réception/Rapport de formation	X	X	X		Conservateur/CG		DAMCP, PRECEMA, ADAF Yungar, Action Aid, PAPIL, PAGEMAS,	20000000

		moins dans 04 filières							DREEC, ANCAR, CADL, etc.	
A.3.1.2. Promouvoir des AGR	A.3.1.2.1. Construction de buvettes/boutiques villageoises	au moins 3 buvettes/boutiques villageoises construites d'ici 2017	PV de réception/boutiques disponibles		X	X	X	Conservateur/CG	DAMCP, UICN, WWF, FIBA, Conseil Régional, etc.	30000000
	A.3.1.2.2. Construction de campements villageois	au moins 2 campements villageois construits d'ici à 2017	Pv de réception/campements disponibles		X	X		Conservateur/CG	DAMCP, UICN, WWF, FIBA, Conseil Régional, etc.	80000000
	A.3.1.2.3. Identification de circuits écotouristiques	Au moins 2 circuits écotouristiques sont identifiés (terrestre et maritime)	Rapports d'activité	X				Conservateur/CG	DAMCP, CG	1000000
	A.3.1.2.4. Aménagement de circuits écotouristiques interprétés	Au moins 2 circuits écotouristiques sont aménagés	Circuits aménagés		X			Conservateur/CG	DAMCP, CG, UICN, WWF, FIBA, PRECEMA, PRCM, ADAF Yungar, etc.	8000000

	A.3.1.2.5. Formation des acteurs (techniques de guidage, hôtellerie, valorisation du patrimoine culturel et culturel, etc.)	Au moins 3 sessions de formation en écotourisme par an	Rapport de formation		X	X	X	Conservateur/CG	DAMCP, Service Départemental Tourisme, Syndicat d'Initiative du Tourisme, Hôtelier,	12000000
	A.3.1.2.6. Mise en place de bassins piscicoles	Au moins 2 bassins aménagés d'ici à 2017	Ouvrages en place		X	X	X	Conservateur/CG	DAMCP, CLPA, CR, ANA, FELOGIE, JICA, CARITAS, DPM, etc.	20000000
	A.3.1.2.7. Valorisation des Produits Forestiers Non Ligneux (transformation et conservation des fruits forestiers)	Au moins 80% des GPF formés en techniques de valorisation des PFNL	Rapports de formation		X	X	X	Conservateur/CG	DAMCP, GPF, COGERE, ONG Ndoucoumane	15000000
	A.3.1.2.8. Valorisation des fruits de mer	Au moins 80% des GPF formés en techniques de valorisation des fruits de mer	Rapports de formation		X	X	X	Conservateur/CG	PRODELE, ITA, Service Technique Pêche	10000000
	A.3.1.2.9. Aménagement de jardins maraichers et arboricoles	Au moins 6 jardins maraichers et arboricoles	Périmètres maraichers et arboricoles en place		X	X	X	Conservateur/CG	DAMCP, GPF, FELOGIE, Conseil	18000000

		aménagés d'ici à 2017							Régional, Service Départemental de l'Agriculture, CARITAS, etc.	
	A.3.1.2.10. Aménagement de digue de protection des puits de sel	au moins une digue de protection des puits de sel aménagée par an	Ouvrages en place		X	X	X	2 PCRs Dionewar-Palmarin	DAMCP, PDIF, CG, PAPIL, etc.	15000000
	A.3.1.2.11. Formation des acteurs sur les techniques d'extraction du sel (marais salants)	Au moins 90% des producteurs de sel formés sur les techniques d'extraction du sel dans les marais salants	Rapport de formation		X	X	X	Conservateur/CG	Fédération Régionale de Sel,	3000000
	A.3.1.2.12. Promotion de marais salants	au moins 10 casiers de sel sont aménagés d'ici à 2017	Casiers aménagés		X	X	X	3 PCRs Dionewar-Palmarin	DAMCP, PDIF, CG, PAPIL, Fédération Régionale de Sel, etc.	1000000
<b>Sous total 3.1</b>										<b>245000000</b>
<b>Budget total</b>										<b>853000000</b>

## **IX. ARTICULATION DU PAG AVEC LES DOCUMENTS DE PLANIFICATION**

De prime abord, l'élaboration du PAG de l'AMP intercommunautaire de Sangomar répond à la volonté conjuguée du Gouvernement et des communautés locales de protéger les écosystèmes marins et côtiers et d'inverser la tendance de dégradation des pêcheries. Il s'inscrit dans la mise en œuvre de la Stratégie Nationale pour les Aires Marines protégées du Sénégal et de son Plan d'Actions Quinquennal 2014-2018.

Sur le plan international, l'élaboration du présent PAG s'inscrit dans le cadre du respect des engagements du Sénégal en matière de conservation de la biodiversité, en particulier en vertu de la Convention sur la Diversité Biologique. En effet, l'alinéa (d) de l'article 8 de ladite Convention stipule que « chaque Partie contractante, dans la mesure du possible et selon qu'il conviendra, favorise la protection des écosystèmes et des habitats naturels, ainsi que le maintien de populations viables d'espèces dans leur milieu naturel ». En outre, la mise en œuvre du PAG permettra de contribuer à l'atteinte de l'objectif 11 du Plan stratégique d'Aïchi – Nagoya (2011-2020) pour la conservation de la diversité biologique, adopté en octobre 2010 à Nagoya, au Japon, à l'occasion de la dixième session de la Conférence des Parties à la Convention sur la Diversité Biologique. Cet objectif vise, entre autres, la protection d'au moins 10% des écosystèmes marins et côtiers à l'horizon 2020.

Au niveau régional, l'élaboration du PAG s'inscrit dans la mise en œuvre de la Stratégie régionale des Aires Marines Protégées élaborée sous l'égide du Programme Régional de Conservation Marine et Côtière (PRCM), à travers le Réseau des Aires Marines Protégées d'Afrique de l'Ouest (RAMPAO).

Sur le plan national, le PAG s'inscrit dans le cadre de la mise en œuvre de la Stratégie Nationale de Développement Economique et Sociale (SNDES) 2013 – 2017 dont il contribue à l'atteinte de l'objectif stratégique (i) du secteur de l'environnement (atténuer les effets des changements climatiques sur les écosystèmes, à travers entre autres la promotion de la préservation et de la gestion des ressources naturelles par les Collectivités locales) et l'objectif stratégique (i) du secteur de la pêche et de l'aquaculture (gérer durablement la ressource halieutique à travers, entre autres, la promotion de la pêche artisanale, la promotion de la cogestion, la restauration des écosystèmes dégradés et la régulation de l'accès aux ressources).

De façon plus spécifique, la mise en œuvre du PAG contribuera à la réalisation de l'objectif 2 de la Lettre de Politique du Secteur de l'Environnement et des Ressources Naturelles intitulé : « *intensifier la lutte contre la tendance actuelle à la dégradation de l'environnement et des ressources naturelles dans le respect des conventions internationales y afférentes* » et de son objectif 3 « *Renforcer les capacités institutionnelles et techniques des acteurs dans la mise en œuvre des actions de conservation de l'environnement et des ressources naturelles* ».

Elle contribuera en effet à la mise en œuvre de l'axe d'intervention n°2 de l'objectif 2 relatif à la conservation de la biodiversité et la gestion des zones humides et à celle de l'axe d'intervention n°2 de l'objectif 3 relatif à l'appui aux collectivités locales et aux organisations communautaires de base.

En outre, l'élaboration du présent document participe à la mise en œuvre du Programme n° 3 du Document de Programmation Pluriannuelle des Dépenses du Ministère de l'Environnement et du Développement Durable, à travers lequel il est attendu chaque année la création de deux AMP dotées de PAG de 2013 à 2015.

Enfin, le PAG s'inscrit en droite ligne de la mise en œuvre des documents de planification environnementale tels que la Stratégie et le Plan National d'Actions pour la Conservation de la Biodiversité (SPNAB), avec le Plan National d'Actions pour l'Environnement (PNAE), la Stratégie et le Plan National d'Actions pour la conservation de la Biodiversité, la Stratégie Nationale de Développement Durable (SNDD), la Lettre de Politique Sectorielle des Pêches et de l'Aquaculture, le Plan National d'Actions pour l'Adaptation aux Changements Climatiques (PANA), etc.

## **X. ORGANISATION DE LA MISE EN ŒUVRE DU PLAN D'AMENAGEMENT ET DE GESTION**

### **10.1 Organes de gouvernance**

Le PAG de l'AMP intercommunautaire de Sangomar sera exécuté sous la supervision de la Direction des Aires Marines Communautaires Protégées. Celle-ci, s'appuiera, en plus de l'administration de l'AMP, sur les organes de gouvernance qui devront être mis en place. Il s'agit du Comité d'orientation et du Comité de gestion. La gestion de l'AMP bénéficiera également des avis et éclairages scientifiques du Conseil Consultatif Scientifique et Technique (CCST) sur les AMP mis en place à cet effet.



La mise sur pied des organes de gouvernance constitue une priorité pour la mise en œuvre réussie du Plan d'aménagement et de Gestion. Pour ce faire, la Direction des Aires Marines Communautaires Protégées s'attèlera à leur effectivité dès la première année de la mise en œuvre du PAG.

#### **10.1.1. Le Comité d'Orientation**

Le Comité d'Orientation sera l'instance de concertation au plus haut niveau, qui regroupera les différents parties prenantes concernées par la gestion de l'AMP notamment l'autorité administrative, les collectivités locales, les Services Techniques de l'Etat, les chefs des villages polarisés par l'AMP et toute autre structure pertinente. Il aura la responsabilité d'examiner toutes les propositions relatives aux investissements à entreprendre à l'intérieur et dans la périphérie sur la base des recommandations du CCST. Il sera chargé, dans le cadre de la mise en œuvre du plan de gestion, de valider et de contrôler le niveau et la qualité de l'exécution du Plan de Travail Annuel (PTA) proposé par l'administration de l'AMP conjointement avec le Comité de Gestion. En outre, il est chargé d'examiner, d'approuver et d'amender les propositions relatives à la gestion de l'AMP.

#### **10.1.2. Le Comité de Gestion**

Composé d'un bureau exécutif et d'un secrétariat permanent, il regroupera, le conservateur de l'AMP, les représentants des localités polarisées par l'AMP, les représentants des différentes catégories socio-professionnelles, les commissions environnement des collectivités locales, le chef du CADL, les représentants des partenaires d'appuis, etc., .. Il sera chargé de coordonner la mise en œuvre du PTA, de superviser les opérations sectorielles et les activités des commissions techniques, de produire régulièrement les rapports d'activités, etc.

#### **10.1.3 Le Conseil Consultatif Scientifique et Technique**

Le rôle du CCST est de donner des avis scientifiques motivés et d'assurer la validation scientifique des propositions faites au Comité d'Orientation. Il éclaire et appuie le Comité de gestion en cas de besoin. Ses membres peuvent être sollicités, selon leurs compétences, par le Comité de gestion, autant dans le cadre de la recherche que pour l'évaluation de la mise en œuvre des protocoles de recherche.

## **10.2. Mécanisme de suivi et d'évaluation du PAG**

Le suivi de la mise en œuvre du plan d'aménagement et de gestion est sous la responsabilité de la DAMCP, à travers sa Cellule Suivi-Evaluation. Ainsi, un suivi trimestriel et une évaluation annuelle du plan de travail seront effectués et permettront d'une part une mise à jour régulière du plan d'actions et d'autre part de lever les contraintes d'exécution du plan de gestion.

Au bout de 24 mois de mise en œuvre du plan, une évaluation à mi-parcours sera réalisée et aboutira à la mise à jour du plan d'actions et éventuellement à une restructuration des organes de gestion de l'AMP

A l'issue de quatre ans de mise en œuvre, une évaluation finale du plan sera effectuée avec la participation de l'ensemble des parties prenantes (CO, CG, DAMCP, partenaires, etc.). Cette évaluation participative sera suivie de l'actualisation de ce présent PAG.

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## **ANNEXE**

*Annexe 1 : Acte de délibération de la Communauté Rurale de Sangomar*

*Annexe 2 : Acte d'approbation du Conseil Régional de Fatick portant création de L'AMP de Sangomar*

*Annexe 3 : Projet de décret portant création de l'AMP de Sangomar*

*Annexe 4 : Guide d'entretien pour la collecte des données du bilan Diagnostic*



Fatick, le 02 JUIL 2013

**Analyse : Extrait de délibération portant  
Création de l'Aire Marine  
Protégée de Sangomar**

\*\*\*\*\*

**LE CONSEIL REGIONAL DE FATICK**

- Vu** la constitution ;
- Vu** la loi 96-06 du 22 Mars 1996 portant Code des Collectivités Locales ;
- Vu** la loi N°96-07 du 22 Mars 1996 portant transfert des compétences aux Régions; aux Communes et aux Communautés Rurales ;
- Vu** le décret N°96-1130 du 27 décembre 1996, portant application de la loi de transfert des compétences aux Régions, aux Communes et aux Communautés Rurales, en matière de gestion et d'utilisation du domaine privé de l'Etat, du domaine public et du domaine national ;
- Vu** le décret N°96-1134 du 27 décembre 1996, portant application de la loi de transfert des compétences aux Régions, aux Communes et aux Communautés Rurales, en matière d'environnement et de gestion des ressources naturelles ;
- Vu** le procès verbal de session en date du 10 avril 2009 portant, élection et installation du Président du Conseil Régional de Fatick ;
- Vu** le rapport de l'inter-commission constituée de la Commission de l'Environnement, Développement Durable et Changement Climatique et de la Commission de l'Aménagement du Territoire, Domaines, Urbanisme et Habitat ;
- Vu** les délibérations N°002 du 08 avril 2013, du Conseil rural de Dionewar et N°008/AF/CRPF, du 09 mai 2013, du Conseil rural de Palmarin ;

**DELIBERE**

**ARTICLE PREMIER** : Un avis favorable est donné à la création de l'Aire Marine Protégée intercommunautaire de **Sangomar** et à la participation de la Région à la gestion concertée de cet espace ;

**ARTICLE 2** : Une Convention cadre, renfermant les orientations et mesures communes de gestion, sera signée entre la Région de Fatick, la Communauté rurale de Dionewar et la Communauté rurale de Palmarin ;

**ARTICLE 3** : La présente délibération sera enregistrée, publiée et communiquée partout où besoin sera.

**LE PRESIDENT DU CONSEIL REGIONAL**



**COUMBA NDOFFENE BOUNA DIOUF**

**DIAGNOSTIC AMP SANGOMAR-GANDOUL**  
**GUIDE D'ENTRETIEN/CHECK LIST**

**I. PRINCIPAUX CONSTATS SUR LES RESSOURCES NATURELLES ET L'ENVIRONNEMENT DURANT CES DERNIERES ANNEES :**

1. Quelles les ressources naturelles disponibles dans la zone ?
2. Quels constats faites-vous sur l'état des ressources halieutiques, forestières, le littoral dans votre zone ?
3. Comment ces ressources sont-elles aujourd'hui gérées et quelle appréciation faites-vous de la gestion actuelle par rapport à celle d'il y a une trentaine/vingtaine d'années ?

**II. FACTEURS EXPLICATIFS DES CONSTATS :**

4. Quels sont, selon vous, les facteurs explicatifs de ces constats que vous venez de faire plus haut ?
5. Y'a-t-il eu des (événements/phénomènes/situations) importants expliquant les évolutions constatées ?

**III. INITIATIVES DEVELOPPEES :**

6. Devant ces constats faits plus haut, quelles sont les initiatives développées par les acteurs dans la localité ?
7. En quoi consistent ces initiatives et qui en sont les porteurs (personnes, groupes d'usagers, associations locales, ONG, projets, collectivités locales, Etat, etc.) et comment est-ce que ces acteurs travaillent-ils entre eux ?
8. Quels sont les résultats de ces initiatives ?
9. Y'a-t-il eu des blocages/obstacles dans la mise en œuvre de ces initiatives ?
10. Comment ces obstacles/blocages ont été pris en charge ?

**IV. PERSPECTIVES DE LA COMMUNAUTE :**

11. Quelles sont vos perspectives en matière de ressources naturelles et de l'environnement dans votre zone ?
12. Qui est-ce que (acteurs) vous comptez associer à ces perspectives ?
13. Avec quels moyens comptez-vous réaliser ces perspectives ?

**V. INTEGRATION DES PERSPECTIVES DE LA COMMUNAUTE AU PROCESSUS DES AMP :**

14. Comment vos perspectives pourraient-elles s'intégrer au processus de mise en place de l'AMP de la zone ?
15. Comment envisagez-vous votre implication dans ce processus des AMP ?
16. Qui doit faire quoi pour que vos perspectives s'intègrent harmonieusement au processus des AMP ?



## **UICN - Union mondiale pour la nature**

Fondée en 1948, l'Union mondiale pour la nature rassemble des Etats, des organismes publics et un large éventail d'organisations non gouvernementales au sein d'une alliance mondiale unique: près de 1000 membres dans quelques 140 pays.

L'UICN, en tant qu'Union, a pour mission d'influencer sur les sociétés du monde entier, de les encourager et de les aider pour qu'elles conservent l'intégrité et la diversité de la nature et veillent à ce que toute utilisation des ressources naturelles soit équitable et écologiquement durable.

Afin de sauvegarder les ressources naturelles aux plan local, régional et mondial, l'Union mondiale pour la nature s'appuie sur ses membres, réseaux et partenaires, en renforçant leurs capacités et en soutenant les alliances mondiales.

IUCN Programme Zone Humides  
et Ressources en Eau  
Rue Mauverney 28  
CH - 1196 Gland, Switzerland  
Tel: +41 22 999 0001  
Fax: +41 22 999 002  
Email: [wrrp@iucn.org](mailto:wrrp@iucn.org)  
[www.iucn.org/themes/wetlands/](http://www.iucn.org/themes/wetlands/)

IUCN Publications Service Unit  
219c Huntingdon Road  
Cambridge, CB3 0DL, United Kingdom  
Tel: ++44 (1223) 277-894  
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La Réserve de biosphère du delta du Saloum, Sénégal

## **Élaboration et mise en œuvre d'un plan de gestion intégrée**

### **La Réserve de biosphère du delta du Saloum, Sénégal**

Ibrahima Mamadou Mat Dia – UICN Sénégal



**Elaboration et mise en œuvre  
d'un plan de gestion intégrée**

**La Réserve de biosphère  
du delta du Saloum,  
Sénégal**





# **Elaboration et mise en œuvre d'un plan de gestion intégrée**

## **La Réserve de biosphère du delta du Saloum, Sénégal**

**Ibrahima Mamadou Mat DIA – UICN Sénégal**

L'élaboration du plan de gestion de la Réserve de la biosphère du delta du Saloum initiée en 1997 relève d'un partenariat entre le Ministère de l'Environnement et de l'Assainissement du Sénégal et l'UICN - Union mondiale pour la nature, avec l'appui financier du Ministère néerlandais de la Coopération au Développement (DGIS).

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## Liste des acronymes

ASAN	Association Sénégalaise des Amis de la Nature
CERP	Centre d'Expansion Rurale Polyvalent
CNPS	Coordination Nationale des Pêcheurs du Sénégal
CNUED	Conférence des Nations Unies sur l'environnement et le développement
CPM	Centre de Pêche de Missirah
CRODT	Centre de Recherches Océanographiques Dakar-Thiaroye
CSE	Centre de Suivi Ecologique
DEFCCS	Direction des Eaux, des Forêts, de la Chasse et de la Conservation des Sols
DGIS	Coopération néerlandaise au développement
DHP	Diamètre à hauteur de poitrine
DOPM	Direction de l'Océanographie et des Pêches Maritimes
DPN	Direction des Parcs Nationaux
DPSP	Direction de la Protection et de la Surveillance des Pêches
EGAT	Entente des Groupements Associés de Toubaouta
FEREGIE	Fédération Régionale des GIE de Pêche
FIBA	Fondation Internationale du Banc d'Arguin
GIE	Groupement d'intérêt économique
GPS	Global positioning system (Système de positionnement par satellite)
IRD	Institut de Recherche pour le Développement
IRSNB	Institut Royal des Sciences Naturelles de Belgique
ISE	Institut des Sciences de l'Environnement
MAB	Programme sur l'Homme et la Biosphère (UNESCO)
MARP	Méthode accélérée de recherche participative
MEPN	Ministère de l'Environnement et de la Protection de la Nature
ONG	Organisation non gouvernementale
PAFS	Plan d'Action Forestier du Sénégal
PAGERNA	Projet Autopromotion de Gestion des Ressources Naturelles
PNAE	Plan National d'Action pour l'Environnement
PNDS	Parc National du Delta du Saloum
PNOD	Parc National des Oiseaux du Djoudj
PRAE	Plan Régional d'Action pour l'Environnement
RBDS	Réserve de biosphère du delta du Saloum
SIG	Système d'information géographique
UCAD	Université Cheikh Anta Diop de Dakar
UGIS	Union des groupements des Iles du Saloum
UICN	Union mondiale pour la nature



# Préface

Les multiples défis environnementaux auxquels le Sénégal est confronté appellent aujourd'hui une démarche cohérente et pragmatique avec un objectif clair d'amélioration des conditions de vie des populations.

C'est ainsi que l'objectif recherché, à travers la politique environnementale mise en œuvre par le gouvernement, est d'asseoir les bases d'un développement durable participatif. Il s'agit d'un processus intégratif et transversal prenant en compte les externalités positives comme négatives générées entre les secteurs économique, social et environnemental.

Conçu au début des années 1980, le concept de biodiversité s'est rapidement mu en un problème d'environnement global qui a abouti à l'adoption d'une convention internationale signée à Rio de Janeiro en 1992.

Au Sénégal, la péjoration climatique, la pression démographique, et les pratiques agricoles inadaptées ont conduit à une forte baisse du potentiel de biodiversité des zones humides continentales et côtières.

Conscient de l'urgence de la préservation de ses écosystèmes spécifiques, notre pays a souscrit à plusieurs conventions internationales relatives à la diversité biologique (Convention de Ramsar, Convention de Paris, Convention de Bonn, conventions de Rio, Convention d'Alger, Convention d'Abidjan). Dans la même lancée, une stratégie nationale et un plan d'action pour la conservation de la biodiversité ont été élaborés.

Notre politique de conservation des ressources biologiques s'appuie également sur la mise en place d'un réseau d'aires protégées. Dans l'optique d'atteindre une superficie protégée correspondant à 12% du territoire national, tel que recommandée par la communauté internationale, mon département a entrepris plusieurs initiatives dont la création d'aires marines protégées et la mise en place de Réserves de biosphère.

Située au centre Ouest du pays, la Réserve de biosphère du delta du Saloum combine les caractéristiques d'une zone humide marine, estuarienne, lacustre et palustre. Cette aire protégée fait partie des sites de haute portée biologique avec certaines espèces comme le lamantin (*Trichechus senegalensis*), le dauphin (*Sausa teuszii*) et sa mangrove peuplée de Rhizophoras. La recherche de l'équilibre écologique de cette zone, le souci de protéger l'environnement et d'instaurer des modes d'utilisation durable des ressources naturelles justifient l'élaboration de son plan de gestion. Cet exercice qui s'est voulu participatif, impliquant les

collectivités locales et les organisations de base, était une étape importante à franchir.

L'application effective des orientations majeures du plan quinquennal de gestion constitue un autre défi, que, j'en suis convaincu, les différentes parties prenantes sauront relever.

Je tiens enfin à remercier le Royaume des Pays-Bas et l'UICN pour le soutien apporté à la réalisation de cet outil stratégique.

S.E. Monsieur Modou DIAGNE Fada  
Ministre de l'Environnement  
et de l'Assainissement  
République du Sénégal



## Avant propos

Le contenu de cet ouvrage est essentiellement basé sur le document du plan de gestion de la Réserve de biosphère du delta du Saloum (RBDS). Ce document, dont la publication a été coordonnée par le bureau de l’UICN – Union mondiale pour la nature du Sénégal, est en fait le résultat des efforts collectifs de nombreux spécialistes techniques et scientifiques et de responsables administratifs à tous les niveaux. Il n’aurait cependant pas vu le jour sans la participation des populations des diverses zones concernées, réunies lors de forums et séances de diagnostic participatif ou de validation.

Le document du plan de gestion regroupe quatre volumes:

- Volume 1     Etat des lieux et synthèse des connaissances
- Volume 2     Zonage et plan d’action
- Volume 3     Carte d’occupation et d’utilisation des sols – Système d’information à référence spatiale de la RBDS
- Volume 4     Annexes, comprenant notamment l’état des connaissances sur la flore et la faune

Cet ouvrage a pour objectif principal de partager l’expérience acquise lors de la préparation et de la mise en œuvre initiale du plan de gestion intégrée de la RBDS, afin de servir d’exemple à tous ceux qui envisagent de préparer un plan de gestion pour quelque forme d’aire protégée que ce soit.

Il attache donc beaucoup plus d’importance au processus de formulation et de mise en œuvre, ainsi qu’aux difficultés qui se sont présentées et aux façons de les résoudre, qu’aux résultats atteints, si importants soient-ils, et à l’énorme quantité de données qui a été accumulée au cours des années. En annexe à cet ouvrage, on trouvera néanmoins les documents suivants:

- le volume 2 du plan de gestion en totalité: *Zonage et plan d’action*;
- un dossier de cartes;
- la bibliographie;
- la liste des publications du projet de formulation.

Le lecteur intéressé par les détails du projet, qui ne sont pas nécessairement transposables à d’autres contextes, pourra ainsi les rechercher dans l’abondante documentation disponible auprès du bureau de l’UICN – Union mondiale pour la nature du Sénégal.

# Introduction

Dans le domaine des zones humides, le Sénégal est notamment signataire des conventions suivantes: Convention sur les Zones Humides (Ramsar, Iran, 1971), Convention sur la conservation des espèces migratrices appartenant à la faune sauvage (Convention de Bonn, ou CMS, 1983), Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction (Convention de Washington, ou CITES, 1973), et Convention sur la diversité biologique (CDB, Rio de Janeiro, 1992).

Conformément aux engagements pris dans le cadre de ces diverses conventions, l'Etat sénégalais a inscrit plusieurs sites sur les listes du patrimoine mondial et du réseau de réserves de biosphère du programme sur l'Homme et la Biosphère de l'UNESCO, ainsi que sur la Liste des zones humides d'importance internationale de la Convention de Ramsar.

Le delta du Saloum est ainsi à la fois une réserve de biosphère (1981) et une zone humide d'importance internationale (1984). Les deux traités internationaux régissant ces catégories de zones, Programme sur l'Homme et la Biosphère de l'UNESCO d'une part et Convention de Ramsar de l'autre, recommandent de mettre en place des plans de gestion. L'Etat sénégalais s'est donc attaché à préparer ce plan de gestion dans le respect des principes, directives et obligations relevant des deux traités.

Ce travail de planification participative de la RBDS s'inscrit dans la dynamique globale en faveur de la gestion durable des ressources naturelles. Il a été entrepris dans le cadre du projet régional de Renforcement des capacités de gestion des zones humides en Afrique de l'Ouest, financé par les Pays-Bas et exécuté par l'UICN, un projet vaste et ambitieux qui a démarré en 1989:

- la première phase (1989-1992) a permis de faire l'état des lieux de l'écosystème deltaïque du fleuve Sénégal, composé du Parc du Diawling en Mauritanie et du Parc national des oiseaux de Djoudj (PNOD) sur la rive gauche, et de formuler des propositions d'actions de restauration et de conservation;
- la deuxième phase (1993-1996) a été marquée par l'ouverture du programme à d'autres pays de la sous-région et par la mise en place d'un cadre de concertation pour les décideurs, planificateurs et scientifiques intéressés dans la conservation de la diversité biologique de ces sites à travers un réseau actif d'experts des zones humides du Sahel. Elle a également permis de consolider les acquis de la première phase par la mise en œuvre de plans de gestion; la gestion participative des aires protégées est ainsi devenue une réalité au Djoudj. Compte tenu de l'importance de la RBDS, diverses missions ont aussi été entreprises à cette époque afin

de préparer une proposition de projet visant à élaborer pour cette autre zone un plan de gestion;

- ainsi, c'est dans le cadre de la phase III (1996-1999) que l'UICN et ses partenaires, la Direction des Parcs Nationaux (DPN) et le Ministère de l'Environnement et de la Protection de la Nature (MEPN), ont proposé d'étendre l'expérience acquise au Djoudj à la RBDS. Le projet régional a ainsi intégré une composante formulation d'un plan de gestion de la zone, dont le but de ce plan était de contribuer à la définition et à la promotion de mécanismes adéquats pour une gestion intégrée et une utilisation rationnelle des ressources naturelles de la Réserve de biosphère sur la base d'une évaluation détaillée des conditions écologiques et socio-économiques;
- la phase IV (2000-2004) est, en ce qui concerne la RBDS, une étape de restitution et validation du plan de gestion élaboré en phase III et de mise en œuvre.

# **1. Le contexte**

## **1.1 Généralités**

Dans les régions soudano-sahéliennes d’Afrique de l’Ouest et du Centre, que l’on peut globalement qualifier d’arides, les zones humides remplissent des fonctions particulièrement importantes. Situées le long des côtes et des vallées des principaux fleuves, le Sénégal et le Niger en particulier, elles jouent un rôle majeur dans l’économie de ces bassins versants et des zones côtières et constituent un maillon essentiel du fonctionnement des écosystèmes à travers le monde.

Zones tampons et protectrices, elles peuvent, grâce à la forte teneur en matière organique, retenir 100 fois plus d’eau qu’un écosystème sec, une eau qu’elles libèrent ensuite avec régularité. Elles remplissent donc un rôle fondamental de régulation des crues et de maîtrise des inondations et assurent une régularité de la distribution des eaux de pluies aux végétaux et animaux sur toute l’année.

C’est ce dynamisme et cette régularité biologique qui explique que ce sont des centres de diversité biologique; les zones humides sont des sites densément peuplés et de nombreuses espèces, terrestres, estuariennes, dulçaquicoles ou marines, y passent une partie au moins de leur cycle de vie: reproduction, croissance et/ou repos.

Les zones humides ont aussi une fonction de stabilisation du littoral, grâce à leur végétation qui atténue la force des vagues, des courants et autres agents érosifs et maintient les sédiments en place.

Mais les zones humides sont également et surtout des lieux de connexion entre habitats et écosystèmes. Ainsi, les grands axes de migration des oiseaux migrateurs dépendent entièrement des zones humides sahéliennes. C’est ce rôle qui explique que le premier traité intergouvernemental moderne de portée mondiale sur la conservation et l’utilisation rationnelle des ressources naturelles, la Convention de Ramsar, porte sur les zones humides.

Une telle convention s’avérait nécessaire car ces écosystèmes sont menacés du fait même de leurs richesses et de l’attrait qu’elles suscitent, un ensemble de facteurs d’origine anthropique ou naturelle perturbant aujourd’hui les équilibres antérieurs.

## **1.2 Le delta du Saloum**

Situé au centre-ouest du Sénégal dans la région naturelle du Sine Saloum, le delta du Saloum s’étend sur environ 500.000 ha. Il combine les caractéristiques d’une zone humide marine, estuarienne, lacustre et palustre, et ses différents sites remplissent les fonctions classiques d’une zone humide. En effet, les diverses études entreprises ont mis en évidence:

- un écosystème de mangrove avec ses vasières riches en matière organique;
- la présence d'une multitude de chenaux servant de tampon entre la mer et l'océan et assurant l'interaction avec le réseau hydrographique en amont;
- la diversité spécifique tant animale que végétale;
- la présence d'ensembles marin, amphibie et continental.

L'importance des ressources naturelles, a fait de cette zone un espace de vie favorable au développement de l'avifaune et la faune aquatique. On considère ainsi qu'il s'agit du troisième site d'importance ornithologique de l'Afrique de l'Ouest après le Banc d'Arguin (Mauritanie) et le Djoudj (Sénégal).

Les populations de mangroves, sources de nombreuses ressources naturelles (bois de chauffe et de services, huîtres, arches, etc.) mais également sites importants pour la reproduction de nombreuses espèces halieutiques, jouent un rôle socio-économique majeur pour la région naturelle du Sine Saloum et de protection contre l'érosion côtière.

La zone est donc le lieu d'un important peuplement humain dans de grandes agglomérations (Niodior, Dionewar, Bassoul, Djirnda, Palmarin et Bétenti), avec une économie basée essentiellement sur la pêche, le prélèvement des produits de la mangrove (bois, huîtres, arches, etc.) et, dans une moindre mesure, l'agriculture et l'élevage puis, plus récemment, le tourisme.

## **1.3 Menaces pesant sur le site – mesures de protection**

### **1.3.1 Dégradation du site**

Le delta du Saloum n'échappe malheureusement pas aux menaces qui pèsent sur l'ensemble des zones humides d'Afrique de l'Ouest et une analyse évolutive des ressources du site témoigne nettement d'une dégradation graduelle de ses divers écosystèmes constitutifs. Cette situation est loin d'être un épiphénomène dans la mesure où elle risque d'entraîner une destruction systématique des valeurs du site si le scénario tendanciel se maintient.

En effet, l'exploitation des ressources naturelles jadis basée sur des principes soucieux de leur rationalisation et de leur pérennisation a connu ces dernières années de profondes mutations et le capital de ressources naturelles connaît aujourd'hui une surexploitation alarmante sous l'action d'une importante croissance démographique et dans un contexte écologique et socio-économique particulièrement difficile.

Cette situation est imputable à plusieurs facteurs, au premier rang desquels figure la péjoration climatique, avec les cycles de sécheresse qui ont traversé presque



*Le défrichage pour étendre les zones de culture a entraîné une dégradation et une érosion des sols qu'il faut maintenant combattre à l'aide de cordons pierreux (Photo: Mbody).*

tout le Sahel dans les années 70, ainsi que leurs corollaires classiques que sont la détérioration des systèmes de production et l'installation progressive d'une pauvreté rurale.

Le milieu a en effet connu une baisse significative de pluviométrie ces vingt dernières années (-20% environ). Les conséquences les plus remarquables de ce déficit pluviométrique sont la sursalure des eaux marines, la baisse des nappes phréatiques, la salinisation et l'acidification des terres ainsi que des eaux souterraines.

Il en a résulté, d'une part une dégradation des mangroves et des formations forestières qui, à certains endroits (forêts galeries par exemple), connaissent une évolution tendancielle du type soudano-guinéen vers les types soudanien et soudano-sahélien, d'autre part une crise de l'ensemble des systèmes de productions agricoles.

Mais les effets de ces premiers facteurs sont accentués par une forte pression démographique, en partie due à l'afflux de populations venues des régions de l'intérieur du pays, qui s'accompagne de nouveaux besoins en habitats et en terres arables occasionnant parfois d'importants défrichements, et d'un accroissement des demandes en énergie et en ressources naturelles alors même leur disponibilité tend à être limitée.

L'une des principales modifications récentes des pressions sur le site tient à la reconversion des populations autochtones qui délaissent les activités agricoles pour se tourner vers la pêche. Ainsi, l'exploitation des ressources halieutiques, qui était



jadis pratiquée presque uniquement par les populations des îles et revêtait un caractère saisonnier, même chez les Niominka, est aujourd'hui le fait de toutes les ethnies présentes.

A la pression croissante exercée sur les ressources halieutiques s'ajoute une exploitation peu judicieuse et techniquement inadaptée des mangroves (coupe des racines de palétuviers pour la cueillette des huîtres par exemple).

Enfin, il faut également mentionner dans ce rapide constat le manque de ressources humaines et matérielles des institutions chargées de la réglementation, de l'utilisation et de la gestion des ressources naturelles, qui sont donc particulièrement mal préparées à faire face à d'aussi profondes modifications des schémas d'exploitation des ressources.

Eu égard à ces diverses considérations, il relevait d'une impérieuse nécessité d'élaborer des stratégies à la fois concertées, durables et efficaces dans la perspective d'impulser une utilisation rationnelle des ressources de cette zone.

### **1.3.2 Des mesures de protection à la hauteur des enjeux du site**

L'importance écologique et économique du delta du Saloum et les menaces pesant sur le site ont amené l'Etat sénégalais à prendre un certain nombre de mesures de protection de la biodiversité du site et à rechercher dans ce domaine le soutien de la communauté internationale.

Ainsi, dès 1976, ce furent 76.000 ha des ensembles continental, amphibie et maritime du delta qui ont été érigés en parc national: le Parc national du delta du Saloum (PNDS). Il s'agit du deuxième parc du Sénégal par son étendue.

En 1981, une autre partie continentale de la zone a été intégrée au PNDS et la diversité et la richesse des écosystèmes de l'ensemble du delta lui ont valu d'être inscrit au réseau du programme sur L'homme et la biosphère (MAB) de l'Organisation des Nations unies pour l'éducation, la science et la culture (UNESCO) sous l'appellation Réserve de biosphère du delta du Saloum.

En 1984 enfin, son statut de zone d'accueil de plusieurs espèces d'oiseaux paléarctiques (plus de 120.000 oiseaux d'eau représentant 95 espèces y ont été dénombrés en 1998, dont plus de 75% de limicoles) valut à une partie de la RBDS (couvrant 73.000 ha) d'être inscrite sur la Liste des zones humides d'importance internationale de la Convention de Ramsar.

## **1.4 La Réserve de biosphère du delta du Saloum**

La RBDS est ainsi située dans la partie estuarienne du bassin hydrographique du Sine Saloum (dans laquelle on distingue trois bras de mer principaux: le Saloum,

le Diomboss et le Bandiala), au centre-ouest du Sénégal, à la frontière gambienne. Elle est localisée entre 13°35 et 14°15 de latitude Nord et entre 16°03 et 16°50 de longitude Ouest et couvre une superficie de 334.000 ha.

Au plan administratif, la RBDS se trouve dans la région administrative de Fatick. Elle englobe les arrondissements de Djilor, Toubacouta, Fimela et Niodior. Si la population de la zone était d'environ 600.000 habitants en 1997, avec des densités comprises entre 21 et 61 habitants au km<sup>2</sup> selon les arrondissements, on estimait en 1988 que l'ensemble de la RBDS avait une aire globale d'influence s'étendant sur plus d'1,3 millions de personnes. Cette population est caractérisée par sa jeunesse (55% ont moins de 30 ans), sa mobilité et sa grande diversité ethnique (les groupes ethniques dominants sont les Sérères Niominka et les Mandingues, qui cohabitent avec les Wolofs et les Toucouleurs); presque tous sont de religion musulmane.



*Un des plus gros villages du delta, Béteni accueille des pêcheurs venus de l'ensemble du Sénégal, attirés par la richesse des ressources halieutiques de la zone (Photo: Tunkara).*

La diversité de ses écosystèmes fonde l'originalité de la RBDS. En effet, au plan écologique, la réserve se caractérise par la présence de trois principaux milieux:

- un domaine continental, riche en forêts, limité dans sa partie basse par la mangrove et les tannes;
- un domaine amphibie, composé de trois grands groupes d'îles bordés par un réseau dense de chenaux (généralement appelés bolons) entourés de mangroves; et
- un domaine maritime.

Ces trois milieux ont des fonctions relativement différentes et sont fortement dépendants du point de vue de leur fonctionnement, de leur dynamique et de leur évolution.

Le domaine continental est le principal habitat de la grande et moyenne faune sauvage et constitue souvent la limite septentrionale de plusieurs espèces ligneuses d'affinités guinéennes. Il englobe un certain nombre de massifs forestiers dont des forêts classées de longue date comme la forêt de Fathala, classée en 1934. Le domaine continental est la principale source trophique (eau et constituants organiques et minéraux) des cours d'eau estuariens et de son écosystème mangrove. C'est aussi la zone la plus dégradée de la RBDS; plus de 80% de la superficie est défrichée, la langue salée et les tannes progressent et la dégradation de la mangrove est très remarquable à ce niveau. L'érosion hydrique drainant une forte proportion de particules sableuses constitue une menace à long terme pour les écosystèmes vasière-mangrove d'une part et les galeries forestières de l'autre.

Le domaine amphibie que constitue l'estuaire est le milieu principal de reproduction, de nourrissage et de repos des espèces halieutiques et des oiseaux d'eau. Cette richesse est liée à la présence de nombreuses vasières, chenaux (bolons) bordés de mangroves. Les îles et îlots inhabités constituent les derniers refuges de la grande et moyenne faune sauvage.

Le domaine maritime s'étend de Djifère à Djinack, jusqu'à deux kilomètres à l'intérieur de l'océan atlantique. Il englobe une série d'îlots, de bancs de sable et d'importants herbiers. Il constitue une importante zone de reproduction d'oiseaux, un des îlots étant d'ailleurs appelé Ile aux oiseaux, mais la présence d'herbiers en fait également un domaine de nourrissage de tortues marines, de crevettes et de nombreux poissons. C'est le premier site de pêche de la RBDS.

### Carte de situation de la RBDS dans le Sénégal



## 1.5 Obligations liées aux divers statuts du site

Si les statuts de réserve de biosphère et de zone humide d'importance internationale témoignent de l'importance accordée au delta du Saloum par les autorités sénégalaises et par la communauté internationale, ils s'accompagnent également d'obligations ayant un impact sur les mesures de protection/gestion à mettre en œuvre, notamment en termes de processus, d'études et de suivi.

### 1.5.1 Obligations liées au statut de réserve de biosphère

Les réserves de biosphère sont des aires portant sur des écosystèmes ou une combinaison d'écosystèmes terrestres et côtiers/marins, établies dans le cadre du programme de l'UNESCO sur L'homme et la biosphère (MAB) pour promouvoir une relation équilibrée entre les êtres humains et la biosphère et en donner l'exemple.

Elles sont désignées par le Conseil international de coordination du programme MAB, à la demande des Etats concernés. Ces réserves, dont chacune continue de relever de la seule souveraineté de l'Etat sur le territoire duquel elle est située et est donc soumise à la seule législation de cet Etat, forment un Réseau mondial auquel la participation des Etats est volontaire.

#### Cadre statutaire pour les réserves de biosphère

Le programme MAB a défini un cadre statutaire pour le réseau dans le but d'améliorer l'efficacité de chaque réserve de biosphère et de renforcer la compréhension commune, la communication et la coopération aux niveaux régional et international.

L'objet de ce cadre est donc de contribuer à une large reconnaissance des réserves de biosphère et d'encourager et de multiplier les exemples de bon fonctionnement. Il fixe la procédure de désignation, d'appui et de promotion des réserves de biosphère tout en prenant en compte la diversité des situations nationales ou locales. Chaque Etat est encouragé à élaborer et appliquer des critères nationaux pour les réserves de biosphère qui tiennent compte de sa situation particulière.

Le cadre statutaire définit notamment d'une manière générale les fonctions des réserves de biosphère qui doivent constituer des sites modèles d'étude et de démonstration des approches de la conservation et du développement durable au niveau régional, en combinant les trois fonctions décrites ci-dessous:

- conservation: contribuer à la conservation des paysages, des écosystèmes, des espèces et de la variation génétique;
- développement: encourager un développement économique et humain durable des points de vue socioculturel et écologique;

- appui logistique: fournir des moyens pour des projets de démonstration et des activités d'éducation environnementale et de formation, de recherche et de surveillance continue sur des problèmes locaux, régionaux, nationaux et mondiaux de conservation et de développement durable.

L'article 4 de ce cadre statutaire, concernant les critères généraux à remplir par une aire en vue de sa désignation comme réserve de biosphère, est extrêmement important car il précise les moyens pour remplir les fonctions décrites ci-dessus et impose la réalisation d'un zonage et la définition, de manière participative, d'un plan de gestion.

#### **Article 4 - Critères**

*Critères généraux à remplir par une aire en vue de sa désignation comme réserve de biosphère:*

1. *L'aire devrait englober une mosaïque de systèmes écologiques représentatifs de grandes régions biogéographiques, incluant une série graduée de formes d'interventions humaines.*
2. *Elle devrait être importante pour la conservation de la diversité biologique.*
3. *Elle devrait offrir la possibilité d'étudier et de démontrer des approches du développement durable au niveau régional.*
4. *Elle devrait avoir une taille appropriée pour remplir les trois fonctions des réserves de biosphère.*
5. *Elle devrait remplir ces trois fonctions grâce à un zonage approprié reconnaissant:*
  - (a) *une ou plusieurs aire(s) centrale(s) constituée(s) aux termes de dispositions légales, consacrée(s) à la protection à long terme conformément aux objectifs de conservation de la réserve de biosphère et d'une taille suffisante pour remplir ces objectifs;*
  - (b) *une ou plusieurs zones(s) tampon(s) clairement identifiée(s) entourant l'aire ou les aires centrale(s) ou contiguë(s) à celles-ci, où seules des activités compatibles avec les objectifs de conservation peuvent avoir lieu;*
  - (c) *une aire de transition extérieure où des pratiques d'exploitation durable des ressources sont favorisées et développées;*
6. *Des dispositions devraient être prises pour intéresser et associer un éventail approprié, notamment, de pouvoirs publics, communautés locales et intérêts privés à la conception et à la mise en œuvre des fonctions de la réserve de biosphère.*
7. *Devraient être prévus en outre:*
  - (a) *des mécanismes de gestion de l'utilisation des ressources et des activités humaines dans la ou les zone(s) tampon(s);*
  - (b) *un plan ou une politique de gestion de l'ensemble de l'aire comme réserve de biosphère;*
  - (c) *une autorité ou un mécanisme désigné pour mettre en œuvre cette politique ou ce plan;*
  - (d) *des programmes de recherche, de surveillance continue, d'éducation et de formation.*

L'état de chaque réserve de biosphère fait l'objet d'un examen périodique tous les dix ans, sur la base d'un rapport que l'autorité concernée établit en se référant aux critères énoncés ci-dessus et, le cas échéant, le Conseil international de coordination du programme MAB peut recommander que l'Etat concerné prenne des mesures pour maintenir la conformité avec ces critères, compte tenu de sa situation culturelle et socio-économique. Une procédure de retrait est prévue en l'absence de mesures correctrices mais elle reste considérée comme une exception à une démarche qui se veut essentiellement positive.

### **La stratégie de Séville**

Le concept de réserve de biosphère a été mis en place au milieu des années 1970 et il semblait logique d'en effectuer un bilan à la lumière de réflexions plus récentes dans les domaines de la conservation de l'environnement et du développement.

La Conférence des Nations Unies sur l'environnement et le développement (CNUED) a en effet montré l'intérêt de tendre vers un développement durable qui comprendrait la sauvegarde de l'environnement et une plus grande équité sociale, y compris dans le respect des communautés rurales et de leur savoir-faire. Divers accords multilatéraux ont été mis au point depuis pour tracer une voie pour l'avenir au niveau international.

L'UNESCO estime toutefois que la société a besoin de modèles vécus, tenant compte de tous les besoins sociaux, culturels, spirituels et économiques de la société, s'appuyant sur de solides bases scientifiques et englobant les idées de la CNUED, afin de promouvoir simultanément la conservation et le développement durable. Leur rôle dépassant largement celui de simples aires protégées, les réserves de biosphère pourraient offrir de tels modèles et devenir ainsi le théâtre de la réconciliation de l'homme avec la nature.

La Conférence internationale sur les réserves de biosphère, organisée par l'UNESCO à Séville en 1995, a adopté une double approche, afin:

- d'examiner le bilan du passé dans la mise en œuvre du concept innovateur de réserve de biosphère;
- de déterminer pour l'avenir quelle importance devrait être donnée aux trois fonctions de conservation, de développement et d'appui logistique.

Cette Conférence a conclu que, malgré les problèmes et les limitations rencontrés dans la mise en œuvre du concept de réserve de biosphère, le programme dans son ensemble s'est montré innovateur et a connu un succès certain. Les trois fonctions sont pleinement valables pour l'avenir.

Cependant, à la lumière de l'analyse faite par la Conférence, les dix orientations-clés suivantes ont été identifiées. Elles constituent les bases de ce qui a été appelé la Stratégie de Séville et doivent servir de fondement à tout plan de gestion:

1. Renforcer la contribution des réserves de biosphère à la mise en œuvre des accords internationaux en faveur de la conservation et du développement durable, en particulier la Convention sur la diversité biologique et d'autres accords sur les changements climatiques, la désertification et les forêts.
2. Mettre en place des réserves de biosphère dans une grande variété de situations environnementales, économiques et culturelles, en allant de vastes régions non perturbées jusqu'aux zones urbaines. Dans le cas des milieux côtiers et marins, le potentiel et le besoin d'appliquer le concept de réserves de biosphère est particulièrement important.
3. Renforcer les nouveaux réseaux régionaux, inter-régionaux et thématiques de réserves de biosphère en tant qu'éléments du Réseau mondial de réserves de biosphère.
4. Renforcer la recherche scientifique, la surveillance continue, la formation et l'éducation dans les réserves de biosphère, en raison de la nécessité d'avoir une base solide dans le domaine des sciences naturelles et sociales, afin de mieux promouvoir la conservation et l'utilisation durable des ressources naturelles dans ces sites. Ce besoin est particulièrement ressenti dans les pays où les réserves de biosphère manquent de ressources humaines et financières et devraient faire l'objet d'une attention prioritaire.
5. Veiller à ce que toutes les zones de réserves de biosphère contribuent à la conservation, au développement durable et à la connaissance scientifique.
6. Etendre l'aire de transition, afin d'inclure des zones suffisamment étendues pour favoriser la gestion d'écosystème et profiter des réserves de biosphère pour explorer et mettre en valeur des approches de développement durable à l'échelle régionale. Pour ce faire, il faudra mettre plus l'accent sur l'aire de transition.
7. Mieux prendre en compte la dimension humaine du concept de réserve de biosphère. Il faut, pour cela, relier plus étroitement la diversité culturelle et la diversité biologique. Les connaissances traditionnelles et les ressources génétiques devraient être conservées, et leur rôle dans le développement durable devrait être reconnu et promu.
8. Envisager la gestion de chaque réserve de biosphère essentiellement comme un "pacte" entre la communauté locale et la société dans son ensemble. La gestion devrait devenir plus ouverte, évolutive et susceptible d'adaptation. Une telle approche permettra de s'assurer que les réserves et leurs populations locales sont mieux placées pour répondre aux pressions externes politiques, économiques et sociales.

9. Rassembler tous les acteurs et les secteurs impliqués dans un partenariat permettant la promotion des réserves de biosphère au niveau local et au niveau des réseaux. L'information devrait circuler librement parmi tous les acteurs concernés.
10. Investir dans le futur: les réserves de biosphère devraient être utilisées pour approfondir notre connaissance des relations de l'humanité avec le milieu naturel, grâce à des programmes de vulgarisation, d'information, et d'éducation dans une perspective à long terme inter-génération.

En résumé, les réserves de biosphère devraient contribuer à la préservation et à l'entretien des valeurs naturelles et culturelles, grâce à une gestion durable, s'appuyant sur des bases scientifiques correctes et une créativité culturelle. Le Réseau mondial de réserves de biosphère, fonctionnant selon la Stratégie de Séville, doit ainsi constituer un instrument d'intégration pouvant contribuer à instituer une plus grande solidarité entre les peuples et les nations du monde.

### **1.5.2 Obligations liées au statut de zone humide d'importance internationale**

La Convention de Ramsar a pour objectifs généraux d'enrayer la disparition des zones humides et d'assurer leur conservation. A ces fins, elle impose aux Parties contractantes l'obligation générale de tenir compte de la conservation des zones humides dans leurs plans d'aménagement des sols. Les Parties ont l'obligation de formuler et d'appliquer ces plans de façon à promouvoir, dans la mesure du possible, l'utilisation rationnelle des zones humides se trouvant sur leur territoire. Il est à retenir qu'elles ont interprété la notion d'utilisation rationnelle dans le sens du maintien des caractéristiques écologiques, ce qui a des conséquences non négligeables sur les mesures de conservation des zones humides.

Aux termes de la Convention, les Parties contractantes ont aussi l'obligation d'inscrire au moins un site, choisi en fonction de son importance internationale aux plans écologique, botanique, zoologique, limnologique ou hydrologique, sur la "Liste des zones humides d'importance internationale" (également appelée Liste de Ramsar). Pour sa part, le Sénégal a inscrit quatre sites sur cette Liste, dont une partie du delta du Saloum en 1984.

### **Critères d'inscription des zones humides sur la Liste de Ramsar**

Tout au long de son évolution, la Convention a affiné les critères d'inscription des zones humides d'importance internationale qui ont été constamment révisés. Les critères actuels figurent dans l'encadré ci-après:



**Groupe A des Critères. Sites contenant des types de zones humides représentatifs, rares ou uniques**

*Critère 1: Une zone humide devrait être considérée comme un site d'importance internationale si elle contient un exemple représentatif, rare ou unique de type de zone humide naturelle ou quasi naturelle de la région biogéographique concernée.*

**Groupe B des Critères. Sites d'importance internationale pour la conservation de la diversité biologique**

*Critères tenant compte des espèces ou des communautés écologiques*

*Critère 2: Une zone humide devrait être considérée comme un site d'importance internationale si elle abrite des espèces vulnérables, menacées d'extinction ou gravement menacées d'extinction ou des communautés écologiques menacées.*

*Critère 3: Une zone humide devrait être considérée comme un site d'importance internationale si elle abrite des populations d'espèces animales et/ou végétales importantes pour le maintien de la diversité biologique d'une région biogéographique particulière.*

*Critère 4: Une zone humide devrait être considérée comme un site d'importance internationale si elle abrite des espèces végétales et/ou animales à un stade critique de leur cycle de vie ou si elle sert de refuge dans des conditions difficiles.*

*Critères spécifiques tenant compte des oiseaux d'eau*

*Critère 5: Une zone humide devrait être considérée comme un site d'importance internationale si elle abrite, habituellement, 20 000 oiseaux d'eau ou plus.*

*Critère 6: Une zone humide devrait être considérée comme un site d'importance internationale si elle abrite, habituellement, 1% des individus d'une population d'une espèce ou sous-espèce d'oiseau d'eau.*

*Critères spécifiques tenant compte des poissons*

*Critère 7: Une zone humide devrait être considérée comme un site d'importance internationale si elle abrite une proportion importante de sous-espèces, espèces ou familles de poissons indigènes, d'individus à différents stades du cycle de vie, d'interactions interspécifiques et/ou de populations représentatives des avantages et/ou des valeurs des zones humides et contribue ainsi à la diversité biologique mondiale.*

*Critère 8: Une zone humide devrait être considérée comme un site d'importance internationale si elle sert de source d'alimentation importante pour les poissons, de frayère, de zone d'alevinage et/ou de voie de migration dont dépendent des stocks de poissons se trouvant dans la zone humide ou ailleurs.*

Alors que la direction stratégique donnée à l'évolution de la Liste des zones humides d'importance internationale avait, dans un premier temps, été plutôt limitée, la Convention a adopté en 1999 un *Cadre stratégique et [des] lignes directrices pour orienter l'évolution de la Liste de Ramsar* afin d'apporter une optique plus claire ou "*vision*" des objectifs ou résultats à long terme que recherche la Convention. Cette "*vision*" a été définie comme suit: élaborer et maintenir un réseau international de zones humides importantes, en raison des fonctions écologiques et hydrologiques qu'elles remplissent, pour la conservation de la diversité biologique mondiale et la pérennité de la vie humaine.

Pour que se concrétise cette vision, la Convention s'est fixé quatre objectifs tenant à l'inscription et à la gestion des sites et mettant notamment en exergue la coopération, d'une part entre Parties contractantes, organisations internationales et acteurs locaux, d'autre part aux plans national, supranational/régional et international dans le cadre de traités complémentaires de l'environnement.

### **Notion de "caractéristiques écologiques"**

L'Article 3.2 de la Convention de Ramsar stipule: "*chaque Partie contractante prend les dispositions nécessaires pour être informée dès que possible des modifications des caractéristiques écologiques des zones humides situées sur son territoire et inscrites sur la Liste, qui se sont produites, ou sont en train ou susceptibles de se produire*".

Lors de sa septième Conférence des Parties, la Convention a défini comme suit le concept de "*caractéristiques écologiques*" des zones humides: "*Les caractéristiques écologiques sont la somme des éléments biologiques, physiques et chimiques qui composent l'écosystème d'une zone humide et des interactions entre ces éléments qui maintiennent la zone humide ainsi que ses produits, fonctions et propriétés.*"

Les Parties contractantes sont censées gérer leurs sites Ramsar de manière à maintenir leurs caractéristiques écologiques et, ce faisant, de maintenir les fonctions écologiques et hydrologiques essentielles qui, au bout du compte, fournissent les "*produits, fonctions et propriétés*". Les caractéristiques écologiques forment donc un facteur indicateur de la "*santé*" de la zone humide et les Parties contractantes ont l'obligation, au moment de l'inscription, de décrire le site à l'aide d'un formulaire approuvé qui doit permettre de servir de référence pour détecter tout changement dans les caractéristiques écologiques et hydrologiques.

Enfin, la Convention a également préparé des instruments de surveillance des caractéristiques écologiques et d'élaboration des plans de gestion pour les zones humides d'importance internationale (*Lignes directrices relatives à la gestion des sites Ramsar et autres zones humides*).

Toutes les Parties contractantes ont été invitées à préparer des plans de gestion et, dans ce contexte, à tenir compte de questions telles que l'impact des activités

anthropiques sur les caractéristiques écologiques de la zone humide, les valeurs économiques et socio-économiques du site (en particulier pour les communautés locales) et les valeurs culturelles associées au site.

Les Parties contractantes ont également été vivement encouragées à inclure, dans leurs plans de gestion, une procédure de surveillance régulière et rigoureuse visant à détecter les changements dans les caractéristiques écologiques.

## **2. Processus de formulation du plan de gestion**

Compte tenu de l'importance de la zone, aux plans écologique et économique, et des menaces auxquelles elle doit faire face, l'Etat sénégalais s'est attaché à préparer un plan de gestion pour l'ensemble de la RBDS dans le respect des principes, directives et obligations relevant d'une part du programme sur l'Homme et la Biosphère, d'autre part des diverses conventions que le pays a signées, Convention de Ramsar en particulier mais également Convention sur la diversité biologique et Convention sur la lutte contre la désertification.

Comme il a déjà été mentionné dans l'introduction, ce travail de planification de la RBDS a été entrepris dans le cadre du projet régional "*Renforcement des capacités de gestion des zones humides en Afrique de l'Ouest*", financé par les Pays-Bas et exécuté par l'UICN.

### **2.1 Eléments de la proposition de projet de formulation du Plan**

La proposition de projet a été préparée durant la Phase II du projet (1993-1996) et le travail effectif de formulation du plan a pu être entrepris pendant la Phase III après acceptation de la proposition par le bailleur de fonds. On trouvera ci-après les principaux éléments de cette proposition de projet.

#### **2.1.1 Principes d'actions et axes de stratégie**

La proposition prévoyait que l'ensemble des activités qui devaient être menées dans le cadre du projet et du futur programme de gestion intégrée de la RBDS se devaient de répondre aux principes suivants:

- implication de la collectivité aux stades de la planification, de l'exécution, du suivi et de l'évaluation de ces actions et/ou projets;
- implication des ONG internationales, nationales ou "*locales*", des groupements associatifs populaires;
- accord d'une place importante au rôle et à la participation des femmes;
- mise en valeur des connaissances, de l'expérience et des pratiques traditionnelles des populations autochtones et/ou renforcement de leur rôle de gestionnaires de l'environnement;
- assurance de l'amélioration, à terme, des conditions d'existence des populations par une retombée socio-économique directe en leur faveur;
- coopération avec les institutions de formation et de recherche;

- échange et vulgarisation des techniques pertinentes;
- respect et maintien de l'harmonie des paysages.

Les axes de stratégie dégagés étaient les suivants:

- conservation des acquis et de la diversité biologique dans les aires protégées (Parc national du delta du Saloum notamment);
- développement, dans l'ensemble de la réserve, d'activités incitatives, par et pour les populations locales, en matière de gestion durable des ressources naturelles (agro-sylvo-pastoralisme, écotourisme, chasse villageoise, pêche artisanale, gestion et valorisation de la viande de brousse, des ressources ligneuses, des andropogones, des rôniers, du mil, de la pharmacopée, etc.);
- reconstitution de la diversité biologique là où elle avait été dégradée par une réhabilitation (à partir du stock génétique sauvegardé dans les espaces protégés) du milieu naturel permettant, à terme, le développement des activités de gestion durable des ressources biologiques visées ci-dessus.

## 2.1.2 Buts et objectifs généraux du projet

La proposition définissait le but du projet comme suit: *“promouvoir des mécanismes de gestion intégrée et d'utilisation rationnelle des ressources naturelles de la RBDS de manière à maintenir les processus écologiques fondamentaux et à conserver la diversité biologique de la Réserve, avec la participation des populations intéressées au développement durable de cette région du Sénégal”*.

Pour y parvenir, la proposition de projet s'était fixé trois objectifs généraux.

### Objectif général 1

**Synthétiser et compléter si nécessaire les connaissances relatives aux dynamiques écologiques et socio-économiques du delta du Saloum pour alimenter le processus itératif, interactif et participatif d'élaboration du plan de gestion de la RBDS.**

Activités prévues pour la réalisation de cet objectif:

- rassembler et synthétiser les données existantes, et effectuer des analyses sur la distribution et l'utilisation des ressources naturelles dans le delta du Saloum;
- identifier et cartographier les différentes unités écologiques et zones de la RBDS;
- identifier et matérialiser des limites des différentes unités de la RBDS;
- mener des recherches participatives (méthode accélérée de recherche participative: MARP) exploratoires et thématiques;

- évaluer les potentialités des différentes formations végétales et évaluer les prélèvements et les besoins en ressources forestières;
- inventorier les espèces fauniques terrestres;
- étudier les disponibilités en eaux de surface et en eaux souterraines dans la RBDS;
- étudier les impacts du tourisme sur la RBDS;
- étudier les voies et moyens de la promotion de l'élevage par l'utilisation des sous-produits de l'agriculture et de la pêche;
- étudier les conflits (causes, conséquences, relations) autour de l'utilisation et de la gestion des ressources naturelles de la RBDS.

## **Objectif général 2**

**Préparer un plan de gestion intégrée de la RBDS conformément aux principes et à la philosophie des réserves de biosphère, aux politiques nationales de planification environnementale, de régionalisation et de décentralisation et en harmonie avec les schémas d'aménagement locaux.**

Il était précisé que le plan de gestion devait:

- intégrer les préoccupations des acteurs dans un cadre interactif et itératif de recherche d'informations et de validation;
- affecter les zones, sites et/ou ressources en vue d'atteindre l'objectif double de conservation de la diversité biologique et de développement;
- contribuer à la fonction logistique d'une réserve de biosphère par la mise en place d'un système d'information et d'un programme de suivi, recherche et éducation.

Activités prévues pour la réalisation de cet objectif:

- à l'aide des études socio-économiques (y compris les MARP) et écologiques, du système d'informations géographiques (SIG), ainsi que de schémas d'aménagement spécifiques (parc) et locaux, produire une première version du plan de gestion de la RBDS à la fin de la 2<sup>ème</sup> année du projet;
- raffiner le plan à l'aide de discussions et restitutions aux niveaux des village et des communautés rurales, ainsi que des administrations des arrondissements, départements, régions et du gouvernement national pendant les six premiers mois de la 3<sup>ème</sup> année;
- produire un document final et négocier le financement du plan de gestion pendant les derniers six mois de la 3<sup>ème</sup> année;

- identifier et renforcer sur le plan institutionnel les structures locales de gestion des ressources naturelles: parcs, services eaux et forêts, conseils ruraux, ONG, groupements de base;
- mettre en place un mécanisme de partenariat pour la prise de décisions et mise en oeuvre participative du plan de gestion de la RBDS.

### Objectif général 3

**Individualiser et développer des systèmes de gestion durable des ressources naturelles dans la zone périphérique du Parc national du delta du Saloum et à proximité des forêts classées, à l'aide de microréalisations porteuses pour les populations.**

Activités prévues pour la réalisation de cet objectif:

- identifier avec les populations des outils performants de gestion des ressources naturelles;
- organiser et former des acteurs locaux et mettre à leur disposition des outils de gestion durable des ressources naturelles;
- expérimenter des microréalisations porteuses pour les populations.



*Le travail d'étude et de formulation doit s'accompagner de réalisations concrètes pour motiver les populations. Celles-ci construisent ici un barrage anti-sel à Nemaba (Photo: Mboj).*

## **2.2 Méthodologie de formulation du plan de gestion**

Le processus de formulation du plan a été officiellement lancé le 1er août 1997 au cours du Comité régional de développement présidé par le gouverneur de la région de Fatick. Il a conduit à la réalisation de nombreux travaux dans les différentes zones de la RBDS pour mieux appréhender la problématique de la gestion et de la conservation du site.

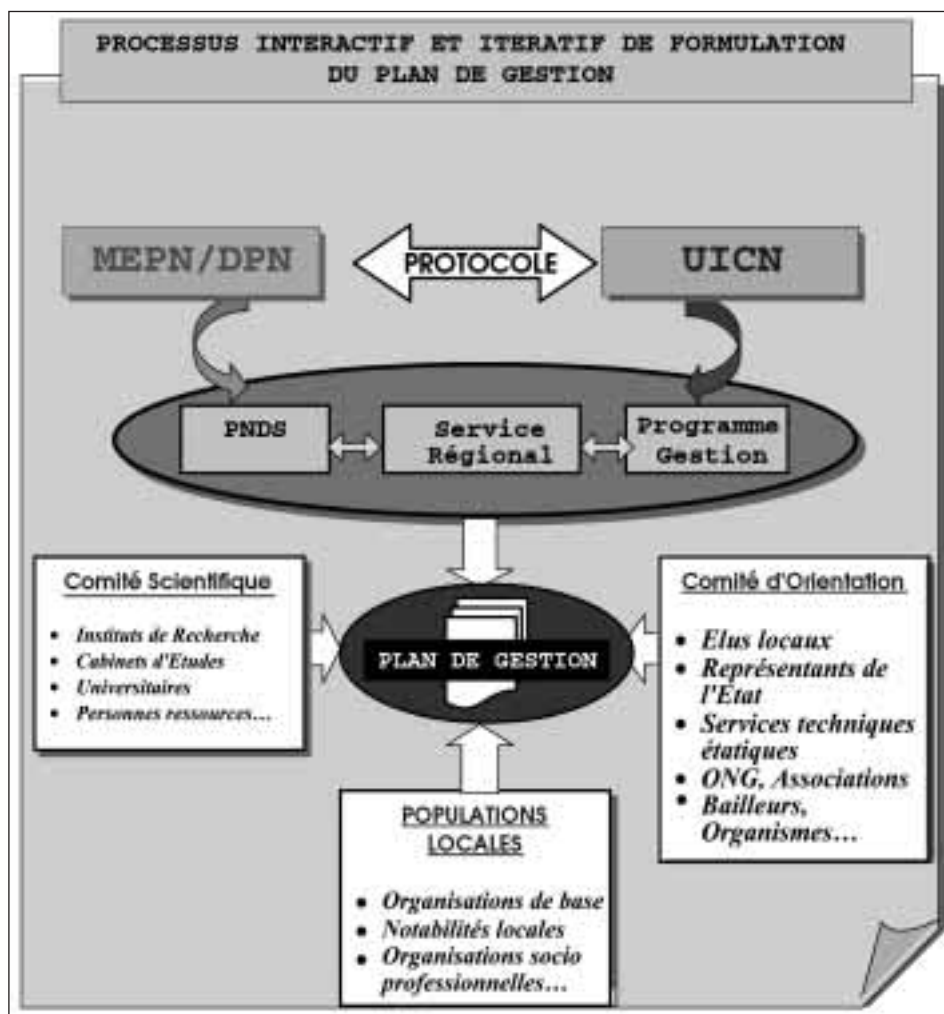
Ces travaux, axés sur la connaissance des dynamiques de l'environnement biophysique et socio-économique de la réserve, ont permis, d'une part d'examiner l'état des ressources naturelles et les relations entre les populations et l'environnement, d'autre part d'explorer les mécanismes de gestion durable et participative de ce milieu. Il a fallu auparavant établir un partenariat avec des institutions scientifiques et techniques, ainsi qu'avec les associations de base, les services techniques de l'état et les organisations non gouvernementales intervenant dans la RBDS. Enfin, les résultats de ces travaux ont fait l'objet de séances de restitution et de validation auprès des populations.

L'ensemble du processus d'élaboration du plan a duré deux ans et demi. Au cours de cette période, de petits projets pilotes ont permis d'expérimenter des techniques et des modes de gestion des ressources naturelles. Ces projets, réalisés en collaboration avec les associations de base, ont concerné divers domaines: captage des eaux de surface et aménagement des points d'eau, reboisement de la mangrove, apiculture moderne, banque villageoise, formation des femmes en techniques de transformation de conservation des produits halieutiques, et éducation environnementale.

L'exécution du projet de formulation s'est ainsi faite en quatre phases:

- août - novembre 1997: identification des partenaires potentiels et achats des équipements;
- décembre 1997 - mars 1998: diagnostic participatif des ressources et des capacités;
- mars - décembre 1998: études thématiques et synthèse des connaissances sur la RBDS et mise en œuvre de microréalisations avec les populations dans un processus itératif de recherche-action;
- janvier - décembre 1999: élaboration du Plan de gestion et poursuite des initiatives de développement durable avec les populations.





## 2.2.1 Identification des partenaires

La principale difficulté à surmonter lors de l'élaboration d'un plan de gestion intégrée pour une réserve de biosphère réside dans l'établissement de partenariats actifs entre tous les acteurs influençant le développement et l'utilisation des ressources naturelles dans la zone.

Dans ce domaine, forte de l'expérience acquise lors de la définition de plans de gestion dans d'autres régions du Sénégal et dans d'autres pays d'Afrique de l'Ouest, l'UICN entendait rassembler toutes les institutions gouvernementales et non gouvernementales présentes au sein d'un groupe de travail spécialisé.

Parmi les membres de ce "consortium" constitué pour collecter et analyser les données de base et synthétiser et discuter les options de gestion, il fallait ainsi trouver:

- les principaux services de l'Etat;
- les institutions scientifiques et techniques qui devaient être associées aux études et aux éventuelles recherches prioritaires à court, moyen et long terme;
- les organisations non gouvernementales ayant entrepris des expériences de restauration des habitats sur la base d'une approche participative et ayant, de ce fait, accumulé une expérience pratique pouvant guider l'élaboration, le développement et la mise en oeuvre de systèmes de gestion durable aux alentours des aires protégées;
- les communautés locales vivant à proximité des aires protégées ou dans les secteurs devant faire l'objet d'une attention particulière.

Le travail d'identification des partenaires s'est prolongé d'août à novembre 1997. A l'issue de cette période, la mission de l'UICN au Sénégal a signé trois protocoles d'accord, trois avenants et plus de 30 contrats avec les institutions et personnes ressources intervenant dans la RBDS.

### **Protocoles d'accord avec le Ministère de l'Environnement et de la Protection de la Nature**

Dans le cadre de ce protocole et de ses avenants signés avec la Direction des Parcs Nationaux, le Service Régional des Eaux et Forêts et le Service Régional des Pêches Maritimes, le bureau de l'UICN au Sénégal a assuré l'appui technique de ce projet.

L'exécution a été menée conjointement par le conservateur du Parc national du delta du Saloum et un coordinateur du projet basé sur le terrain. Cette équipe a été assistée par deux structures locales chargées de la conservation, le secteur des Eaux et Forêts et le service régional des pêches de Fatick. Plusieurs cadres de partenariats ont été élaborés avec les organisations de base dans le cadre de ce projet.

### **Protocoles de collaboration pour la réalisation des travaux d'études**

L'objectif du projet de formulation impliquait la sollicitation de compétences pour recueillir et synthétiser les informations. Dans le cadre de ces protocoles, la stratégie a consisté, pour chaque thème, à choisir une institution renommée pour mener les études de terrain. Celles-ci couvrent plus de dix thèmes allant de l'analyse de la végétation et de la faune à des études sur le patrimoine culturel et archéologique.

### **Les travaux ont été réalisés sous la coordination du comité scientifique par les institutions suivantes:**

- Institut des Sciences de l'Environnement (ISE) de l'Université Cheikh Anta Diop de Dakar. Un protocole de collaboration scientifique et de recueil d'informations écologiques a été signé entre cette institution et le

bureau de l'UICN; un contrat spécifique a été annexé à ce protocole pour la réalisation des études sur la flore et la végétation dans la RBDS;

- Institut de Recherche en Développement (IRD). L'IRD est membre de l'UICN et les deux institutions avaient déjà signé un protocole de collaboration en 1992. Dans le cadre d'un avenant à ce protocole, l'IRD a mis à disposition de l'UICN deux spécialistes scientifiques pour assurer la coordination de l'inventaire de la grande faune de la RBDS et de l'analyse de l'état des lieux;
- Centre de Suivi Ecologique (CSE). Le CSE est spécialisé dans la production de l'information à référence spatiale dans la sous-région. Un protocole a été signé avec cette institution pour mettre en place un système d'information à référence spatiale pour la réserve devant permettre de produire les diverses cartes des unités écologiques et des zones recommandées dans le plan de gestion;
- Personnes ressources. En l'absence de collaboration directe avec certaines institutions, des contrats ont été établis avec des spécialistes issus de ces institutions pour certaines études thématiques.

Au delà de la réalisation de leurs objectifs propres, la conclusion de ces divers protocoles et contrats a permis d'encourager la collaboration et la concertation entre ces différentes institutions, les échanges entre chercheurs débutants et expérimentés et les déplacements sur le terrain de divers responsables. En outre, ce travail a également permis d'identifier de nouveaux membres potentiels pour l'UICN.

## **2.2.2 Diagnostic participatif des ressources et des capacités**

Cette étape, primordiale dans l'établissement d'un plan de gestion, avait des objectifs multiples:

- comprendre les relations entre les populations et les domaines naturels de la RBDS;
- explorer les mécanismes de gestion durable et participative de ce milieu; et
- identifier des problèmes et/ou des priorités pour un développement potentiel et une conservation des ressources de cette zone.

En effet, une bonne politique gestion durable des ressources naturelles suppose au préalable que soit réalisé un repérage précis des sites importants qui incarnent des valeurs stratégiques et/ou des fonctions vitales dans le cadre de la préservation de certaines espèces ou de la conservation du patrimoine local. C'est ainsi qu'à travers une meilleure implication des populations, les travaux ont permis de mettre en

valeur et à profit les savoirs indigènes afin d'identifier (avec des fonds de carte à l'appui) les sites de valeurs pour l'avifaune, les zones traditionnelles de pêche, les principales frayères, les sites à profil archéologique, etc., et simultanément de procéder à des localisations géographiques et de mieux apprécier les techniques d'exploitation déployées et d'identifier des espèces.

Ces travaux ont été menés sous diverses formes: MARP (méthode accélérée de recherche participative), enquêtes plus formelles et forums d'évaluation, de planification des ressources et de validation des plans. Cette option dans la façon de conduire le travail a permis, de manière interactive et très exhaustive, de faire des ciblage indicatifs mais sûrs des sites en question; par la suite, des relevés complémentaires et plus précis ont pu être effectués au niveau de chaque site identifié à l'aide de moyens performants (GPS par exemple).

### **Méthodes accélérées de recherche participative**

Quatre MARP exploratoires et thématiques ont été menées en tenant compte du zonage tel que proposé pour une réserve de biosphère.

Ainsi, une première MARP concernant la zone du noyau a eu lieu début janvier 1998. La zone à usages multiples, qui concerne deux sites, a ensuite fait l'objet de deux diagnostics participatifs en février. Enfin, une dernière MARP a porté sur les îles du Saloum et la mangrove, zone tampon de la RBDS.

Les travaux ont été conduits par des équipes pluridisciplinaires comprenant des agents de terrain sous la coordination d'un bureau de consultants local. Au total, ce sont 27 villages de la RBDS qui ont été visités.



*L'élaboration d'un plan de gestion doit impliquer l'ensemble des populations des villages concernés, sans distinction de genre ni de statut social (Photo: Mboj).*

Le diagnostic exploratoire effectué a porté sur de nombreux éléments:

- historique des localités;
- gestion antérieure du milieu naturel;
- activité des populations riveraines et interactions avec la conservation des ressources du parc
- perception du parc et des aires protégées par les populations;
- implication des populations locales dans la préservation des ressources naturelles de la RBDS;
- perception qu'ont les populations de l'état actuel de la conservation de la RBDS;
- perspectives de cohabitation et de développement durable de la RBDS;
- affectation des différentes zones et établissement des priorités.

Les résultats ont été validés lors de séances de restitution impliquant les acteurs concernés (villageois, Conseil rural, administration et ONG) organisées à l'issue des diagnostics.

### **Enquête**

Une enquête formelle a été organisée du 1er au 15 septembre 1998 pour obtenir des indicateurs quantitatifs. Elle a été menée par le coordinateur régional de l'Association des amis de la nature (ASAN), organisation membre de l'UICN.

### **Forums**

L'approche prévue pour le processus de formulation du plan de gestion incluait la mise en place de cadres de concertation permettant aux acteurs d'accorder leurs actions. Cette approche a ainsi offert l'opportunité de contribuer à la dynamique actuelle de décentralisation par la création et/ou la consolidation de cadres de concertations pour la gestion durable des ressources et le renforcement des capacités des institutions chargées de la mettre en œuvre.

Dix forums d'évaluation, de planification des ressources et de validation des plans et 30 séances de planification ont été organisés au niveau des villages dans le cadre du projet, dans les domaines et vers les cibles suivants:

- diagnostic des ressources des communautés rurales de Keur Samba Guèye et de Toubacouta;
- diagnostic des ressources et validation des proposition d'aménagement pour les communautés rurales de Bassoul, Dionewar, Djirnda et Palmarin
- validation des résultats du diagnostic participatif et planification autour du noyau de la RBDS à Toubacouta, ainsi que dans les zones à usages multiples de Djilor et de Fimela;

- série de forums pour la rédaction du code de conduite environnementale de la communauté rurale de Keur Samba Guèye en collaboration avec le Projet d'Autopromotion et de Gestion des Ressources Naturelles (PAGERNA).
- forum de planification avec les femmes alphabétisées des villages autour du noyau de la RBDS.

D'autres forums ont également été organisés par des partenaires sur le terrain sur des sujets tels que l'élaboration d'un plan de développement de l'arrondissement de Fimela, le cadre de concertation de la communauté rurale de Djilor et le cadre de formation de guides écotouristiques.

Les forums ont permis la participation au processus de tous les villages et des différentes couches sociales. Les résultats qui en ont été tirés ont permis d'élaborer un tableau de bord des ressources et de définir les grandes orientations de développement et de conservation de la RBDS.

Les forums ont ainsi confirmé l'intérêt que toutes les couches de la population portent à la conservation et à la richesse biologique du delta du Saloum (connaissance des vasières de limicoles, des sites de reproduction et de nourrissage de poissons, etc.).

Mais cet enthousiasme a également permis de renforcer si besoin était la conviction qu'avaient les responsables du projet de la faisabilité et des chances de succès d'un programme de conservation et de planification côtière englobant des éléments tels que l'écotourisme, la rotation des pêcheries, le repos biologique, la création d'aires protégées estuariennes, etc.

## **2.3 Etudes thématiques et synthèse des connaissances**

La mise en place d'une gestion efficiente de la RBDS nécessitait évidemment une connaissance suffisante du milieu à la fois naturel et humain et il était indispensable d'entreprendre un certain nombre d'études afin de mieux maîtriser ces paramètres.

On notera toutefois que le renforcement de la recherche scientifique est également mentionné à plusieurs reprises dans les principes de gestion des réserves de biosphère, et notamment dans la Stratégie de Séville, sans rapport avec l'objectif immédiat de formulation du plan de gestion mais à des fins plus générales de suivi de l'évolution de l'environnement et de promotion de la conservation et de l'utilisation durable des ressources naturelles.

### **2.3.1 Orientations et déroulement du travail de recherche**

Les organismes d'étude et de recherche ont donc été mobilisés pour procéder, dans un premier temps, à un examen exhaustif des données existantes afin de définir un

nombre limité de nouvelles études prioritaires. Parallèlement, cette analyse a également servi à déterminer les études et les recherches que ces organismes pourraient entreprendre à moyen et long terme dans le cadre de leur propre programme. L'UICN s'est à cet égard, attachée à définir des études ou des axes de recherche privilégiant le travail pluridisciplinaire, si possible par association des structures de recherche entre elles, et ce tant dans le domaine écologique qu'en socioéconomie.

Concernant le moyen terme, une grande importance a été accordée à la définition du système de suivi des paramètres écologiques et socioéconomiques de la RBDS, de manière à ce que le volet étude/recherche appliquée apporte un appui indispensable aux décisions de gestion. La synergie entre recherche et gestion est indispensable et constitue même l'un des fondements essentiels du principe des Réserves de biosphère.

D'une manière générale, les organismes d'étude et de recherche avaient le mandat suivant:

- faire le bilan des données existantes;
- identifier la population existante et donner les tendances;
- identifier les espèces disparues, menacées, en voie d'extinction, celles restées stables, nouvelles ou envahissantes;
- décrire les conditions de l'habitat dans la RBDS;
- identifier et classer les unités écologiques selon leur sensibilité et importance pour la conservation;
- identifier et classer les contraintes et menaces; et
- dans un second temps proposer un plan de gestion de la faune comprenant un système de suivi, des axes de recherche scientifique, des mesures de conservation des unités écologiques, un plan d'aménagement pour le maintien de l'importance biologique de la RBDS et un système de gestion qui préserve au mieux ce noyau de la RBDS

Des travaux ont été entrepris dans les domaines suivants:

- études halieutiques;
- dénombrements d'oiseaux;
- recensement de la grande faune;
- études hydrologiques;
- étude des ressources archéologiques et culturelles;
- étude du cadre juridique et légal de la RBDS;
- études des potentialités touristiques;

- aménagement des aires protégées;
- évaluation économique des ressources naturelles exploitées dans les îles.

Des séminaires et ateliers de travail ont été organisés afin de permettre une interaction entre les experts ayant menés les différentes études thématiques, faire le point sur les ressources du site et hiérarchiser les actions à mener pour une meilleure gestion du site.

Enfin, la centralisation et la capitalisation de toutes les données recueillies ont été assurées par le fonctionnement d'un système d'information à référence spatiale, outil performant favorisant une meilleure utilisation des données et donc une gestion efficace de la RBDS. Le traitement de ce système d'information a été effectué avec l'appui du CSE.

Au terme des travaux, le projet de formulation du plan de gestion a donc donné lieu à la publication de nombreuses études (29 publications, voir annexe 4). En outre, différentes techniques de gestion des ressources naturelles ont été expérimentées à travers dix projets pilotes d'utilisation durable mis en place en collaboration avec les associations de base dans divers domaines.

### **Méthodologie adoptée pour l'étude de la végétation**

Les travaux d'inventaire de la flore et la végétation ligneuse ont été menés en équipe. Au vu de la variabilité des types de milieux et des nombreuses pressions humaines dans la zone de la RBDS, la méthode d'échantillonnage stratifié adoptée pour l'inventaire consistait à découper la zone en sous-zones plus homogènes à partir des photographies aériennes et de documents cartographiques (1/50.000), le choix des sous-zones tenant compte de leur nature, de leur statut et de l'état des connaissances actuelles. Chaque sous-zone a été elle-même découpée en mailles. Ce sont au total 901 parcelles qui ont été mises en place, avec une fréquence accrue dans le domaine classé où subsiste encore une végétation relativement bien conservée; les observations faites sur les zones de terroirs et sur la mangrove ont donné des informations essentiellement qualitatives.

Les travaux de terrain se sont attachés à: évaluer le taux de recouvrement de la surface de la placette par les couronnes des arbres et des arbustes; identifier les espèces ligneuses et évaluer les paramètres dendrométriques, à savoir le diamètre à 1,30 m (DHP) et la hauteur totale des individus dont le diamètre est au moins égal à 5 cm; compter les individus dont le diamètre est inférieur à 5 cm; recueillir des informations relatives à l'abondance de la strate herbacée, au type de milieu, à la nature des sols, aux facteurs de dégradation de la végétation. Les études menées dans la mangrove ont, quant à elles, essentiellement porté sur la physionomie de la végétation, la régénération naturelle des espèces et les activités menées par les populations dans cet écosystème.



## **Méthodologie adoptée pour l'étude de l'avifaune**

Des dénombrements d'oiseaux migrateurs et nicheurs ont été effectués en 1997, 1998 et 1999 afin d'obtenir:

- une estimation des effectifs totaux pour chaque espèce et de l'évolution de ces effectifs au cours des années;
- une carte de distribution des populations de chaque espèce où sont indiqués les sites les plus importants pour leur survie (ceci étant particulièrement important pour les migrateurs du paléarctique occidental);
- une évaluation de l'importance de chaque zone humide pour les populations d'eau; et
- une analyse de l'évolution écologique de chaque site et de leur tendance.

Pour faciliter les dénombrements et permettre des comparaisons dans le temps, le delta du Saloum a été divisé en 138 secteurs, chacun portant un code. En moyenne, un secteur présente 8,4 km<sup>2</sup> de zones humides avec un maximum de 43,6 km<sup>2</sup> et un minimum de 0,5 km<sup>2</sup>. Ces secteurs constituent l'univers unitaire statistique des dénombrements, le suivi et les études comparatives devant se faire sur cette base statistique.

Au total, 129 secteurs couvrant 1.092 km<sup>2</sup> de zones humides, soit approximativement 75% des zones humides du Sine Saloum ont été parcourus sur ces trois années. Les dénombrements sont réalisés à marée basse sur une période de 10 jours au cours de la première quinzaine du mois de janvier. Ils portent essentiellement sur les vasières et les bancs de sable découverts à marée basse ou moyenne, sites qui sont intensivement visités par l'avifaune pour l'alimentation et le repos.

Afin de faciliter la gestion de l'information, les données ont été reprises sous MAPINFO, système d'information géographique (SIG) permettant de stocker et de traiter une base de données avec références géographiques. La carte des secteurs y est donc reprise avec pour chacun de ceux-ci les données détaillées (effectifs par espèce) ainsi que les calculs d'indicateurs et autres données les concernant.

## **Méthodologie adoptée pour l'étude de la grande et moyenne faune terrestre**

Un dénombrement de la grande et moyenne faune terrestre diurne des principales aires protégées a été réalisé pour la première fois en 1998 dans le cadre d'un programme conjoint IRD/UICN Sénégal intitulé *Etat des lieux et suivi écologique de la grande faune sauvage terrestre et de ses habitats dans la RBDS*. Il a été effectué en collaboration avec la DPN et la DEFCCS.

L'enquête a été précédée par la formation, à l'occasion d'un stage de 3 jours sur le site, de 21 agents de la DPN et de la DEFCCS sur les techniques de

dénombrement de la grande faune. Deux manuels sur la méthode d'enquête et l'identification de la faune terrestre de la RBDS ont été élaborés et distribués.

Le dénombrement a concerné les aires protégées suivantes:

- forêt de Fathala;
- île Leba;
- île Poutak;
- forêt classée de Sangako;
- forêt classée de Keur Sambel;
- forêt classée de Patako; et
- forêt classée de Djilor.

Treize transects échantillons ont été repérés sur des cartes topographiques au 1/50.000 et sur le terrain, pour une longueur totale de 325 km. Le long de ces transects, des équipes de trois agents des Parcs nationaux et des Eaux et Forêts, ont effectué, de jour et à pied, le relevé de toutes les rencontres d'animaux d'une taille au moins égale à celle d'une mangouste en notant les éléments suivants: espèce, localisation précise, effectifs des groupes. Les indices indirects, fèces, empreintes et cadavres ont également été relevés.

En outre, une analyse de l'évolution de l'habitat a été effectuée sur la base de l'évolution du recouvrement ligneux telle que mesurée par comparaison de la surface des aires boisées de deux photos aériennes de la forêt de Fathala, l'une datant de 1969, et l'autre de 1989.

### **2.3.2 Des lacunes à combler**

Malgré le volume important et la pertinence des études publiées, il reste un important chemin à parcourir. En effet, les populations locales restent les seules sources pour l'identification des sites importants et un travail d'inventaire est à faire dans plusieurs domaines, notamment en ce qui concerne les frayères, les vasières, les bolons, les îles sauvages, les sites spécifiques à certaines espèces (tortues, lamantins, crocodiles, dauphins, etc.). En outre, il n'existe pas encore d'étude sur les invertébrés ni sur les ressources aquatiques autres que les poissons dans la RBDS. Une meilleure connaissance du cycle des espèces de poissons est également souhaitable pour améliorer l'organisation du programme d'aménagement des pêcheries.

En ce qui concerne l'endémisme, critère particulièrement important en matière de diversité biologique, les études doivent être poursuivies car le projet n'a pas été en mesure d'approfondir ce domaine et seule une espèce de poisson endémique a été signalée sur le bolon de Bakadadji. Un programme de recherche actuellement en cours devrait cependant permettre de combler certaines lacunes sur les mangroves.

## **2.4 Travaux de cartographie de la RBDS**

Le CSE, en collaboration avec l'ISE et le Département de Géographie de l'Université Cheikh Anta Diop, a préparé des cartes à partir d'images SPOT datant de 1997 et d'une base de données sur les ressources de la RBDS.

La base de données comprend:

- une base cartographique numérique au 1/50.000 de l'occupation du sol;
- une base cartographique numérique au 1/50.000 de l'hydrographie;
- une base cartographique numérique au 1/50.000 de la topographie;
- cartes au 1/500.000 du Plan national d'aménagement du territoire sur le sol, la végétation, les aptitudes;
- une image couleur naturelle de la RBDS;
- une base cartographique numérique du réseau routier;
- une base de données démographiques par village;
- une base de données sur la pêche par poste de contrôle de la Direction de l'océanographie et de la Pêche Maritime;
- une base de données sur les infrastructures socioéconomiques;
- une base de données climatiques de 1960 à 1995;
- une base de donnée sur l'avifaune;
- une base de données sur la faune;
- une base de données sur le tourisme.

L'ensemble constitue un système d'information sur l'environnement, permettant de produire des cartes sous format numérique et/ou papier, indispensable pour préparer le zonage et rédiger un plan de gestion intégrée axé sur la conservation des ressources biologiques dans le respect des principes de gestion d'une Réserve de biosphère. Ce travail a été cofinancé par la Convention de Ramsar.

## **3. Synthèse de l'état des lieux**

### **3.1 Milieu biophysique**

Le relief de la RBDS est d'une manière générale assez plat, l'altitude étant partout inférieure à un mètre. Les seules élévations observables sont les dunes et les accumulations de coquilles d'huîtres et d'arches d'origine anthropique.

La proximité de l'océan, l'hydrologie de la zone, la géomorphologie et la nature des sols ainsi que le climat exercent tous une influence sur la flore et la végétation et conditionnent les caractéristiques de la physionomie de la RBDS.

#### **3.1.1 Climat**

Le climat, de type soudanien à soudano-sahélien, constitue l'élément le plus déterminant de la dynamique des écosystèmes de la RBDS.

Il présente un cycle saisonnier très contrasté avec une longue saison sèche à laquelle succède une courte saison pluvieuse, plus de la moitié des précipitations se concentrant entre juillet et septembre. En outre, les normales pluviométriques accusent une nette régression, passant de 800-950 mm en 1931-59 à 600-750 mm en 1960-1989. Cette baisse de pluviosité est l'un des principaux facteurs de dégradation du paysage de la RBDS et de l'appauvrissement de la biodiversité.

La zone est soumise à trois types de vents:

- l'alizé maritime, relativement frais, de direction NNW; son pouvoir hygrométrique est très faible;
- l'alizé continental ou harmattan, vent chaud et sec qui souffle en saison sèche; son pouvoir hygrométrique est quasi nul;
- la mousson qui après avoir effectué un long parcours océanique, arrive sur le continent avec une humidité élevée de l'air qui apporte la pluie.

Les températures moyennes annuelles se maintiennent entre 26 et 31°C.

Evaporation et humidité relative sont liées à la température de l'air et à son pouvoir hygrométrique et suivent par conséquent également un rythme saisonnier.

#### **3.1.2 Hydrologie et dynamique marine**

La zone est un estuaire avec des bras de mer, dont les principaux sont le Saloum, le Diomboss et le Bandiala, qui ont individualisé trois ensembles d'îles et un réseau dense de petits marigots, ou chenaux, appelés "*bolons*". Bolons et bras principaux sont bordés par des vasières intertidales qui constituent l'unité géomorphologique et sédimentaire la plus importante du fait de leur rôle dans l'écosystème.

Le régime hydrographique de ce domaine est de type “*sahélien*”, l’écoulement fluvial étant directement influencé par le régime saisonnier des pluies.

La marée, essentiellement de type semi-diurne, reste cependant le principal facteur de l’hydrodynamique estuarienne compte tenu, d’une part de la faiblesse de la pente et des apports d’eau de ruissellement, d’autre part de la rétention opérée par la mangrove et l’évaporation. On parle ainsi d’un estuaire inverse caractérisé par une réduction de l’influence continentale au profit de celle de la mer, et un fort gradient de salinité des eaux d’aval en amont.

Le littoral du Saloum est soumis à deux types de houle, l’une en provenance de l’Atlantique nord (direction NO) agit pendant toute la saison sèche; l’autre en provenance de l’Atlantique sud (direction SE), agit pendant la saison des pluies. La houle du nord a une action plus prépondérante, elle est responsable d’une dérive littorale qui conditionne la dynamique des cordons littoraux amont.

### **3.1.3 Géomorphologie**

L’histoire géologique de la zone, qui a modelé son relief, est étroitement liée à la dynamique marine. La transgression marine du Nouakchottien (5000 ans BP) a provoqué des dépôts sableux qui ont formé des terrasses en bordure du plateau continental, parfois suffisamment élevées pour former des îles. Après cette transgression marine, la houle du nord-ouest a modelé des cordons littoraux successifs qui ont fini par fermer partiellement le golfe. A la suite de la régression marine, d’anciennes vasières exondées se sont transformées en tannes dépourvues de végétation. Cette évolution s’est poursuivie jusqu’à la période actuelle.

Les terres émergées ont été occupées, il y a longtemps, par des populations qui se nourrissaient, entre autres, d’arches et d’huîtres, d’où la formation des amas coquilliers.

## **3.2 Etat des ressources naturelles**

### **3.2.1 Ressources en eau**

La RBDS se caractérise par la présence d’importantes ressources en eaux de surface; les eaux souterraines sont également abondantes mais leur qualité est généralement mauvaise, d’où le déficit en eau douce constaté par endroits.

Les eaux de surface douces, tributaires des précipitations annuelles, sont conservées de juillet à novembre dans les lits fossiles des petits versants situés en amont de l’estuaire du Saloum et dans les cuvettes argileuses des zones de plateau. La forêt de Fathala en particulier abrite un important réseau hydrographique composé de vallées et de mares.

La péjoration climatique a cependant entraîné le tarissement de ce réseau de surface qui jouait jadis un rôle écologique fondamental, et, du fait de la faiblesse générale des dénivellations, de l'évaporation et du caractère confiné des cours d'eau, les eaux de ce réseau hydrographique restent en fait extrêmement salées au mieux une bonne partie de l'année, au pire de façon quasi permanente. La teneur en sel des marigots est ainsi partout supérieure à celle de la mer.

Les eaux souterraines sont constituées par des nappes superficielles et des nappes profondes:

- les nappes superficielles sont normalement alimentées par les eaux de pluies. Elles sont toutefois de plus en plus fréquemment envahies par les eaux saumâtres qui ne laissent subsister que quelques lentilles d'eaux douces ne permettant pas la satisfaction correcte des besoins en eau des populations locales;
- les nappes profondes, situées entre 60 et 350 mètres suivant l'endroit, sont abondantes et sont exploitées à l'aide de forages. Elles constituent des réserves d'eaux considérables, mais généralement de mauvaise qualité (excès de sel et de fluor).

La synthèse bibliographique révèle l'existence d'une zone de recharge de la nappe phréatique et d'écoulement souterrain vers le delta du Saloum et le fleuve Gambie avec affleurement au niveau des vallées: un dôme piézométrique, d'axe nord-sud. Ce dôme peut s'étendre jusqu'à 20 m au-dessus du niveau de la mer. En d'autres l'écosystème mangrove et estuarien de la partie sud de la RBDS est ainsi principalement alimenté en eau douce par ce dôme.

D'une manière générale, la faible disponibilité en eau potable apparaît ainsi comme l'une des contraintes majeures auxquelles doit faire face une importante partie des populations vivant dans la RBDS.

### **3.2.2 Morphopédologie**

La couverture pédologique du bassin du Sine Saloum et de ses bordures comprend les types de sols suivants:

- sols ferrugineux tropicaux, lessivés et non lessivés, développés sur la couverture gréseuse du continental terminal et sur les dunes continentales;
- sols hydromorphes minéraux à pseudogley développés dans la partie supérieure du glacis de raccordement des tannes aux unités du plateau continental. Caractérisés par la présence de fer et un pH acide, ils sont peu fertiles;
- sols fortement minéralisés sur les cordons;
- sols hydromorphes bruns, mal identifiés, dans les vallées; et

- sols halomorphes des tannes, situés immédiatement à l'arrière de la mangrove et couvrant environ 140.000 ha.

Les principaux facteurs de dégradation de ces sols sont la salinisation et l'acidification, entraînant la formation de vastes étendues de tannes, ainsi que l'érosion hydrique et éolienne.

### 3.2.3 Végétation

La RBDS est située dans une zone de transition entre le domaine soudano-guinéen au sud et le domaine sahélo-soudanien au nord. Elle présente une végétation et une flore relativement diversifiées, en relation avec la géomorphologie et la pédologie de la zone.

#### Les types de formations végétales

On distingue essentiellement deux grands types de formations végétales: celles qui occupent les zones submersibles et leurs bordures d'une part, et celles qui occupent les zones insubmersibles de l'autre.



Paysage de vasières et de mangroves (relativement bien conservées) caractéristique de la réserve de biosphère du delta du Saloum (Photo: Kane).

La mangrove constitue l'élément dominant des zones submersibles et de leurs bordures. Les trois principales espèces composant cet écosystème sont *Rhizophora racemosa*, *Rhizophora mangle* et *Avicennia africana*. Il convient également de mentionner, à la limite supérieure de l'influence des marées, les prairies halophytes,

aussi connues sous le nom de “*tannes herbues*” (par opposition aux tannes vives, étendues sursalées sans végétation).

Au niveau des zones non submersibles, les formations végétales vont des forêts galeries aux savanes arborées, en passant par les forêts claires et les savanes boisées. La savane, arbustive à arborée, est dominée par quelques espèces d'affinités soudaniennes, alors que les galeries forestières ont une canopée plus dense et une composition floristique d'affinité guinéenne.

Au total, ce sont 188 espèces ligneuses (9% des espèces végétales ligneuses et herbacées du Sénégal), regroupées dans 50 familles (30% des plantes supérieures du pays) qui ont été identifiées au niveau des zones non submersibles. Les sites les plus riches en espèces sont les forêts de Fathala (125 espèces, soit 66% du total des espèces ligneuses), de Sangako (81 espèces - 43%), de Keur Sambel (58 espèces - 31%), de Falia (54 espèces -29%) et de Sipo (51 espèces - 27%).

### **Tendances évolutives de la végétation**

Toutes les études font état d'une dégradation de la végétation au cours des 20 dernières années, certaines espèces ligneuses se comportant relativement bien alors que d'autres semblent connaître des problèmes. La baisse des précipitations et son corollaire de remontée de la langue salée, conjointement à des facteurs anthropiques comme l'exploitation abusive du bois, les défrichements, les feux de brousse et le surpâturage, constituent les principales causes de dégradation de ces biotopes.

La végétation de terre ferme de la Réserve est ainsi régulièrement parcourue par des feux de brousse qui limitent de façon significative la régénération naturelle des espèces sensibles à la température. La régularité et la violence de ces feux provoquent une mortalité chez les espèces sensibles à la température et limitent le développement des jeunes plants des autres espèces. Par ailleurs, certaines parties de la Réserve, notamment les forêts classées, font l'objet d'exploitation de bois de service et d'énergie (carbonisation et bois de chauffe). Ce type d'activité serait à l'origine de l'absence de certaines classes de diamètre chez certaines espèces ligneuses. Les défrichements cultureux représentent également un facteur de dégradation non négligeable de la végétation naturelle.

On constate ainsi un appauvrissement de la diversité biologique et une baisse du recouvrement ligneux et de la densité arborée. Les différentes formations végétales régressent en terme de densité et leur architecture se trouve modifiée (avec seulement 2 étages au maximum). Il y a en outre un risque de modification de la structure de la composition floristique dans certaines zones, les espèces soudaniennes se régénérant plus facilement que les espèces à affinités guinéennes.

Dans l'ensemble, la mangrove du delta du Saloum est relativement conservée même si la partie continentale de cet écosystème a été largement affectée par le processus de dégradation. La mortalité des espèces de la mangrove observée à



certaines endroits pourrait s'expliquer, d'une part par des facteurs naturels tels que la salinité croissante liée à la baisse des pluies et à la forte évaporation ou les perturbations liées à la rupture de la flèche de Sangomar à la fin des années 80, d'autre part par des facteurs anthropiques comme le prélèvement de bois et la destructions liées à la collecte d'huîtres.

L'ensemble de ces informations ont permis à l'équipe de recherche de l'ISE de formuler des propositions pour:

- améliorer les connaissances relatives à la flore et à la végétation de la Réserve (axes de recherche);
- assurer un suivi de la dynamique de la végétation de la Réserve (dispositif de suivi);
- contribuer à la conservation des ressources végétales de la Réserve (mesures conservatoires).

### **3.2.4 Ressources halieutiques**

Il est nécessaire dans ce domaine de distinguer les ressources estuariennes des ressources marines.

#### **Les ressources estuariennes**

Cent quatorze espèces de poissons appartenant à cinquante-deux familles ont été répertoriées dans l'estuaire du Sine Saloum.

Dans chacun des trois bras principaux, les peuplements sont dominés aussi bien en effectifs qu'en biomasse, par un petit nombre d'espèces. Toutefois, le rapport nombre d'espèces/nombre de familles, qui donne une idée du niveau de diversification atteint à l'intérieur des familles, est de 2,19 dans l'estuaire du Sine Saloum. Il est donc tout à fait comparable et même supérieur à celui d'autres aires d'Afrique de l'Ouest. En outre, la comparaison du nombre d'espèces répertoriées dans le Sine Saloum à ceux obtenus dans 60 milieux estuariens et lagunaires à travers le monde, montre que seuls 6 d'entre eux présentent une richesse spécifique plus élevée.

L'estuaire du Sine Saloum joue un rôle primordial dans le cycle biologique de nombreuses espèces:

- rôle de frayère: 36 des 114 espèces de poissons répertoriées dans l'estuaire s'y reproduisent régulièrement (plus 8 autres de façon exceptionnelle) et 14 espèces (dont les 8 qui se reproduisent de façon exceptionnelle dans l'estuaire) y effectuent leur maturation sexuelle avant d'aller se reproduire en mer;
- rôle de nurserie pour plusieurs espèces côtières, dont certaines ont une très grande importance économique au Sénégal, compte tenu de la haute

valeur nutritive du floc benthique (association détritus organiques/micro-organismes).

Outre les poissons, l'estuaire est l'habitat de nombreux crustacés et mollusques, dont certains (crevettes, huîtres, etc.) ont une importance économique locale.



*Femmes allant à marée basse vers les vasières...*



*Qu'elles exploitent deux à trois heures par jour...*



*Pour récolter des arches, des murex, des cymbium et des huîtres qui constituent leur principale source de revenus (Photos: Lucas Chambers).*

Il semblerait que le déficit pluviométrique n'ait jusqu'à présent pas eu de conséquences négatives sur le potentiel halieutique exploitable, dans la mesure où il évite l'exportation de la richesse trophique vers les zones côtières adjacentes. Les conséquences à long terme sont en revanche plus difficiles à évaluer mais les effets néfastes sur les palétuviers pourraient affecter la productivité du milieu.

### **Les ressources marines**

La diversité des biotopes liée à la nature des fonds du plateau continental et les sources d'enrichissement des masses d'eaux se traduisent par une grande biodiversité de l'écosystème marin. On recense en effet:

- des poissons cartilagineux, représentés par 80 espèces réparties en 30 familles;

- des poissons osseux, comprenant près de 470 espèces et 110 familles et dont un certain nombre d'espèces sont surexploitées;
- des mammifères marins, essentiellement des baleines, des dauphins et des lamantins mais parfois également des phoques moines;
- des invertébrés, dont des espèces de grande importance économique, essentiellement destinées à l'exportation. Les mollusques sont représentés par une quarantaine de familles et une centaine d'espèces de bivalves, de gastéropodes et de céphalopodes. Les crustacés sont quant à eux représentés par une cinquantaine d'espèces de homards, langoustes, crevettes et crabes.

Malgré cette importante diversité biologique, de nombreuses espèces marines restent encore mal connues du fait d'un intérêt économique ou scientifique limité. Les espèces des grands fonds marins n'ont pas fait l'objet d'inventaires mais ces fonds sont réputés pauvres en ressources biologiques. La frange littorale regorge également de groupes d'invertébrés marins encore très peu inventoriés (éponges, holothuries, oursins, étoiles de mer, copépodes, coraux, mollusques, divers coelentérés).

Il est difficile de faire des estimations fiables du potentiel qu'offrent des ressources marines très mobiles dans une zone aussi restreinte que la RBDS. La superficie de la zone marine du Sine Saloum (12% de la superficie nationale) et les données sur l'écobiologie des espèces et les phénomènes d'enrichissement trophique permettant d'émettre l'hypothèse (qu'il faut prendre avec prudence) que le potentiel exploitable de la partie marine de la région écologique du Sine Saloum pourrait être d'environ 10% du potentiel du Sénégal.

### 3.2.5 Herpétofaune

En ce qui concerne les reptiles, les études ont essentiellement concerné les tortues marines et ont permis de constater la présence de six espèces dans la RBDS et sa périphérie:

- la tortue verte (*Chelonia mydas*). C'est l'espèce la plus répandue et on la trouve partout, de Mbodiène à l'île aux Oiseaux ainsi qu'à l'intérieur des bolons;
- la tortue caouanne (*Caretta caretta*), fréquente au large de Djiffère et de Bétenti;
- la tortue luth (*Dermochelys coriacea*), considérée comme fréquente dans la zone sud du PNDS, à partir de Pointe de Jackonsa à l'île aux Oiseaux
- la tortue imbriquée (*Eretmochelys imbricata*), considérée comme fréquente dans la limite nord de la RBDS, de Palmarin - Ngallou à l'île de Sangomar;
- la tortue olivâtre (*Lepidochelys olivacea*), comme fréquente de Palmarin à la Pointe de Jackonsa;

- la tortue de Kemp (*Lepidochelys kempii*); bien que rare dans la RBDS et sa périphérie, des observations sporadiques ont été effectuées au large de Bétanti.

Trois principaux sites de séjour et d'alimentation des tortues marines ont été identifiés au niveau de la RBDS: Fata-Ngousse, Gnongolane, Télékoung. La réserve abrite également quatre sites de ponte des tortues marines: Idiat, Sangomar, Fandiong et l'île aux Oiseaux

Les données recueillies grâce à un questionnaire permettent de conclure à une régression des effectifs de tortues marines dans la RBDS et sa périphérie, les principales causes étant les prises accidentelles, les captures volontaires pour la consommation de la chair et la commercialisation de certaines parties (amulettes, carapaces vendues aux touristes) et la perturbation des zones de nidification en raison des activités humaines (construction d'hôtels et de résidences secondaires).

### 3.2.6 Avifaune

Les informations disponibles jusqu'en 1996 faisaient état d'au moins 200 espèces identifiées dans la RBDS au travers des multiples habitats et sites de repos et de nidification.

Les dénombrements effectués en 1997, 1998 et 1999 ont montré que la RBDS abritait plus de 100.000 oiseaux d'eaux appartenant à 95 espèces. Les limicoles représentaient 65% des oiseaux dénombrés, les *Laridae* 27% et les *Ardeidae* 3,5%. Les espèces les plus abondantes sont le bécasseau cocorli, le bécasseau minute, le goéland brun, le goéland railleur, le gravelot, l'huîtrier pie et l'avocette.



Le bécasseau cocorli, repéré ici sur les vasières de Bétanti, est l'espèce de limicole la plus fréquente dans le delta du Saloum (Photo: Vanguelouwe).

Les résultats montrent ainsi que la RBDS remplit largement les critères de zone humide d'importance internationale. Elle reçoit en effet plus de 1% des effectifs totaux de 21 espèces d'oiseaux d'eau et elle est par ailleurs considérée comme le premier site mondial de reproduction de sternes royales.

Les zones les plus importantes pour l'avifaune sont pour l'essentiel: l'île aux oiseaux, les îlots de l'océan, la zone de Joal Fadiouth, les vasières à l'est de Palmarin, les vasières et bancs de sables à l'entrée du Diomboss et du Saloum, la passe de Fambine, les salines de Kaolack, le bras du Saloum entre Foundiougne et Kaolack et l'extrémité est du marigot de Bagal.

Il faut cependant souligner que ces résultats doivent être considérés comme provisoires pour les raisons suivantes:

- les fortes variations d'effectifs d'une année à une autre (notamment en fonction des caractéristiques des marées) sur un secteur donné exigeraient plusieurs années de dénombrement, au moins 5, pour permettre une analyse détaillée sur la base de moyennes plus fiables;
- tous les secteurs n'ont pas fait l'objet de dénombrement sur deux années consécutives, ce qui limite la portée des résultats;
- certains secteurs ont fait l'objet de dénombrement à marée haute, ce qui a un impact direct sur le nombre d'oiseaux décomptés (nécessité à l'avenir d'harmoniser la période de dénombrement suivant les endroits et les marées).

Ainsi, compte tenu de la méthode utilisée, les résultats reflètent la situation dans les secteurs qui jouent, au mois de janvier, un rôle important pour l'alimentation et/ou le repos des oiseaux d'eau. Afin de compléter l'analyse, il serait nécessaire de mentionner l'activité (repos-toilette, gainage, reproduction) des oiseaux dénombrés, l'importance des aires d'alimentation et des secteurs de reproduction des espèces.

### **3.2.7 Grande et moyenne faune sauvage**

Les agents responsables du dénombrement effectué en 1998 ont parcouru 325 km de transects et ont ainsi noté la présence de 815 animaux de 26 espèces différentes. Les mammifères ont constitué environ 60% des observations, le restant étant essentiellement constitué d'oiseaux terrestres.

Confrontés à d'autres travaux, ces résultats semblent indiquer qu'au total, la RBDS abrite 34 espèces de grands et moyens mammifères. Ils témoignent en outre de l'intérêt de chacune des aires protégées de la RBDS pour la diversité animale. Plus particulièrement:

- la forêt de Fathala, partie terrestre du PNDS, est le site le plus riche en biodiversité et doit donc former la zone centrale de la RBDS;
- la forêt classée de Sangako abrite la population la plus septentrionale de colobes bais;

- les îles non habitées, comme l'île Leba, l'île aux Hyènes, l'île Yassa, l'île Toubacouta, abritent plusieurs espèces menacées.

Sur les 34 espèces de grands et moyens mammifères terrestres identifiés dans la RBDS, sept sont menacées au niveau de l'espèce en Afrique et très probablement dépendantes de mesures de conservation dans la forêt de Fathala. En outre, trois espèces sont insuffisamment connues, ce qui implique qu'elles sont sans doute rares et qu'il convient de les joindre au groupe précédent.

## **Evolution des peuplements**

La grande faune est très dépendante de ses habitats et son évolution a été étudiée pour le site le plus riche, la forêt de Fathala. Il en ressort une nette dégradation des habitats: en l'espace de 20 ans, le couvert arboré a diminué de plus de 50%. Cette régression s'accompagne d'un appauvrissement de la biodiversité de (-22%) et d'un gain de dominance de 10 à 16%. Les facteurs de dégradation sont là également à la fois anthropiques et naturels: surpâturage et l'exploitation sélective du bois, mais surtout feux tardifs et sécheresse.

En se fondant sur l'ensemble des études disponibles, on peut penser que la capacité de charge est proche du maximum possible pour les singes diurnes de la forêt de Fathala. La disparition des grands prédateurs spécialisés dans la prédation de consommateurs primaires de taille moyenne (singes notamment) a entraîné une augmentation de l'abondance relative des primates. Le phacochère est à l'inverse sous représenté, vraisemblablement du fait de la pression de chasse dont il fait l'objet au niveau des zones amodiées.

Face aux modifications naturelles et anthropiques du milieu, plusieurs espèces ont développé des adaptations comportementales: abreuvement aux points d'eau artificiels à proximité des zones anthropisées malgré la pression de chasse, exploitation de nouveaux habitats (comme la mangrove), modifications du régime alimentaire, tendance à l'association plurispécifique (particulièrement vrai pour certains singes comme le colobe bai), etc.

## **3.3 Environnement socio-économique**

### **3.3.1 Milieu humain**

#### **Situation démographique**

Les habitants de la RBDS appartiennent à deux principaux groupes ethniques: les Sérères, qui peuplent les îles du Gandoun et les bordures de la RBDS, et les Mandingues, qui habitent les îles Bétenti.

La religion dominante dans la zone est l'islam. Les populations des îles du Saloum sont très jalouses de la réputation au plan moral de leur village et de l'intégrité de leurs îles.

La population, qui était estimée à 500.000 habitants en 1988 a dépassé 600.000 en 1997, avec des densités comprises entre 21 et 61 habitants au km<sup>2</sup> selon les arrondissements. Mais on estimait également que l'ensemble de la RBDS avait en 1988 une aire globale d'influence regroupant plus d'1,3 millions de personnes. Cette population est caractérisée par sa jeunesse (55% ont moins de 30 ans) et sa mobilité.

### **Profil historique**

Malgré sa relative homogénéité et son originalité, ce milieu insulaire n'a pas d'unité historique. Le Diomboss sépare deux groupes de villages traditionnellement opposés, entre lesquels subsistent des différences notables, en particulier linguistiques:

- au nord, le pays des Nominka, le Gandoun, dépendant du Saloum;
- au sud, les îles Socé (appelées aujourd'hui îles Bétenti), dépendant du Niombato.

Les premiers habitants sont pour la plupart des mandingues, souvent venus de la Gambie d'aujourd'hui. A leur suite, Ouolofs, Diolas, Bassaris, Balantes, Hal pulaar, Serere et même Bambaras sont venus depuis des contrées parfois éloignées, tous attirés par les potentialités du milieu.

Il est intéressant de noter l'importance de la riziculture dans cette zone. Quelle que soit l'attraction exercée par de nouvelles terres, les populations retournaient souvent à leur village d'origine pour y cultiver le riz. Elles restent encore aujourd'hui très attachées à ces anciennes rizières sur lesquelles elles réaffirment leurs droits chaque fois qu'on parle de revitaliser cuvettes et bas-fonds.

### **Témoignages archéologiques**

La présence d'importants sites d'amas coquilliers témoigne de l'occupation ancienne de la zone et des activités productrices qui y étaient exercées. Actuellement l'inventaire comprend 218 amas dans les îles du Saloum. Vingt-huit d'entre eux ont été transformés en nécropoles et contiennent des inhumations en tumulus.

Ces sites se sont constitués par l'accumulation progressive de coquilles de mollusques comestibles, auxquels s'ajoutent divers rejets des activités humaines. Les amas du Saloum sont spectaculaires: ils peuvent atteindre 10 m de couche archéologique, pour un diamètre de près de 450 m.

Il importe de noter que c'est l'intégration progressive de différentes cultures (mégolithes, mbanar, amas coquilliers, etc.) qui a abouti à la constitution des

diverses ethnies qui peuplent actuellement l'espace sénégalais. L'ethnie apparaît ainsi comme un modèle d'intégration et de convergence de divers éléments. De ce point de vue l'histoire du peuplement niominka des îles du Saloum, pourrait, à la lumière des données archéologiques, être envisagée sous un éclairage nouveau. Si l'on se place dans la perspective d'une étude d'ensemble de portée régionale, les travaux entrepris sur les amas coquilliers du Saloum, pourraient prendre place dans une recherche à long terme sur les établissements humains côtiers le long de la côte atlantique du Sénégal et de la Gambie.

Malgré leur importance au plan archéologique, les amas connaissent des problèmes de conservation du fait de processus naturels (érosion marine et hydrologique, processus de bioturbation), mais surtout de leur exploitation intensive en carrières par les populations riveraines, les coquillages faisant partie des matériaux de construction pour les routes et les bâtiments.



*Les amas coquilliers, patrimoine archéologique de la RBDS, font l'objet d'une exploitation intensive en carrières (Photo: Ndiaye).*

### **3.3.2 Activités socioéconomiques**

L'économie de la zone repose essentiellement sur des activités liées aux ressources naturelles. Il s'agit de l'agriculture, de la pêche, de l'élevage, de la cueillette de produits forestiers, du tourisme, de l'extraction du sel et de l'exploitation des coquillages. La prédominance de certaines activités est fonction de l'ethnie et des intérêts relatifs des hommes et des femmes.



## Agriculture et élevage

L'agriculture occupe près de 90% de la population totale. Le peuplement de la zone a eu pour motif premier la quête de nouvelles terres arables, essentiellement pour l'arachide, principale culture de rente. Le système de production est basé sur la rotation annuelle entre cultures de rente et céréales dans les terres de plateau, la culture du riz dans les bas fonds et le développement des maraîchages dans les vallées en saison sèche.

Depuis l'indépendance, on note une intensification des productions. Durant les années 1960 et 1970, le programme agricole a facilité le défrichement de toutes les terres du domaine continental non classé.

Un élevage de type extensif est pratiqué en association avec l'agriculture et est relativement développé dans la partie continentale de la réserve.

## Pêche

Les bras de mer du delta du Saloum (Saloum, Diomboss et Bandiala) et les bolons abritent d'importantes ressources halieutiques. Ces ressources ont permis aux populations riveraines de développer une activité de pêche et de cueillette significative associée à l'agriculture dans certaines localités. Selon le niveau d'association de ces deux activités par les populations de la RBDS on distingue:

- les villages et campements de pêcheurs exclusifs qui pratiquent la pêche toute l'année;
- les villages et campements de pêcheurs où la pêche est une activité étroitement liée à l'agriculture;
- les villages et campements de pêcheurs occasionnels où la pêche est pratiquée à petite échelle en saison pluvieuse.



*La pêche dans le delta du Saloum a dépassé le stade purement artisanal et devient progressivement une activité semi-industrielle (Photo: Thiam).*

Depuis 1982 le parc piroguier du Sine-Saloum est de l'ordre de 1.600 pirogues, les pirogues à rame représentant environ 40% du parc. Entre 1992 et 1996 on a constaté une augmentation très importante du nombre de pirogues à moteur alors qu'il n'y en avait aucune lors de l'indépendance.

La gamme d'engins de pêche est très large, les plus utilisés étant: les sennes de plages, les sennes tournantes, les filets maillants encerclants, les filets maillants dérivants, les filets dormants, les filets à la traîne, les filets fixes et les lignes. Les principales espèces recherchées sont les sardinelles, l'ethmalose, les mullets et les crevettes. Les captures tournent en moyenne autour de 10.000 tonnes par an, mais elles ont atteint environ 15.000 tonnes en 1989.

En outre, le prélèvement d'huîtres et de coquillages est la principale activité des femmes des îles du Saloum. Il est impossible de chiffrer la production annuelle de cette activité, destinée en premier lieu à la consommation familiale.

Les populations de la zone évoquent toutes des baisses de production qu'elles attribuent à plusieurs facteurs: pression accrue sur les ressources, baisse de la pluviométrie, techniques d'exploitation inadaptées, coupe des racines échasses des palétuviers et, en ce qui concerne les mollusques, ensablement des vasières suite à l'érosion côtière.

### **Transformation des produits halieutiques**

On estime que près de 40% des mises à terres sont transformées sur place. Il s'agit d'une activité de type artisanal occupant essentiellement les femmes. Elle se caractérise par un investissement faible (utilisation d'énergie solaire et de bois local, main d'œuvre bon marché sans qualifications particulières) et par une faible maîtrise des paramètres de productions.



*Four de fumage d'ethmaloses. Les femmes sont les principales actrices de la transformation des produits halieutiques (Photo: Lucas Chambers).*

Toutefois, de nouvelles technologies et de nouveaux marchés s'offrent pour une meilleure valorisation des productions et une amélioration des revenus des populations locales. Ce travail de modernisation nécessite un suivi permanent de l'état des ressources.

### **Exploitation forestière**

Les populations tirent de la forêt des produits ligneux (bois de chauffe, bois d'œuvre) et non ligneux (fruits, feuilles, racines, écorces, etc.) qui leur permettent de diversifier leurs revenus et leur consommation en fibres et en protéines végétales.

Les prélèvements de produits ligneux entraînent cependant une pression de plus en plus forte sur les forêts et certaines essences sont surexploitées.

La forêt est également le siège des activités d'apiculture, mais il s'agit plus de collecte de miel que d'apiculture à proprement parler. Cette pratique est une des principales causes de feu de brousse car les "apiculteurs" éloignent les abeilles à l'aide de feu.

### **Chasse**

L'activité cynégétique est surtout l'œuvre des touristes dans les zones amodiées. Pour les autochtones, la chasse permet d'obtenir des pintades et des francolins pour la consommation familiale. L'une des principales contraintes à la chasse demeure la raréfaction du gibier, liée à la disparition de leur habitat et à l'absence d'eau.

### **Tourisme**

Le tourisme occupe une place de choix dans le tissu économique de la région. Il s'y développe grâce aux grandes potentialités liées au climat, à la diversité des espèces animales et des paysages et aux ressources culturelles.

On dénombrait en 1998 neuf établissements hôteliers, pour une capacité totale d'accueil de 484 lits, auxquels il faut y ajouter 22 campements touristiques pour environ 250 lits.

Le taux d'occupation moyen (15% en 1995) reste cependant très insuffisant, même si on peut estimer que les potentialités naturelles et culturelles de la zone justifieraient davantage d'infrastructures touristiques et d'équipements complémentaires.

La politique nationale qui consiste à diversifier au maximum les zones touristiques a fait de la région de Fatick et donc de la RBDS, une des destinations privilégiées du tourisme international.

Le développement depuis deux décennies de l'activité touristique dans la RBDS est porteur d'espoir mais suscite aussi des appréhensions. En effet, la pression

démographique sur les diverses composantes de l'écosystème de la réserve invite à une attitude de prudence, même s'il est vrai que le tourisme peut générer des ressources pour les populations locales. Dans la perspective du renforcement de cette activité, il convient de s'interroger sur ses effets sur l'attitude des populations locales vis à vis des autres potentialités de la réserve, mais également sur son impact spécifique sur le milieu naturel.

### **Activités extractives et industrielles**

Les activités extractives se limitent à l'exploitation des coquillages et à l'extraction du sel.

L'exploitation des amas coquilliers, qui s'est intensifiée depuis 1982, comporte des aspects négatifs sur l'environnement (réduction de la protection physique de certaines petites îles du fait de la dégradation du couvert végétal, risque d'augmentation de la sédimentation dans les chenaux de marée) et sur le patrimoine (dégradation de sites reconnus comme faisant partie du patrimoine culturel, historique et archéologique). Des études en cours visent à mesurer l'impact réel de l'exploitation des coquillages sur les sites, à dénombrer les carrières en usage, à identifier les exploitants et les filières commerciales, à quantifier les revenus générés, et enfin à dégager des propositions pour la conservation des sites et la valorisation de la filière.

Des confusions importantes existent quant à l'application de la réglementation en vigueur. En théorie, seuls les gisements naturels relèvent de la Direction des Mines et de la Géologie, alors que les amas anthropiques sont gérés par le Ministère de la culture. Or, la majorité des carrières exploitées au Saloum sont des sites anthropiques et devraient donc, en principe, être exclus de l'exploitation minière.

L'exploitation du sel est bien développée dans la zone de transition de la réserve, où elle constitue une activité séculaire généralement gérée par les femmes. Les hommes ne se sont impliqués de manière active qu'à partir des années de sécheresse, marquées par la chute des revenus tirés de la culture de l'arachide. L'exploitation du sel constitue aujourd'hui une source de revenus substantiels en saison sèche. Elle est cependant confrontée à de nombreuses contraintes comme le manque de moyens de production et d'exploitation, les difficultés d'écoulement du produit et la faiblesse des prix de vente.

Le tissu industriel du delta est très peu développé, la principale unité en activité étant constituée par le Centre de Pêche de Missirah (CPM). Ce centre, créé en 1989, s'occupe de la production et de la distribution du poisson ainsi que de la production de glace. Des activités de fumage sont également en expérimentation au CPM qui dispose d'un débarcadère aménagé, d'une chambre de congélation, de 2 chambres froides, d'une fabrique de glace et de 2 fours de fumage.



*Fabrication de chaux à partir de coquilles d'huîtres. Le bois de mangrove est fortement exploité comme bois de chauffe et de service (Photo: Gaye).*

## **3.4 Cadre institutionnel**

### **3.4.1 Cadre national de planification**

Le Sénégal a défini plusieurs plans et stratégies pour améliorer la gestion de ses ressources biologiques naturelles et toute stratégie de conservation de la RBDS doit en tenir compte. Il s'agit avant tout des plans suivants:

- Plan National d'Action pour l'Environnement (PNAE), un cadre stratégique permettant d'identifier et de hiérarchiser les priorités environnementales, afin de constituer la base d'un système efficace de planification et de gestion des ressources naturelles et de l'environnement dans la perspective d'un développement durable;
- Plan d'Action Forestier du Sénégal (PAFS). Il définit la politique forestière nationale: affirmation des options de conservation du potentiel forestier et des équilibres socio-écologiques, satisfaction des besoins des populations en produits forestiers et responsabilisation de ces populations dans la gestion des ressources forestières;
- Stratégie Nationale de Conservation de la Diversité Biologique élaborée conformément à la Convention sur la diversité biologique. Elle prévoit la conservation de la biodiversité; l'intégration de la conservation dans les programmes et activités de production; le partage équitable des rôles, responsabilités et bénéfices de la conservation; et l'information et la sensibilisation de tous les acteurs sur l'importance de la biodiversité et la nécessité de sa conservation.

### **3.4.2 Cadre réglementaire et institutionnel**

Au plan institutionnel, la RBDS englobe huit communautés rurales et des communes de taille relativement importantes. Compte tenu de la diversité de ces espaces, la gestion de la RBDS est soumise à un statut juridique marqué par une pluralité de lois et décrets.

Le principe fondamental de la politique législative est que les populations doivent pouvoir tirer profit des ressources naturelles pour leur subsistance tout en évitant le pillage, ceci pour préserver et sauvegarder les mêmes chances pour les générations futures. Le dispositif mis en place conjugue donc règles souples favorisant l'exploitation rationnelle des ressources et règles coercitives prohibant les excès et protégeant partiellement ou totalement certaines espèces.

L'analyse de la législation montre qu'il n'y a pas de contradiction entre les différents textes malgré leur nombre mais que les normes sont assez complexes et leur compréhension pas toujours facile. Toutefois, le dispositif en vigueur rencontre des difficultés d'application car il se heurte à plusieurs égards aux us et coutumes locaux, notamment dans le domaine du foncier. D'autres difficultés tiennent au manque de moyens humains et matériels des services chargés de l'application des textes juridiques ainsi qu'au faible niveau de maîtrise de ces textes par les populations et par les élus locaux chargés de les administrer.

Outre la législation nationale, le Gouvernement a signé des accords internationaux exigeant que l'Etat, les collectivités locales et les partenaires qui les appuient définissent et mettent en œuvre des politiques de conservation du site. Le plan de gestion s'inscrit dans le cadre des objectifs définis par ces conventions et accords dont les plus importantes sont les suivants:

- Convention de Ramsar;
- Convention sur la diversité biologique;
- Convention sur la lutte contre la désertification;
- Programme sur l'Homme et la biosphère.

### **3.4.3 Structures en présence**

Au plan de la gestion des ressources naturelles, l'environnement institutionnel dans la RBDS est marqué par la présence de structures étatiques techniques et administratives, d'associations ou groupements communautaires villageoises et d'organismes d'appui non étatiques (ONG et projets).

Il a malheureusement fallu faire le constat d'une insuffisance de coordination technique des diverses structures intervenant dans la région. Les relations entre le PNDS d'une part, et l'administration locale et les organismes de développement de l'autre méritent d'être renforcées.

## **Les institutions de l'Etat**

Elles sont représentées par les services décentralisées des directions suivantes: Parcs Nationaux, Eaux et Forêts, Océanographie et Pêches Maritimes, Agriculture, Elevage, Hydraulique, et Centres d'Expansion Rurale.

La Direction des Parcs Nationaux gère le PNDS, tandis que la Direction des Eaux et Forêts assure la surveillance des forêts classées et de l'organisation des activités de reboisement, d'exploitation et de gestion des ressources forestières et fauniques. La Direction de l'Océanographie et des Pêches Maritimes assure quant à elle la gestion de la pêche dans la zone maritime. Les Directions de l'Agriculture et de l'Elevage sont généralement représentées par les Centres d'expansion rurale polyvalents qui, avec des équipes pluridisciplinaires, sont chargés de l'encadrement et de la formation des populations.

Toutes ces institutions manquent de moyens humains et logistiques.

## **Les collectivités locales**

La loi sur la régionalisation, entrée en vigueur en janvier 1997, indique que les collectivités locales s'administrent librement, par des conseillers élus, et participent de l'organisation même des pouvoirs publics et des libertés.

Le décret d'application de la loi portant transfert de compétences aux régions, communes et communautés rurales en matière d'environnement et de gestion des ressources naturelles, stipule que:

- l'état est garant de la gestion rationnelle des ressources naturelles et de l'environnement. Il veille sur la pérennité des ressources, pour un développement durable; mais également que
- les collectivités locales sont gérantes des ressources naturelles et de l'environnement dans la limite des compétences qui leur sont transférées.

L'intervention des collectivités dans le domaine de l'environnement et de la gestion des ressources naturelles est basée sur les spécificités de chaque zone écogéographique. En ce qui concerne la RBDS, le principal partenaire dans le cadre du Projet sera le Conseil Régional qui siègera dans le Comité d'Orientation. Au niveau de la base, le Conseil Rural jouera un rôle actif dans la mise en œuvre des activités prévues dans le Plan de gestion.

## **Les ONG et les organisations de base**

De nombreuses ONG interviennent dans les différentes zones de la RBDS et certaines d'entre elles sont actives dans le domaine de la gestion des ressources naturelles et de la conservation de l'environnement.

Par ailleurs, le processus de désengagement de l'Etat vis-à-vis de la prise en charge de certains secteurs d'activités a conduit à la création de nombreuses associations, qu'elles soient culturelles et sportives, consacrées au développement ou religieuses.

Les organisations féminines traditionnelles à caractère social cèdent progressivement la place à des groupements féminins bien structurés. Ces groupements apparus au cours des années 1990 développent de nombreuses activités génératrices de revenus: maraîchage, gestion de moulins à mil, petit commerce, prestation de services agricoles, etc.

Des groupements à caractère socio-économiques, tels que des GIE, commencent également à émerger.

Des organisations de développement, nées de l'union de divers groupements, généralement tournées vers des actions de gestion de ressources naturelles et de l'environnement, ont commencé à émerger dans la deuxième moitié des années 1990.

Malgré le dynamisme et la multiplicité de ces associations, les enquêtes de terrain ont montré que ces associations ne coordonnent pas assez leurs initiatives, d'où la nécessité de prévoir des cadres de concertation appropriés et/ou de renforcer ceux qui existent.





## 4. Éléments du plan de gestion

L'exercice de planification pour l'élaboration du plan de gestion intégrée de la RBDS est basé sur le concept du zonage.

### 4.1 Zonage de la RBDS

S'il n'existe pas de modèle "*clé en main*" pour effectuer un zonage, deux principes essentiels doivent cependant être respectés:

- les modes d'utilisation, les attentes, les attitudes et les connaissances locales doivent être analysés dans le cadre d'une étape préparatoire;
- la définition du zonage ne doit en aucun cas être confiée à des experts déconnectés des questions locales.

#### 4.1.1 Aspects théoriques du zonage

Le zonage constitue généralement la meilleure façon de garantir la stricte protection d'une ou de plusieurs zones centrales faisant partie d'une aire protégée plus importante à usages multiples. Dans la plupart des aires protégées à usages multiples, certains objectifs ne pourront pas être appliqués de façon uniforme.

Le zonage constitue le moyen grâce auquel les planificateurs et gestionnaires définissent les usages qui pourront être affectés à chaque partie de l'aire protégée. Il doit être transcrit sous forme d'un document juridique mais il faut qu'il puisse être compris par tous ceux dont on cherche à contrôler les actions. La meilleure façon de parvenir à un tel résultat consiste à associer les utilisateurs à l'élaboration du zonage.

Si le zonage peut prendre plusieurs formes, ses objectifs doivent être très clairs. Il s'agit généralement:

- d'assurer la protection d'habitats, écosystèmes et processus écologiques particulièrement importants ou représentatifs;
- de séparer des activités humaines incompatibles;
- de protéger les qualités naturelles et/ou culturelles de l'aire protégée tout en autorisant toute une gamme d'activités humaines;
- de réserver certains sites à des utilisations humaines particulières en cherchant à en atténuer les impacts sur l'aire protégée;
- de préserver certains sites de l'aire protégée sous forme naturelle, non perturbée par l'homme, où seules les activités de recherche scientifique ou d'éducation pourraient être autorisées.

Le zonage est un processus itératif qui comprend généralement un certain nombre d'étapes bien distinctes:

- recueil d'information et préparation: il s'agit de rassembler et d'examiner les informations sur l'état et l'utilisation de la zone et de préparer les matériels nécessaires à la participation du public;
- consultation ou participation du public avant la définition du zonage: il convient ici d'obtenir des commentaires sur les informations recueillies et d'obtenir des suggestions pour le contenu du zonage;
- élaboration d'un projet de zonage et des matériels nécessaires pour expliquer ce projet au public;
- consultation ou participation du public pour l'examen du projet de zonage;
- finalisation du zonage: c'est la dernière étape d'adoption d'un zonage révisé tenant compte des commentaires et informations reçues après la publication du premier projet.

#### **4.1.2 Zonage de la RBDS**

L'objectif premier de ce zonage, résultat d'un exercice de diagnostic écologique détaillé tenant compte de tous les paramètres biogéographique et socioculturels de la réserve, est de garantir la vocation originale des espaces de manière à permettre une meilleure conservation des ressources dans le cadre d'une gestion globale.

Reflétant l'état actuel des connaissances, il devra être actualisé à la lumière de nouvelles données scientifiques et des évolutions en matière de problèmes de développement et de conservation.

Conformément à la Stratégie de Séville, trois zones principales ont été définies: une aire centrale, une zone tampon et une zone de transition.

##### **Aire centrale – aire prioritaire pour la conservation de la nature**

Il s'agit d'espaces stratégiques essentiels pour la conservation de la biodiversité, le contrôle d'écosystèmes à faible turbulence, la recherche non destructive et d'autres activités à faible impact (telles que l'éducation et le tourisme). Cette aire centrale englobe le PNDS (avec comme sites constitutifs les îles Djinack et Léba), les îles de l'océan et Sangomar, l'embouchure du Diomboss (y compris Fadiong), Poutak et Gouk, et la forêt de Fathala.

Cette aire centrale fera l'objet de mesures de conservation particulières en raison de nombreuses contraintes, dont le manque d'eau douce, l'exploitation des amas coquilliers, la pression de chasse et le risque d'extinction de certaines espèces. Il conviendra d'y mener les actions prioritaires suivantes:

- revitalisation des vallées;
- amélioration de la gestion des ressources naturelles;
- renforcement des institutions impliquées dans la gestion des ressources naturelles.

## **Zone tampon – aires de développement durable**

C'est une aire soumise à des restrictions quant à l'ampleur et aux types d'activités. Elle doit être utilisée pour des activités de coopération compatibles avec les principes écologiques, dont l'éducation environnementale, les activités récréatives et la recherche fondamentale et appliquée. Elle est constituée des îles Bétenti (y compris le Bandiala), sites connus pour leur richesse en habitats et la diversité de leur végétation et de leur grande faune, et des passes de Fambine et Ndar, très riches en ressources halieutiques et les forêts classées du Djilor, Kem Sambel Sangako.

Cette zone tampon est essentiellement confrontée à des problèmes de destruction de la végétation naturelle en raison de défrichements abusifs et de feux de brousse. Les actions suivantes ont été définies comme prioritaires:

- implication des populations dans la protection des sites de nidification;
- aménagement des mares;
- régénération assistée de la mangrove;
- protection et gestion rationnelle des rôneraies;
- mise en place de bois villageois;
- amélioration de la protection des ressources halieutiques;
- réglementation des conflits de pêche;
- aménagement des pêcheries;
- appui à la valorisation et à la transformation des produits halieutiques;
- éducation environnementale;
- amélioration des conditions d'hygiène et de salubrité;
- amélioration de l'alimentation en eau.

## **Zone de transition**

C'est elle qui offre le plus grand potentiel de développement durable. Elle peut se prêter à une grande diversité d'activités agricoles ou autres, et tout un ensemble d'acteurs, communautés locales, GIE, associations de base, ONG et bailleurs de fonds travaillent ensemble pour la gestion et le développement de la zone.

Les îles Gandoul (y compris le Saloum), les îles Mar au nord, les vasières de Fimela-Palmarin et Joal à l'ouest, les tannes de Fayil-Faoye au nord et l'interface estuaire-continent, de l'est de Foundiougne à Missira, constituent la zone de transition de la RBDS.

Cette zone de transition est caractérisée par l'importance des parcs arborés, la présence de rôneraies et de mangroves et l'existence d'un certain nombre de vasières et d'amas coquilliers, mais également par l'importance des établissements humains.

Les activités agricoles, la pêche et le tourisme de découverte y sont développés. Trois sous-zones ont été distinguées en fonction de l'importance des activités humaines:

- une zone faiblement anthropisée, constituée par les îles du Saloum;
- une zone moyennement anthropisée, correspondant au domaine fluvio-marin compris entre Palmarin, Faoye et Fayil; et
- une zone fortement anthropisée qui comprend la façade continentale de l'estuaire, de Foundiougne à Missira.



*La zone de transition créée dans le cadre du zonage de la RBDS laisse place au développement d'infrastructures écotouristiques (Photo: Gaye).*

Les principales contraintes pesant sur la zone de transition sont liées à la pauvreté des sols, à la salinisation des terres, au manque d'eau douce, à la fréquence des feux de brousse, à la forte pression du bétail et aux défrichements et à la destruction de la mangrove. Les actions prioritaires suivantes devront y être menées:

- restauration des sols salés;
- reboisement à usages multiples;
- restauration de la mangrove;
- construction de cordons pierreux et de gabions pour la lutte contre l'érosion hydrique
- amendement des sols de cultures en compost par la vulgarisation de fosses compostières;
- amélioration du système d'alimentation en eau;
- renforcement des capacités des organisations locales.

## **4.2 Objectifs généraux du plan de gestion intégrée**

Le but du plan de gestion est de promouvoir des mécanismes de gestion intégrée et d'utilisation rationnelle des ressources naturelles de la RBDS, de manière à maintenir les processus écologiques fondamentaux et à conserver sa diversité biologique, avec la participation des populations.



*Le plan de gestion devra permettre l'utilisation durable des ressources au bénéfice des générations futures (Photo: Lucas Chambers).*

Quatre objectifs généraux ont été visés dans le cadre du plan de gestion:

1. Conserver le patrimoine naturel et archéologique existant et restaurer les zones dégradées.
2. Mettre en place un système de surveillance continue de l'environnement.
3. Promouvoir des activités d'écodéveloppement en faveur des populations de la RBDS.
4. Mettre en place un dispositif institutionnel propre à la RBDS.

Le plan de gestion intégrée de la RBDS s'inscrit ainsi dans le cadre des quatre objectifs de la Stratégie Nationale de Conservation de la Diversité Biologique, et en particulier du premier de ces objectifs puisque la RBDS est identifiée dans la stratégie comme faisant partie des sites de hautes biodiversité à préserver en priorité. L'expérience du plan de gestion de la RBDS, qui servira de pionnier dans la mise en œuvre de la Stratégie Nationale de Conservation de la Diversité Biologique, permettra de ce fait de tirer des leçons à étendre à d'autres écosystèmes du pays.

#### **4.2.1 Conserver le patrimoine naturel et archéologique existant et restaurer les zones dégradées**

La RBDS est riche au plan des écosystèmes mais également en termes de diversité biologique, archéologique et culturelle. La diversité de ses écosystèmes lui confère des rôles et fonctions multiples: lieu de reproduction, d'alimentation et/ou de refuge pour de nombreuses espèces animales (invertébrés, poissons, oiseaux migrateurs, mammifères, etc.), protection du littoral grâce à ses mangroves, etc. La RBDS, avec ses aires protégées et toute une palette d'activités socio-économiques offre également un cadre propice pour la conservation de la biodiversité.

La réserve apparaît cependant aujourd'hui de plus en plus vulnérable du fait de la dégradation que subissent ces écosystèmes. Les principaux facteurs de dégradation sont, d'une part la baisse de la pluviométrie, qui s'accompagne d'une hypersalinisation du milieu estuarien, d'autre part la forte croissance démographique, qui entraîne une grande pression sur les ressources naturelles, avec extension considérable du domaine agricole et surexploitation des ressources ligneuses, halieutiques et archéologiques.

La précarité des équilibres écologiques impose donc de mettre en œuvre une stratégie de gestion/conservation afin de maintenir les fonctions écologiques et culturelles de la réserve.

Les résultats attendus de la réalisation de cet objectif sont les suivants:

1. Renforcement des mesures de conservation et de gestion des différentes zones de la RBDS.
2. Atténuation des facteurs naturels de dégradation du milieu (sécheresse, salinisation).
3. Promotion de mesures spécifiques de conservation des écosystèmes et atténuation des perturbations liées à l'action de l'homme.

#### **4.2.2 Mettre en place un système de surveillance continue de l'environnement**

Conformément aux principes de gestion des réserves de biosphère, l'une des finalités de la RBDS doit être d'encourager les recherches orientées vers la compréhension de l'évolution des processus naturels, et de surveiller de façon continue les caractéristiques du milieu. La gestion à long terme des écosystèmes du milieu implique en effet un suivi continu et performant de l'évolution de la situation ainsi qu'une amélioration des connaissances sur l'ensemble des ressources naturelles et sur les activités socio-économiques dans la réserve. Ces données sont collectées et intégrées dans un Système d'information à référence spatiale qui sera

régulièrement mis à jour. Une publication semestrielle fera la synthèse des données et l'état des lieux et des ressources.

Pour permettre à la RBDS de remplir la fonction logistique assignée aux réserves de biosphère, l'amélioration et la capitalisation des connaissances sur le milieu devront être assurées par la mise en place de structures interdépendantes de recherche et de surveillance.

Le résultat attendu de la réalisation de cet objectif a été défini comme suit:

1. Amélioration et capitalisation des connaissances sur le milieu.

#### **4.2.3 Promouvoir des activités d'écodéveloppement en faveur des populations de la RBDS**

Conformément à la Convention sur la diversité biologique, il est prévu d'impliquer davantage les populations locales dans les prises de décisions et la réalisation de tâches pratiques au niveau des aires protégées. En outre, les populations locales doivent pouvoir jouir des retombées économiques et autres de la présence de ces aires protégées.

Le plan de gestion de la RBDS a pour ambition d'en faire un pôle de croissance économique, de développement et de conservation. Le programme de conservation proposé dans le cadre de l'objectif 1 devrait s'accompagner de mesures et activités sociales et économiques afin de réduire les pressions humaines, de créer des emplois et générer des revenus et de promouvoir des activités respectueuses l'environnement.

Les résultats attendus de cet objectif sont les suivants:

1. Renforcement des capacités d'organisation et de mobilisation des communautés villageoises et des institutions locales.
2. Amélioration des conditions de vie des populations locales grâce à la mise en œuvre de projets générateurs de revenus.
3. Emergence d'une évolution positive des mentalités et des comportements face à l'environnement.

#### **4.2.4 Mettre en place un dispositif institutionnel propre à la RBDS**

La pérennité des actions de gestion et de conservation suppose qu'elles soient réalisées avec la participation de tous les acteurs concernés; il faut en outre assurer une parfaite coordination avec l'ensemble des programmes et plans nationaux, régionaux, départementaux, locaux et sectoriels (PNAE, PRAE, Mission d'Aménagement des Vallées Fossiles, Programme COMARAF, etc.).



Ceci nécessite donc la mise en place de nouvelles structures institutionnelles propres à la RBDS. Il est évident que ces structures doivent être pérennes afin d'assurer la continuité de la gestion participative de la réserve. C'est pourquoi leur composition ne fait appel qu'aux institutions et ressources humaines déjà présentes sur le terrain et assurées d'une continuité dans le temps.

La réalisation de cet objectif suppose la création des structures suivantes:

- un comité d'orientation regroupant les décideurs pour les grandes orientations du plan de gestion;
- un comité scientifique chargé, d'une part de la surveillance continue et de la mise à jour des connaissances, d'autre part du suivi technique de la mise en œuvre du plan de gestion;
- des comités de gestion de sites, réunissant les acteurs concernés par le développement durable des aires de conservation identifiées et protégées.



*L'ostréiculture fait partie des activités alternatives à mettre en œuvre dans le cadre du plan de gestion de la RBDS (Photo: Mbaye).*

## 5. Programme de mise en œuvre du plan de gestion

La mise en œuvre du plan de gestion de la RBDS a été inscrite au programme de la Phase IV du projet régional de Renforcement des capacités de gestion des zones humides en Afrique de l'Ouest, financé par les Pays-Bas et exécuté par l'UICN.

La mission d'évaluation externe prévue dans le cadre de ce projet a reconnu la pertinence des actions menées dans le cadre de la Phase III, même s'il était à l'époque difficile d'évaluer l'efficacité opérationnelle de tous les résultats acquis.

L'UICN a donc proposé pour la Phase IV de restituer et de mettre en œuvre le plan de gestion tel qu'il a été conçu, en prenant note des observations et des recommandations de la mission d'évaluation externe – notamment en ce qui concerne l'implication des populations locales (en accordant toute attention voulue aux questions de parité hommes-femmes) et le parti qu'il convient de tirer du rôle économique que peut remplir la RBDS – et de contribuer ainsi, par l'amélioration permanente des connaissances, à la mise à jour du plan pour une période ultérieure. En particulier, le zonage qui a été effectué au cours de la Phase III pour la rédaction du plan de gestion reflétait l'état des connaissances du moment et devra donc être actualisé à la lumière des données scientifiques que l'on pourra tirer du système de surveillance continue de l'environnement ainsi que des données socio-économiques.



*Pont de Palmarin. En 1979, la construction de la route avait bouché le bolon de Pandaka, entraînant un appauvrissement de la biodiversité et une érosion côtière. La construction du pont a permis de rétablir ces flux et d'atténuer les impacts de la route (Photo: Kane).*

La mise en œuvre du plan de gestion s'effectuera en partenariat avec un certain nombre de structures qui ont déjà été associées à la phase de formulation du Plan de gestion. Il s'agit notamment de structures étatiques (telles que le PNDS, qui assurera la maîtrise d'œuvre du Plan autour du noyau, la DPN, les services décentralisés des Eaux et Forêts), d'établissements scientifiques (comme l'ISE et le CRODT qui seront responsables des activités de suivi de la flore et de l'ichtyofaune), d'organisations internationales (comme Wetlands International qui collaborera avec la DPN au suivi des oiseaux d'eau) et d'organisations locales (ONG de conservation de l'environnement, GIE, etc.).

## **5.1 Activités retenues dans le cadre des objectifs du plan de gestion**

### **5.1.1 Principales activités prévues dans le cadre de l'objectif général n°1**

#### **Renforcement des mesures de conservation et de gestion des différentes zones de la RBDS**

Les actions suivantes sont prévues pour atteindre ce résultat:

- Activité 1: aménagement de l'aire centrale de la réserve
- Activité 2: renforcement des capacités des services chargés de la gestion de la RBDS
- Activité 3: création d'un réseau de sites de conservation
- Activité 4: aménagement des forêts classées situées dans la réserve
- Activité 5: aménagement des pêcheries
- Activité 6: amélioration des connaissances sur les sites sauvages et adoption d'aires protégées terrestres
- Activité 7: sauvegarde du patrimoine archéologique
- Activité 8: aménagement d'aires protégées marines
- Activité 9: création de réserves de faune
- Activité 10: création d'un parc transfrontalier avec la Gambie (PNDS et Niumi)

#### **Atténuation des facteurs naturels de dégradation du milieu (sécheresse, salinisation)**

Les actions suivantes sont prévues pour atteindre ce résultat:

- Activité 1: mise en œuvre de techniques de maîtrise des ressources en eau
- Activité 2: restauration de la mangrove

## **Promotion de mesures spécifiques de conservation des écosystèmes et atténuation des perturbations liées à l'action de l'homme**

Les actions suivantes sont prévues pour atteindre ce résultat:

Activité 1: développement de bois villageois et allègement des travaux des femmes

Activité 2: sauvegarde des parcs arborés

Activité 3: promotion des techniques de restauration et de conservation des sols

### **5.1.2 Principales activités prévues dans le cadre de l'objectif général n°2**

#### **Amélioration et capitalisation des connaissances sur le milieu**

Les actions suivantes sont prévues pour atteindre ce résultat:

Activité 1: mise en place d'un système d'information géographique

Activité 2: mise en place d'une station de recherche

Activité 3: suivi dynamique de la faune

Activité 4: suivi dynamique de l'avifaune

Activité 5: suivi de l'ichtyofaune

Activité 6: suivi de la végétation

Activité 7: suivi des pêcheries de crevettes et d'ethmaloses

### **5.1.3 Principales activités prévues dans le cadre de l'objectif général n°3**

#### **Renforcement des capacités d'organisation et de mobilisation des communautés villageoises et des institutions locales**

Les actions suivantes sont prévues pour atteindre ce résultat:

Activité 1: amélioration de l'organisation villageoise et création de structures

Activité 2: élaboration de plans de gestion des terroirs villageois

#### **Amélioration des conditions de vie des populations locales grâce à la mise en œuvre de projets générateurs de revenus**

Les actions suivantes sont prévues pour atteindre ce résultat:

Activité 1: amélioration de l'alimentation en eau des populations

Activité 2: appui au développement du maraîchage et de l'arboriculture fruitière

Activité 3: développement de projets apicoles

Activité 4: création de banques villageoises

Activité 5: valorisation des produits halieutiques

### **Emergence d'une évolution positive des mentalités et des comportements face à l'environnement**

Les actions suivantes sont prévues pour atteindre ce résultat:

Activité 1 : mise en place d'un programme d'alphabetisation

Activité 2: mise en place d'un programme d'éducation environnementale

Activité 3: promotion de l'écotourisme

#### **5.1.4 Principales activités prévues dans le cadre de l'objectif général n°4**

Pour parvenir à la réalisation de cet objectif, il est prévu:

- un appui institutionnel au comité d'orientation;
- un appui institutionnel au comité scientifique. Son rôle consiste à assurer la crédibilité scientifique et technique des actions de recherche et de développement entreprises dans la réserve; il procède à l'évaluation des activités et apportera des appuis et conseils;
- la création de cadres de collaboration opérationnels pour l'exécution des activités. L'exécution, le suivi et la coordination des activités relèvent de la responsabilité première de l'Unité d'exécution, appuyée par l'UICN. L'exécution des interventions doit être assurée par les groupements villageois, encadrés par des structures techniquement compétentes (administration et/ou ONG, etc.);
- la mise en place d'un dispositif de suivi et d'évaluation. Les actions retenues dans le programme devront faire l'objet d'un suivi permanent en vue d'en évaluer l'exécution et les résultats. Des évaluations périodiques devront également permettre d'apprécier les performances par rapport aux objectifs et, par suite, d'apporter les ajustements qui s'imposent au plan de gestion.

## **5.2 Modalités de mise en œuvre et planification des activités**

Une attention particulière a été accordée à la phase de planification des activités retenues. Une période de 5 ans est ainsi programmée pour la mise en œuvre des activités prévues (un chronogramme des activités figure dans le volume 2 du plan de gestion annexé au présent document).

La hiérarchisation des activités s'appuie sur les conclusions des travaux de diagnostic participatif et sur les résultats des projets pilotes réalisés dans le cadre de la préparation du plan de gestion.

Pour se voir attribuer un rang de priorité élevé, une activité devait comporter à la fois une dimension hautement stratégique pour la conservation de la biodiversité et un aspect d'écodéveloppement pouvant soutenir durablement la conservation. En outre, la hiérarchisation a également tenu compte du zonage; à rang égal, une activité au niveau de la zone insulaire (aire centrale, zone tampon et zone de transition faiblement anthropisée) est ainsi prioritaire par rapport à une activité prévue dans la zone non insulaire (zones tampon moyennement et fortement anthropisées).

Dans le domaine insulaire, les deux premières années de mise en œuvre du plan viseront essentiellement l'aménagement par le biais du renforcement de la protection des sites de haute valeur pour la diversité biologique et de l'utilisation rationnelle de l'estuaire. Un programme de suivi et de renforcement des acquis de cette première phase sera mis en œuvre au cours des trois années suivantes.

Les actions concernant le domaine non insulaire sont plus variables: remise en eau des mares et vallées, facilitation de la régénération naturelle des espèces ligneuses, création d'une aire protégée communautaire autour des vasières de Palmarin, etc.

En résumé, les priorités suivantes ont été retenues:

- Priorité 1: actions de protection et d'aménagement de sites d'importance pour la biodiversité sur la zone insulaire; activités intenses pendant les deux premières années, y compris en termes de sensibilisation;
- Priorité 2: actions de renforcement des capacités de surveillance du domaine insulaire; actions régulières d'appui à l'aménagement de ce domaine;
- Priorité 3: actions de conservation des domaines naturels de la partie côtière (zone de transition à intense activité humaine); activités échelonnées dans le temps;
- Priorité 4: actions de protection et de restauration des écosystèmes dégradés ou anthropisés; activités échelonnées dans le temps et ponctuelles;
- Priorité 5: actions ponctuelles de sensibilisation.

### **5.3 Premiers résultats de la mise en œuvre**

Le plan de gestion est mis en œuvre depuis janvier 2000 avec des résultats fort concluants. Les principaux acquis de ces 3 dernières années sont comme suit:

- organisation régulière du dénombrement des oiseaux d'eau depuis 1997 et suivi des colonies nicheuses avec un accent particulier sur la formation en ornithologie de relais locaux (écogardes);

- suivi du mouvement des limicoles avec des résultats sur la connaissance du rôle de la RBDS dans la migration des oiseaux d'eau. Pour la première fois un protocole de recherche sur le mouvement des limicoles à travers les vasières a été mis en place avec des résultats sur le comportement des espèces. Le rôle important de la RBDS dans le cycle biologique des limicoles et des *Laridae* (sternes caugek, tournepierres à collier et bécasseaux cocorli notamment) a été identifié;
- cartographie des ressources et capitalisation des connaissances traditionnelles en 2001. L'acquisition de ces connaissances, couplée à des séances de sensibilisation, a permis un certain nombre d'acquis:
  - o quatre sites ont été classés aires marines protégées par les communautés locales;
  - o le système traditionnel de repos biologique est remis en place dans l'estuaire du Saloum;
  - o le processus d'aménagement des principales pêcheries de la zone est en place;
  - o les populations, d'un commun accord, ont mis en place d'un code de conduite pour la gestion des ressources naturelles de l'estuaire du Saloum. Comme le plan de gestion, ce code a été réalisé d'une manière participative et itérative;
- organisation effective des populations pour la gestion durable des ressources naturelles. Plusieurs cadres de gestion locale des ressources ont été créés. C'est ainsi que pour la surveillance et le respect de la réglementation en vigueur pour une gestion durable des ressources, le projet de mise en œuvre a appuyé la création de 23 comités de plages dans 23 villages (comités de plages, cadres de concertation, comités de salubrité, comité d'action écotouristique, comité de gestion des banques, etc.);
- mise en place d'activités génératrices de revenus: 10 banques villageoises, cinq groupements d'épargne et de crédit, 13 périmètres maraîchers de 20 ha, 700 ruches équipées, une miellerie;
- contribution significative à l'amélioration des conditions de vie des populations de la RBDS (forage de 40 puits, reforestation de 20 ha de mangrove, programme d'amélioration de l'hygiène);
- amélioration des conditions de travail des agents du PNDS par la construction de six postes de gardes, l'équipement en matériel nautique et en matériel de suivi des oiseaux;
- organisation de 15 sessions de formation à l'intention des décideurs, des

partenaires, des populations locales, des agents des services de conservation et du personnel de l'UICN.

- mise en place d'un réseau de partenariat avec des organismes étatiques (DOPM, DPSP, DEFCCS, CERP), para-étatiques nationaux et internationaux (CRODT, IRSNB, PAGERNA), locaux ou paysans (UGIS, FEREGIE, CNPS, Conseils ruraux de Palmarin et de Bassoul), et des ONG (ASAN, EGAT, FIBA).



*Réhabilitation du poste de garde de Djinack. L'amélioration des conditions de travail et de vie des agents chargés de la conservation est l'un des résultats attendus dans le cadre du 1<sup>er</sup> objectif du plan de gestion de la RBDS (Photo: Mbodj).*





## **6. Enseignements à tirer de la démarche**

La conduite de ce travail de formulation d'un plan de gestion intégrée, faisant appel à plusieurs disciplines, impliquant des acteurs diversifiés et comportant des enjeux importants ne s'est pas faite sans problèmes dont la connaissance peut contribuer à faciliter la mise en œuvre d'autres projets similaires.

### **6.1 Un processus nécessairement long et supposant un financement à long terme**

Initié le 1er août 1997, le processus de formulation du plan de gestion de la RBDS n'a abouti à un document final qu'à la fin de l'année 1999.

La longueur du processus tient aux impératifs suivants:

- analyse bibliographique;
- caractère participatif du processus de formulation supposant:
  - o l'identification et le renforcement, au plan institutionnel, des structures locales de gestion des ressources naturelles: parcs, services des eaux et forêts, conseils ruraux, ONG, groupements de base, etc.;
  - o l'établissement de cadres de concertation (comité d'orientation, comité scientifique, comité de gestion, comité de partenariat et comité exécutif);
  - o la consultation des diverses parties, la reformulation, le cas échéant, des axes d'intervention et la validation des différentes étapes (d'où un aspect itératif du processus);
- négociation de partenariats pour la réalisation des divers travaux et études. Rappelons que, dans le cadre de ce projet, le bureau de l'UICN au Sénégal a signé trois protocoles d'accord, trois avenants et plus de 30 contrats avec des institutions et personnes ressources intervenant dans la RBDS;
- réalisation d'études complémentaires pour combler les plus grosses lacunes;
- mise en place de projets pilotes d'accompagnement (actions d'écodéveloppement au bénéfice des populations comme le captage des eaux de surface et l'aménagement des points d'eau, le reboisement de la mangrove, l'apiculture moderne, l'établissement de banques villageoises, la formation des femmes aux techniques de transformation et de conservation des produits halieutiques, l'éducation environnementale, etc.);
- conciliation des divers objectifs d'un plan de gestion (conservation, développement, croissance, aménagement du territoire et lutte contre l'exode rural);
- rédaction, édition et approbation des divers documents.

Dès la phase de formulation, il faut également envisager des mécanismes de partenariat pour la prise de décisions et la mise en œuvre participative du futur plan de gestion de la RBDS.

La longueur du processus de formulation du plan de gestion et la nécessité de garantir sa mise en œuvre ultérieure, afin que cette formulation ne reste pas un bel exercice théorique, exigent que l'on recherche dès le départ du processus des engagements financiers à moyen-long terme. Dans le cas du plan de gestion de la RBDS, la phase de formulation a supposé un budget de l'ordre de 650.000 CHF, mais le donateur avait fourni l'assurance d'un engagement financier supplémentaire pour garantir la mise en œuvre du plan pendant une période initiale de 5 ans (budget additionnel de 2.700.000 CHF).

## **6.2 Confusion entre phases de formulation et de mise en œuvre**

La phase de formulation nécessite de mener plusieurs études, en particulier auprès des populations. Après six mois de fréquentes visites et devant l'absence d'investissement de taille, les partenaires se sont posés des questions sur l'utilité de l'initiative. La collecte de l'information devenait de plus en plus difficile. L'impression qu'il ne s'agissait que d'un projet de plus, venu assembler de l'information sans lendemain pour la vie des populations commençait à se propager à la fin de la première année, d'autant plus que les diagnostics montraient l'urgence de certaines actions alors que les moyens de mise en œuvre n'étaient pas en place.

Les responsables du projet en ont tiré quelques enseignements:

- il est important, durant la phase de formulation, de mettre en place un programme progressif de recherche-action répondant aux préoccupations environnementales majeures diagnostiquées;
- durant la phase de formulation, il est tout aussi stratégique de fournir des indicateurs qui crédibilisent l'initiative à mettre en place et de comprendre que les partenaires souhaitent toujours des réponses immédiates à leurs questions;
- un minimum de réponses aux problèmes est nécessaire, même si les responsables de la phase de formulation doivent s'efforcer de convaincre les partenaires qu'ils entrent dans un processus de longue haleine. Ce processus exige la collecte de l'information la plus précise possible, ce qui demande du temps et suppose de fréquentes sollicitations;
- enfin, il ne faut jamais être trop ambitieux dans ses objectifs de temps et toujours faire en sorte que les divers partenaires soient sensibilisés à la question.

### **6.3 La collecte d'informations n'est jamais terminée**

Malgré le volume important et la pertinence des études réalisées pendant le projet de formulation du plan, des connaissances manquent encore dans de nombreux domaines et les populations locales restent souvent une source inestimable d'informations sur tous les aspects de la zone.

De même, par définition les chercheurs auraient tendance à approfondir leurs études, alors que la formulation du plan doit s'appuyer sur des résultats, même insuffisants.

C'est pourquoi il est indispensable de se fixer, dès le départ du projet de formulation du plan, les limites de la phase d'étude, tant en termes temporels (attention aux dérives liées à la présence simultanée de plusieurs équipes de recherche sur le terrain et aux différences de rythme de travail d'une matière à l'autre) qu'en ce qui concerne les résultats voulus.

Il convient de garder à l'esprit qu'un plan de gestion est un document qui fait l'objet de révisions régulières au vu des nouvelles connaissances acquises au cours de chacune des phases de mise en œuvre. Les deux premières années de mise en œuvre du plan de gestion intégrée de la RBDS (2000 et 2001) ont déjà permis de combler certaines lacunes; sept cartes d'évaluation des ressources par les populations ont été réalisées, ce qui a permis l'organisation des repos biologiques, la création de 4 aires communautaires marines protégées et la rédaction d'un code de conduite.

### **6.4 Démonstration *in situ* des théories du développement durable**

L'aboutissement d'un tel projet de formulation de plan de gestion et sa suite logique de mise en œuvre constituent, tant pour les populations cibles que pour un certain nombre de partenaires du projet, une démonstration sur le terrain de l'applicabilité des concepts théoriques relatifs au développement durable, tels que l'équité en matière d'accès aux ressources et de partage des bénéfices qui en découlent, la conservation des ressources, le développement communautaire, la croissance économique, etc.

L'ensemble des activités mises en place au cours du projet ont ainsi permis d'accroître la sensibilisation des populations aux questions de conservation, de favoriser le développement économique et de renforcer les structures locales, formelles ou non, afin de les aider à contribuer aux décisions affectant leur avenir.

Il ne faut cependant pas pêcher par excès de naïveté: la sensibilisation à la nécessité de conserver les ressources ne peut être qu'un processus graduel qui exige du temps, une répétition des messages, un développement économique en parallèle et, le cas échéant, de la rigueur dans l'application des textes réglementaires.



*La sensibilisation des populations est l'un des moyens d'introduction de nouvelles techniques de gestion durable des ressources naturelles (Photo: Mbodj).*

## **6.5 Le piège de “l'esprit projet”**

### **6.5.1 Confusion désirs-besoins**

Durant la phase diagnostic, les partenaires ont souvent tendance à confondre “*Désir*” et “*Besoin*”. Les chercheurs doivent approfondir leurs recherches et mettre en place des outils croisés de collecte de l'information pour davantage identifier les besoins. Ils doivent mettre en place des stratégies variées de collecte de l'information pour avoir les différents points de vue des acteurs, et pas uniquement ceux de leurs responsables ou d'une frange seulement des acteurs. Les outils et méthodes participatifs de diagnostics et de planification permettent d'obtenir ces différents points de vue et il importe de les utiliser pleinement.

### **6.5.2 Relations avec les services de l'Etat – légitimité des partenaires**

Le positionnement des services déconcentrés de l'Etat pour la conception du programme a été l'un des problèmes majeurs rencontrés dans la phase de formulation. La RBDS est un vaste espace où se côtoient de nombreux acteurs. Le projet de formulation a tenté d'embrasser large en mettant en place des actions pilotes sur toute l'étendue du territoire et sur plusieurs secteurs. Les enjeux liés à ce programme ont entraîné plusieurs réactions.

En effet, la question de la légitimité d'un partenaire par rapport à un autre comme interlocuteur principal s'est souvent posée. Le Parc ne représentant que 20% du territoire de la RBDS, le service des Eaux et Forêts s'est demandé pourquoi le PNDS devait être choisi comme partenaire principal. A l'inverse, la DPN, estimait qu'il s'agissait d'un projet destiné à renforcer les actions de conservation du PNDS et considérait les investissements hors périphérie du parc comme une amputation à son budget.

Dans cette logique, lors de la réunion de synthèse du comité scientifique pendant la phase d'élaboration du plan de gestion, la DPN a exercé un lobbying pour réduire au maximum l'étendue de la RBDS. Ce comité a ainsi tenté d'exclure diverses zones présentant un grand intérêt pour la biodiversité et dont les relations fonctionnelles avec le noyau de la RBDS ont été mises en évidence par les recherches (communauté rurale de Palmarin et îles Mar par exemple).

Cette situation s'est souvent posée dans les sites d'intervention impliquant plusieurs acteurs. Les responsables de projet doivent les anticiper pour en minimiser les impacts.

### 6.5.3 Attention aux convoitises

Le simple mot "*projet*" s'accompagne de l'idée d'un budget et suscite par conséquent des convoitises. Celles-ci peuvent revêtir plusieurs aspects, de la simple attente d'un partage des ressources à la mise en place de stratégies s'apparentant à l'escroquerie. En effet, "*l'esprit projet*" consiste aussi en la création de structures dites de conservation sollicitant des appuis du projet. Leur degré d'engagement est cependant variable. Il nous est ainsi apparu *a posteriori* que certaines de ces structures n'ont été créées qu'en anticipation de la mise en place du projet de formulation. Nous sommes tombés dans ce piège et avons conçu avec ces structures des programmes de conservation dont le financement a par la suite été détourné de ses objectifs. Ce n'est heureusement pas la règle et d'autres organismes sont effectivement engagés dans des actions de conservation, les programmes conçus avec eux ayant bien été exécutés au bénéfice de leur communauté et de leur environnement.

S'il est difficile de séparer le bon grain de l'ivraie, il s'agit toutefois de mettre en place une stratégie progressive d'intervention. Par mesure de précaution, il est conseillé en début de partenariat de mettre en place de petites actions sans engagement financier auprès du partenaire tout en étudiant ce dernier. Dans leur grande majorité, les organisations de base militent pour l'amélioration du cadre de vie de leur terroir et les brebis galeuses sont des exceptions. Le besoin de renforcement de capacités de ces organisations est réel. L'expérience a montré qu'une à deux années d'accompagnement par la formation et le suivi permettent de combler cette lacune.

## **6.6 Les populations ne sont pas systématiquement opposées à la conservation**

Les diverses enquêtes menées pendant le processus de formulation du plan de gestion de la RBDS ont montré que l'utilisation des ressources du Parc pouvait être source de nombreux conflits.

Les rapports d'enquêtes donnent cependant également le détail des relations entre les populations et le Parc, et, pour autant, celles-ci ne sont pas toujours conflictuelles, loin s'en faut. L'enquête formelle a ainsi montré que plus de 70% des personnes interrogées trouvaient utile la présence du Parc même si elles regrettaient de ne pas suffisamment bénéficier de ses retombées. A ce titre, elles souhaiteraient un renforcement de l'écotourisme et la mise en place de campements villageois.

Ces résultats montrent qu'il est erroné de systématiquement opposer conservation et intérêt des populations. En outre, si celles-ci sont effectivement capables d'accepter la nécessité de mesures de conservation qui leurs sont imposées de l'extérieur, elles seront d'autant plus faciles à convaincre si elles participent à l'élaboration de ces mesures.

## **6.7 Les domaines réservés des chercheurs ou agents de l'Etat**

Par souci d'efficacité, le projet a souvent fait appel à des ressources externes aux institutions classiques (chercheurs juniors ou techniciens par exemple) pour mener certaines activités de recherche-action dans des domaines spécifiques.

Les universitaires et agents de l'Etat en poste ont quelquefois considéré cela comme un empiétement sur leurs domaines de compétence, ce qui a pu les amener à rejeter certaines activités pendant les réunions régulières du comité scientifique.

Cela a été le cas, par exemple, de la retenue anti-sel de Néma Bah pour laquelle les hydrologues de l'Université de Dakar avaient mené 5 ans de recherche et qui demandait à poursuivre les études alors que le besoin d'aménagement était pressant tant pour l'environnement que pour les populations. La sollicitation de compétences non universitaires devenait obligatoire pour concrétiser les propositions existantes.

De même, le recrutement, par le projet, d'un technicien horticole pour faciliter le développement d'activités maraîchères a été mal perçu par les agents de l'Etat en charge de la vulgarisation de ces activités au sein des CERP.

Ce type de biais devrait néanmoins se résoudre de lui-même avec le temps. En effet, les compétences s'élargissent à des intervenants n'appartenant pas aux institutions classiques et les différentes parties finissent par comprendre ce nouveau paradigme.

## 6.8 La rédaction du plan de gestion

La phase de formulation a généré une masse énorme d'informations qui ont donné lieu à 29 publications. Si les divers acteurs s'accordaient sur les principaux objectifs et résultats qui ont suivi les recommandations de Séville du réseau MAB et celles de la Convention de Ramsar, le contenu et l'organisation des chapitres ont suscité davantage de divergences, ce qui fait que le plan de gestion a dû être rédigé plus d'une dizaine de fois en privilégiant soit un plan détaillé soit un plan synthétique.

La rédaction en plusieurs volumes s'est finalement imposée comme un compromis dans lequel le volume 1 capitalise les informations collectées durant la phase de formulation et le volume 2 met en exergue les actions et activités à entreprendre.

Pour éviter ces tergiversations, un plan de rédaction devrait être adopté dès le début de la phase de formulation.

Une autre difficulté de rédaction concerne les problèmes de langue et de rivalités entre communautés pour disposer de données claires et fiables. Ainsi, le "niombato" zone du noyau de la RBDS est un pays de vallées: les paysages sont sillonnés de cuvettes et bas-fonds (faro en mandingue ou khour en ouolof). Ces unités sont des segments des vallées qui s'étalent généralement sur de longues distances et traversent donc plusieurs localités. Or, chacune de ces localités attribue un nom à l'unité qui la traverse et l'unité toute entière, la vallée, n'a donc pas un nom unique reconnu de tous, ce qui pourrait conduire à la répertorier plusieurs fois.



## **Conclusion**

L'ensemble du processus de formulation du plan de gestion de la Réserve de biosphère du delta du Saloum, qui s'est étalé sur une période de deux ans et demi, s'est avéré très riche en enseignements.

Il a d'abord permis d'améliorer considérablement les connaissances relatives à l'écosystème, conformément aux exigences liées aux statuts de Réserve de biosphère et de site Ramsar, en faisant appel à la fois aux techniques scientifiques classiques d'étude du climat, des sols, de la faune et de la flore, etc., et aux connaissances traditionnelles des populations et utilisateurs des ressources.

Le présent ouvrage de synthèse de l'expérience tirée de ce processus a ainsi insisté à plusieurs reprises sur l'impérieuse nécessité de donner un caractère participatif au processus. Dans un milieu où les différents acteurs sont habitués à travailler de manière indépendante, le projet a, tout au long du processus, dû faire face à des oppositions souvent farouches. Parce qu'il a su créer les cadres et la dynamique de concertation qui s'imposaient, ce processus a cependant permis d'accroître la compréhension mutuelle entre les différents acteurs intervenant dans l'écosystème: entre différents types d'opérateurs économiques, entre utilisateurs des ressources et conservateurs, entre société civile et administration, entre chercheurs, etc. Cet aspect du travail s'est à ce titre avéré extrêmement enrichissant, y compris pour les promoteurs du projet.

Le projet est maintenant entré dans sa phase de mise en œuvre du plan de gestion, combinant des actions à long terme de conservation, de suivi des ressources naturelles et d'écodéveloppement, afin de tenter de gérer de façon rationnelle les immenses ressources de la RBDS. Nul doute que cette nouvelle phase nous apportera également son lot d'enseignements.

# **Annexe 1**

## **Plan de gestion de la RBDS: zonage et plan d'action**

### **1. Introduction**

Le présent rapport est le résultat du processus de formulation du Plan de Gestion Intégré de la Réserve de Biosphère du Delta du Saloum appuyé par l'UICN dans le cadre du Projet Régional de “*Renforcement des Capacités Institutionnelles de Gestion des Zones Humides en Afrique de l'Ouest*” financé par le royaume des Pays-Bas.

#### **1.1 Contexte**

Dans les régions soudano-sahéliennes, les zones humides constituent des sites de diversité biologique les plus importants pour les fonctions essentielles de reproduction, de repos ou de croissance de juvéniles de plusieurs espèces d'animaux terrestres, d'estuaires, d'eaux douces ou marines. Situées le long des côtes et/ou des vallées des principaux fleuves elles jouent un rôle important dans l'économie de ces bassins versants et des zones côtières et forment un maillon essentiel du fonctionnement des écosystèmes à travers le monde.

Zones tampons et protectrices, elles peuvent conserver, grâce à la forte teneur en matière organique, 100 fois plus d'eau qu'un écosystème sec. Par conséquent, elles régulent les crues et les inondations en assurant une régularité de la distribution, des eaux de pluies aux végétaux et animaux sur toute l'année. Elles ont aussi, une fonction de stabilisation du littoral et sont surtout des lieux de connexion entre habitats et écosystèmes.

A ce titre, elles remplissent bien un des rôles attribués aux Réserves de Biosphères, par le programme MAB en ce qu'elles “*assurent la conservation d'échantillons représentatifs de la faune et de la flore du monde au profit des générations présentes et futures*” (Batisse,1986).

Le Delta du Saloum situé dans la région naturelle du Sine Saloum combine les caractères d'une zone humide marine, estuarienne, lacustre et palustre et les différents sites jouent les fonctions décrites ci-dessus. En effet, les études ont mis en exergue: un écosystème mangrove avec ses vasières riches en matière organique, la présence d'une multitude de bolons servant de tampon entre la mer et l'océan et l'interaction de ces bolons avec le réseau hydrographique en amont ; la diversité spécifique tant animale que végétale et la présence d'ensembles marin, amphibie et continental.

En outre, les peuplements de mangrove, sources de nombreuses ressources naturelles (bois de chauffe et de service, huîtres, arches, etc.), mais également sites importants pour la reproduction de nombreuses espèces halieutiques, jouent en effet un rôle socio-économique important pour la région naturelle du Sine-Saloum et de protection contre l'érosion côtière.

Cependant, ces zones humides sont, pour nombre d'entre elles, menacées de disparition si les tendances actuelles ne sont pas inversées.

S'agissant de la RBDS, elle connaît une dégradation graduelle de ses divers écosystèmes constitutifs. Cette situation est loin d'être un épiphénomène dans la mesure où si le scénario tendanciel se maintient, le site risque d'être exposé à une destruction systématique de ce qui lui a valu d'être désigné réserve de biosphère.

Cette réalité est imputable à plusieurs facteurs notamment les péjorations climatiques avec les cycles de sécheresse qui ont traversé presque tout le Sahel dans les années 70, ainsi que leurs corollaires classiques que sont la détérioration des systèmes de production et l'installation progressive d'une pauvreté rurale.

C'est ainsi que le milieu a connu une baisse substantielle de la pluviométrie d'environ 20% ces vingt dernières années. Les conséquences les plus remarquables de ce déficit pluviométrique sont la sursalure des eaux marines, la baisse des nappes phréatiques, la salinisation et l'acidification des terres ainsi que des eaux souterraines.

Il en a résulté une dégradation des mangroves et des formations forestières qui, à certains endroits (forêts galeries par exemple), connaissent une évolution tendancielle du type soudano-guinéen vers les types soudanien et soudano-sahélien.

D'autre part, les effets de ces premiers facteurs sont accentués par une forte pression démographique (taux de croissance intercensitaire de 3%) entraînant de façon subséquente un accroissement des demandes d'énergie et de ressources naturelles, sans compter les besoins en habitat ou en terres arables occasionnant parfois d'importants défrichements. L'exploitation des ressources halieutiques, jadis pratiquée presque uniquement par les populations des îles, connaît aujourd'hui une grande affluence avec l'implication de toutes les ethnies présentes.

Eu égard à toutes ces considérations, la nécessité s'est imposée d'identifier et de mettre en œuvre les voies et moyens efficaces pour mieux maîtriser le bon fonctionnement des écosystèmes naturels et en même temps satisfaire aux exigences de développement humain. En définitive, il s'agit de chercher à rendre effectif le principe énoncé par le Programme MAB qui est d'impulser *“un équilibre durable entre les nécessités parfois conflictuelles de conserver la diversité biologique, de promouvoir le développement économique, et de sauvegarder les valeurs culturelles qui y sont associées”*.

## 1.2 Objectifs

Le travail de planification participative retenu pour la formulation du Plan de la Réserve de Biosphère du Delta du Saloum (RBDS) s'inscrit dans une dynamique globale de renforcement des capacités institutionnelles des acteurs concernés pour la gestion durable des ressources des zones humides.

Son objectif est de *“promouvoir des mécanismes de gestion intégrée et d'utilisation rationnelle des ressources naturelles de la Réserve de Biosphère du Delta du Saloum (RBDS) de manière à maintenir les processus écologiques fondamentaux et à conserver la diversité biologique de la RBDS, avec la participation des populations intéressées au développement durable de cette région du Sénégal”*.

Sa conception doit être conforme aux principes et à la philosophie des réserves de biosphère, aux politiques nationales de planification environnementale, de régionalisation et de décentralisation et en harmonie avec les schémas d'aménagement locaux. Pour sa viabilité, le Plan devrait aussi individualiser et développer des systèmes de gestion durable dans la zone périphérique du Parc National du Delta du Saloum (PNDS) et des forêts classées, à l'aide d'activités d'écodéveloppement durables pour les populations.

L'élaboration du Programme de Gestion Intégrée (PGI) de la Réserve de Biosphère du Delta du Saloum (RBDS) a donc intégré toutes ces dimensions et repose sur une stratégie interactive faite *“d'ouverture, d'évolution et d'adaptation”*. Par essence participatif avec l'implication des acteurs multiples aux intérêts souvent divergents, le processus a fait appel à des approches interdisciplinaires pour la promotion et la démonstration des relations équilibrées entre les êtres humains et la nature. Les résultats qui en sont attendus dépassent de loin la stricte fonction de conservation jouée par de nombreuses aires protégées.

Trois grandes parties constituent le corps du rapport. La première partie est consacrée à l'approche méthodologique pour la formulation du Plan. La seconde présente le zonage. La troisième porte sur les actions à entreprendre dans chaque zone ainsi que leur chronologie.

## 2. Le processus de formulation du plan de gestion

### 2.1 Préparation du plan

L'importance écologique et économique du delta du Saloum a amené l'Etat sénégalais et la communauté internationale à prendre un certain nombre de mesures de protection de la biodiversité du site. Ainsi en 1976, 76000 ha des ensembles amphibie et maritime ont été érigés en parc national (Parc National du delta du Saloum, PNDS).

En 1981, l'ensemble continental a été joint au PNDS pour être inscrit au patrimoine mondial de la biosphère (Réserve de Biosphère du Delta du Saloum). Enfin en 1984, son statut de zone d'accueil de plusieurs espèces d'oiseaux paléarctiques (plus de 120.000 individus d'oiseaux d'eau pour 95 espèces y ont été dénombrés en 1998 dont plus des trois quarts sont constitués de limicoles), valut à la RBDS d'être classée "*zone humide d'importance internationale particulièrement comme habitat des oiseaux d'eau*".

Elle intègre ainsi le Réseau Mondial de Réserves de Biosphère lancé en 1976 par le Programme sur l'homme et la biosphère (MAB) de l'Organisation des Nations Unies pour l'Education, la Science et la Culture (UNESCO) et qui, en 1996, comptait à son actif 357 sites de plus de 218 millions d'hectares répartis dans 90 pays.

C'est dans cette logique d'approche intégrée que s'inscrit le Plan de Gestion de la Réserve de Biosphère du Delta Du Saloum dans une dynamique de partenariat entre intervenants extérieurs et populations locales et en conformité avec les politiques formulées.

Ce plan entre dans le cadre du vaste et ambitieux programme de gestion durable des ressources biologiques que l'UICN appuie, depuis 1989 en faveur des pays de la sous-région ouest-africaine.

La première phase (1989 –1992) de ce programme a permis de faire l'état des lieux de l'écosystème deltaïque du Fleuve Sénégal, composé des parcs de Diawling en Mauritanie, et du Parc National des Oiseaux de Djoudj (PNOD) sur la rive gauche. Ces sites étaient profondément affectés par la construction, en 1984, du barrage anti-sel de Diama. Elle a, aussi, été une phase de formulation de propositions d'actions de restauration et de conservation dans le cadre de plans de gestion.

La deuxième phase (1993-1996) a été marquée par l'ouverture du programme à plusieurs autres pays y compris le Burkina Faso, le Mali et le Niger et la mise en place d'un cadre de concertation pour les décideurs, planificateurs et scientifiques intéressés à la conservation de la diversité biologique de ces sites à travers un réseau actif d'experts des zones humides du Sahel allant du Tchad au Sénégal. Cette deuxième phase a permis de consolider les acquis de la première par la mise en œuvre des plans de gestion.

A cet égard, un plan quinquennal participatif de gestion du PNOD a été élaboré et exécuté depuis 1994, en collaboration avec la Direction des Parcs Nationaux du Sénégal (DPN). Ce plan, qui a pour but de préserver l'écosystème du PNOD et de promouvoir un développement durable dans les villages périphériques a permis entre autres, de préserver l'écosystème malgré les menaces, d'impulser l'industrie écotouristique et surtout de réconcilier les objectifs de conservation à ceux du développement avec une forte implication des populations riveraines.

Ainsi, la gestion participative des aires protégées est devenue une réalité au Djoudj puisque les populations sont devenues des auxiliaires des agents du parc en constituant un corps d'écogardes et elles bénéficient des retombées du tourisme dans le parc comme la gestion de la boutique artisanale et le transport, par pirogue, de touristes sur le plan d'eau.

La troisième phase du programme (1996-1999) est une consolidation des acquis de la précédente. En particulier, la Direction des Parcs Nationaux (DPN) et le Ministère de l'Environnement et de la Protection de la Nature ont proposé d'étendre l'expérience acquise au Djoudj à la Réserve de Biosphère du Delta du Saloum (RBDS).

## **2.2 Méthodologie de formulation du plan de gestion**

Initié le 1er août 1997 au cours du Comité Régional de Développement (CRD) de lancement présidé par le Gouverneur de la région de Fatick, le processus de formulation du plan a conduit à la réalisation de nombreux travaux dans les différentes zones de la RBDS pour mieux appréhender la problématique de la gestion et de la conservation du site.

Ces travaux, axés sur la connaissance des dynamiques de l'environnement biophysique et socio-économique, ont permis d'examiner d'une part, l'état des ressources naturelles, les relations entre les populations et l'environnement, et d'autre part d'explorer les mécanismes de gestion durable et participative de ce milieu. Ils ont nécessité l'établissement d'un partenariat avec les institutions scientifiques, techniques, les associations de base, les services techniques de l'Etat et les organisations non gouvernementales intervenant dans la RBDS. Elles ont, enfin, fait l'objet de restitution et de validation auprès des populations (voir en annexe 3 la liste des publications).

Les principales étapes du processus ont été les suivantes:

- la production, à l'aide des études et schémas d'aménagement d'une première version du document du plan à la fin de la 2ème année du projet;
- le raffinement de ce document à partir de discussions et restitutions au niveau villages, communautés rurales, arrondissements, départements, régions et national pendant les six premiers mois de la 3ème année;

- la production d'un document final et la négociation du financement du plan de gestion pendant les derniers six mois de la 3ème année;
- l'identification et le renforcement, sur le plan institutionnel, des structures locales de gestion des ressources naturelles: parcs, services eaux et forêts, conseils ruraux, ONG, groupements de base;
- la mise en place de mécanismes de partenariat pour la prise de décisions et la mise en œuvre participative du plan de gestion de la RBDS.

La partie explicite les détails du processus de formulation du plan de gestion.

### **2.2.1 Identification des partenaires (août-novembre 1997)**

Dans le cadre du partenariat, la Mission de l'UICN au Sénégal a signé trois protocoles d'accord, trois avenants et plus de 30 contrats avec les institutions et personnes ressources intervenant dans la RBDS:

- **Protocole d'accord avec le Ministère de l'Environnement et de la Protection de la Nature**

Dans le cadre de ce protocole signé le 6 janvier 1998 le bureau de l'UICN au Sénégal a assuré l'appui technique de ce projet. L'exécution a été menée conjointement par le conservateur du Parc National du Delta du Saloum (Noyau de la RBDS) et un coordinateur basé sur le terrain. Cette équipe a été assistée par deux structures locales chargées de la conservation, il s'agit du secteur des Eaux et Forêts et du service régional des pêches de Fatick. Plusieurs cadres de partenariat ont été élaborés avec les organisations de base dans le cadre de ce projet.

- **Protocoles de collaboration pour la réalisation des travaux d'études**

L'objectif du projet de formulation implique la sollicitation de compétences pour rechercher et synthétiser les informations. Dans le cadre des ces protocoles, la stratégie a été, pour chaque thème, de choisir une institution leader chargée de mener les études de terrain. Celles-ci couvrent plus de 10 thèmes allant de l'analyse de la végétation, de la faune à des études sur le patrimoine culturel et archéologique. Les travaux réalisés qui se font sous la coordination du comité scientifique ont été effectués par les institutions suivantes:

- Institut des Sciences de l'Environnement de l'Université Cheikh Anta Diop (ISE)

Pour les études sur la végétation, l'ISE a été identifié comme "*leading team*" pour mener les études. Un protocole entre cette institution et le bureau de l'UICN a été signé pour la collaboration scientifique et la recherche de l'information écologique

à travers le Sénégal. Un contrat spécifique, pour la réalisation des études sur la flore et la végétation dans la RBDS, a été annexé à ce protocole. Le succès de cette collaboration a amené à proposer cette institution comme membre de l'UICN

- Institut de Recherche pour le Développement (IRD)

L'IRD est membre de l'UICN et à ce titre les directions générales des deux institutions ont signé un protocole de collaboration en 1992. Un avenant au protocole liant ces deux institutions a été signé par les chefs de missions des bureaux au Sénégal pour mener ce travail. L'IRD a ainsi mis à notre disposition le Dr. Anh Galat-luong, Coordinatrice, et le Dr Gérard Galat, mammologues dans cette institution et membres de la commission de survie des espèces de l'UICN.

La collaboration établie consiste à assurer la coordination du projet pour l'inventaire de la grande faune de la RBDS et l'analyse de l'état des lieux. Les acquis de cette collaboration sont: la réalisation pour la première fois d'un dénombrement de la grande faune des aires protégées de la RBDS; la facilitation de la collaboration entre les services chargés de la conservation de la RBDS à savoir le Parc National du Delta du Saloum et le service départemental des Eaux et Forêts de Foundiougne; la publication de dix documents scientifiques et techniques.

- Centre de Suivi Ecologique (CSE)

Le CSE joue un rôle de leader dans la production de l'information à référence spatiale dans la sous-région. A ce titre, un protocole pour la mise en place d'un système d'information à référence spatiale pour la RBDS (SIRBDS) a été signé. Il doit notamment permettre de réaliser la cartographie des unités écologiques et des zones recommandées dans le cadre de l'élaboration du plan de gestion. *Ces travaux (prévus mais non budgétisés) ont nécessité la sollicitation de fonds supplémentaires au près du bureau de la Convention de Ramsar.*

Outre la production du SIRBDS, un des acquis de cet exercice est la réalisation d'un cadre de concertation entre institutions intervenant dans ce secteur. C'est ainsi que l'ISE et le département de Géographie par son responsable le Dr. Tahirou Diaw ont assisté l'équipe du CSE pour la réalisation d'une carte consensuelle (pour la nomenclature et la classification de l'occupation de l'espace). Un SIRBDS portant le label CSE, ISE, Département de Géographie et UICN est produit dans ce cadre de collaboration interinstitutionnelle.

- Personnes ressources

Quand la collaboration directe avec les institutions n'a pu être réalisée, les personnes ressources issues de celles-ci ont été sollicitées pour les études thématiques suivantes:



Les résultats de ces différentes collaborations ont été: la facilitation de cadre de collaboration d'institutions telle que le PNDS et le secteur forestier de Foundiougne, l'ISE et le CSE; l'initiation de mécanismes d'échanges entre débutants et chercheurs avérés d'une part et cadre multidisciplinaire (biologistes, géographes et sociologues) d'autre part; l'identification de deux membres potentiels de l'UICN (ISE et CSE); les visites pour la première fois des forêts classées des îles par les responsable locaux des Eaux et Forêts.

**Tableau 1: Etudes thématiques réalisées**

Papa Samba Diouf et Mariama Barry du Centre de Recherche Océanographique Dakar-Thiaroye (CRODT)	<b>Etudes halieutiques</b>
Direction des Parcs Nationaux, Wetlands International et les volontaires de WIWO	<b>Dénombrement des oiseaux</b>
Saliou Mbodj Honoré Dacosta Hydrologue au Département de Géographie de l'UCAD et Raymond Mallou Hydrogéologue au département de géologie de l'UCAD Ibrahima Thiam, Ingénieur hydrologue de la Direction de l'Hydraulique et Julien Gomis maître ès géographie	<b>Problèmes d'aménagement des vallées</b> <b>Inventaire des ressources hydrologiques de la RBDS</b>
Dr. Saliou Ndiaye Zoologue-Ecologue et Chef du Département de Biologie Végétale de l'Ecole Nationale Supérieure d'Agriculture (ENSA)	<b>Etudes des causes des conflits</b>
Dr. Marie Amy Mbow Diop, archéologue à l'Institut Fondamentale d'Afrique Noire (IFAN)	<b>Ressources archéologiques et culturelles</b>
Dr. Ibrahima Khalil Diallo du département de Droit Privé de l'UCAD	<b>Etude du cadre juridique et légal de la RBDS</b>
Coordination du bureau SENAGROSOL Consult	<b>MARPs et planification participative</b>
Bureau de consultation SENAGROSOL Consult	<b>Tourisme</b>
Colonel Souleymane Guèye Adjoint au Directeur des Eaux, Forêt, Chasse et de la Conservation des Sols	<b>Aménagement des aires protégées</b>
Etudiants de l'UCAD et Gembloux	<b>Evaluations économiques des ressources naturelles exploitées dans les îles</b>

Ils concrétisent ainsi, les efforts conjugués de tous les acteurs mobilisés au niveau de la RBDS (populations, élus locaux, décideurs, institutions scientifiques et personnes ressources) dans le cadre d'un partenariat exceptionnel durant le long processus de recherche participative.

## **2.2.2 Diagnostic participatif des ressources et des capacités (décembre 1997 - mars 1998)**

L'objectif du diagnostic effectué a été de comprendre les relations entre les populations et les domaines naturels de la RBDS; d'explorer les mécanismes de gestion durable et participative de ce milieu et; d'identifier des problèmes et/ou des priorités pour un développement potentiel et une conservation des ressources de cette zone.

Les travaux ont consisté à conduire:

- quatre MARPS (Méthodes Actives de Recherches de Planification Participative) exploratoires et thématiques en tenant compte du zonage tel que proposé pour une réserve de biosphère.

Ainsi, une première MARP a concerné la zone du noyau et a eu lieu du 09 au 18 janvier 1998. La zone à usage multiple concerne deux sites et a fait l'objet de deux diagnostics participatifs en Février 1998. Enfin, les îles du Saloum et sa mangrove, zone tampon de la RBDS, ont été explorées.

Les travaux ont été conduits par des équipes pluridisciplinaires comprenant des agents de terrain sous la coordination du bureau de consultation SENAGROSOL. Au total, 27 villages, à travers la RBDS, ont été visités.

Le diagnostic exploratoire effectué s'est ainsi intéressé: à l'historique des localités, à la gestion antérieure du milieu naturel; aux activités des populations riveraines et interactions avec la conservation des ressources du parc; à la perception des populations du parc et des aires protégées; aux implications des populations locales dans la préservation des ressources naturelles de la RBDS; au diagnostic de l'état actuel de la conservation de la RBDS par les populations; aux perspectives de cohabitation et de développement durable de la zone; aux affectations et priorités des différentes zones.

Les résultats ont été validés lors des séances de restitution impliquant les acteurs concernés (villageois, Conseil rural, administration et ONG) organisées à l'issue des diagnostics.

- une enquête formelle menée par le coordinateur régional de l'Association des Amis de la Nature (ASAN, association membre de l'UICN).

Elle a été organisée du 1<sup>er</sup> au 15 septembre 1998 pour obtenir des indicateurs quantitatifs.

- *des fora*

Ils entrent dans le cadre de l'approche qui inclut, dans le processus de formulation du Plan de gestion, la mise en place de cadre de concertation permettant aux acteurs d'accorder leurs actions. Cette approche a offert ainsi l'opportunité de contribuer à la dynamique actuelle de décentralisation par la participation/création de cadres

de concertation pour la gestion durable des ressources et le renforcement des capacités des institutions chargées de la mettre en œuvre.

Dix fora d'évaluation, de planification des ressources et de validation des plans et 30 séances de planification au niveau des villages ont été organisés dans les domaines et vers les cibles suivants:

Diagnostic des ressources des communautés rurales de Keur Samba Guèye et Toubacouta; diagnostic des ressources de la communauté rurale et validation des proposition d'aménagement de Dionewar, Djirnda et Palmarin; validation des résultats du diagnostic participatif et de planification autour du noyau de la RBDS à Toubacouta, Djilor et Fimela; série de fora pour la rédaction du code de conduite environnementale de la communauté rurale de Keur Samba Guèye en collaboration avec le Projet d'Autopromotion et de Gestion des Ressources Naturelles (PAGERNA); forum de planification avec les femmes alphabétisées des villages autour du noyau de la RBDS.

D'autres forums initiés par les partenaires sur le terrain telle que la FIOD pour l'élaboration d'un plan de développement de l'arrondissement de Fimela, le cadre de concertation de la communauté rurale de Djilor et le cadre de formation de guides écotouristiques coordonné par la SAPAD.

Les fora ont vu la participation de tous les villages et des différentes couches sociales. Leurs résultats ont donné un tableau de bord des ressources et fourni les grandes orientations de développement et de conservation de la RBDS, leurs extraits constituant, à plus 70%, la source de ce plan de gestion.

Ils ont ainsi montré l'intérêt que toutes les couches de la population portent à la conservation et la richesse biologique (bonne connaissance des vasières de limicoles, de sites de reproduction et nourrissage des poissons, etc.) du delta du Saloum. Ils ont aussi convaincu la coordination du projet qu'un programme de conservation et de planification côtière (écotourisme, rotation de pêche, repos biologique, aires protégées estuariennes, etc.), avec forte probabilité de succès, est réalisable.

### **2.2.3 Etudes thématiques et synthèse des connaissances**

**Etudes Thématiques et synthèse des connaissances sur la RBDS et mise en œuvre de micro-réalisations avec les populations dans un processus itératif de recherche-action (mars - décembre 1998)**

L'objectif visé par cette activité est de synthétiser et compléter, si nécessaire, les connaissances relatives aux dynamiques écologiques et socio-économiques du delta du Saloum pour alimenter le processus itératif, interactif et participatif d'élaboration du plan de gestion de la RBDS.

Axées sur la connaissance des dynamiques de l'environnement biophysique et socio-économique de la Réserve, ces études ont permis d'examiner, d'une part,

l'état des ressources naturelles, les relations entre les populations et l'environnement et, d'autre part, d'explorer les mécanismes de gestion durable et participative de ce milieu.

Des séminaires et ateliers de travail ont été organisés afin de permettre une interaction entre experts ayant mené les différentes études thématiques, faire le point sur les ressources du site et prioriser les actions à mener pour une meilleure gestion du site.

Au terme des travaux, le projet de formulation a réalisé un certain nombre d'acquis y compris les nombreuses études (27 publications, voir annexe 4). Différents techniques et modes de gestion des ressources naturelles ont été expérimentés à travers 10 projets pilotes d'utilisation durable mis en place en collaboration avec les associations de base dans divers domaines que sont: le captage des eaux de surface et aménagement des points d'eau; le reboisement de la mangrove; l'apiculture moderne; la banque villageoise; la formation des femmes en techniques de transformation de conservation des produits halieutiques et l'éducation environnementale.

#### **2.2.4 Initiatives en cours et à envisager**

Malgré le volume important des études et leur pertinence (conclusions du deuxième comité scientifique), le chemin à parcourir reste important. Les populations locales sont les seules sources pour l'identification des sites importants; un travail d'inventaire reste à faire dans plusieurs domaines, y compris les frayères, les vasières, bolons, îles sauvages, site d'espèces spécifiques (tortues, lamantins, crocodiles, dauphins, etc.). Il n'existe pas encore d'études sur les invertébrés et sur les ressources biologiques non halieutiques de la RBDS. Une meilleure connaissance du cycle des espèces halieutiques est souhaitable pour une meilleure organisation du programme d'aménagement des pêcheries.

Sur l'endémisme, qui est un critère important pour la biodiversité, les études se poursuivront car une seule espèce de poisson (*Liza bandialaensis*) a été signalée par l'équipe de Recherche du Centre Océanographique Dakar-Thiaroye (Diouf, 1996) sur le Bolon de Bakadadji, à l'intérieur du noyau de la RBDS. Le programme n'a pas pu faire non plus une étude spécifique des espèces les plus importantes de ces estuaires, à savoir la mangrove.

Toutefois, le programme de recherche, conduit par la DPN, l'ISE et l'université de Gembloux, en Belgique, sur cet écosystème constitue une opportunité pour combler cette lacune et, subséquemment, affiner le travail actuel.

### 3. Elements du plan de gestion

L'exercice de planification pour l'élaboration du Programme de Gestion Intégrée (PGI) de la Réserve de Biosphère du Delta du Saloum (RBDS), comme pour les autres Réserves de Biosphère, est basé sur le concept de zonage.

#### 3.1 Principes directeurs d'une réserve de biosphère

Dans le concept de Réserve de Biosphère, trois fonctions complémentaires sont prises en compte:

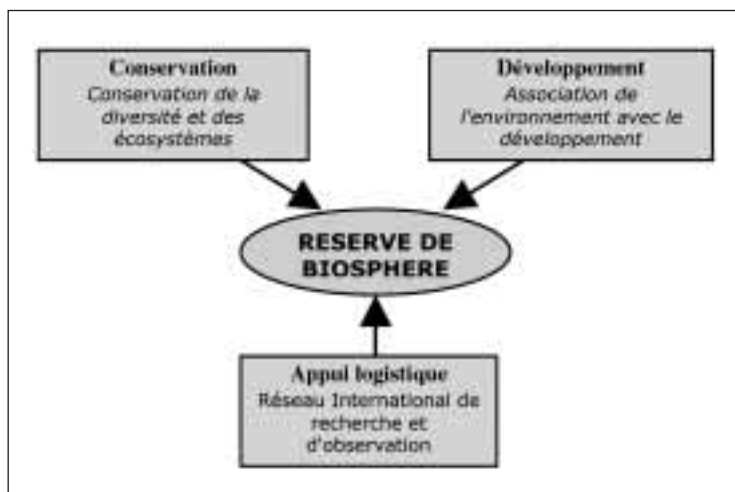
**Une fonction de conservation** pour préserver les ressources génétiques, les espèces de plantes et d'animaux, les écosystèmes et les paysages;

**Une fonction de développement** pour allier la conservation à l'utilisation rationnelle des ressources de la Biosphère par une coopération soutenue avec les communautés locales;

**Une fonction d'appui logistique** pour soutenir et encourager la recherche, l'éducation, la formation et les activités de contrôle (Batisse, 1986).

Ces différentes fonctions peuvent être traduites selon le schéma ci-dessous:

#### Fonctions d'une réserve de biosphère



Source: Réseau mondial des réserves de biosphère.  
Division des sciences écologiques. Programme MAB - Unesco. 1996.

Une réserve de biosphère, comme une aire protégée, a une fonction centrale de conservation de la biodiversité. Si cette condition est nécessaire pour les aires protégées, elle ne l'est pas sur toutes les composantes d'une aire protégée (Phillips, 1998).

Une réserve de biosphère doit toujours jouer les trois fonctions citées plus haut (fonction de conservation, de développement et logistique) et devant à ce titre faire l'objet d'un zonage.

### 3.2 Le zonage de la RBDS

L'objectif premier de ce zonage, qui est le résultat d'un exercice de diagnostic écologique détaillé de la zone et qui tient compte de tous les paramètres biogéographiques et socioculturels, consiste à garantir la vocation originale des espaces de manière à permettre une meilleure conservation des ressources en présence dans le cadre d'une gestion globale. Reflétant l'état actuel des connaissances, il peut être actualisé à la lumière des données scientifiques les plus récentes et des problèmes généraux de développement et de conservation.

Sur le plan de la structure chaque réserve de biosphère devrait comporter trois éléments, c'est ce que l'on retrouve dans la RBDS: une aire centrale, une zone tampon et une zone de transition. L'aire de transition peut avoir ou pas des fonction de conservation.

*L'aire centrale* ou aires prioritaires pour la conservation de la nature. Il s'agit d'espaces stratégiques essentiels pour la conservation biologique, le contrôle d'écosystèmes à faible turbulence, la recherche non destructive et d'autres activités à faible impact (telles que l'éducation et l'écotourisme).

Pour la RBDS, cette aire englobe: le parc National du delta du Saloum avec comme sites constitutifs les îles Djinnack et Léba; les îles de l'océan et Sangomar; l'embouchure du Diomboss y compris Fadiong; Poutak et Gouk et la forêt de Fathala.

L'importance des formations forestières de Léba et Fathala pour la survie des espèces menacées (Sitatunga, Colobes bays) a été largement démontrée. Par ailleurs, l'ensemble des îles (îlots de l'océan, îles aux oiseaux, Sangomar ...) constituent des sites importants pour l'avifaune. Enfin, les nombreux bolons (Bandiala, Bakadadji) constituent des sites de reproduction et d'alimentation pour la faune aquatique.

Cette zone centrale fera l'objet de mesures de conservation particulières, en raison de nombreuses contraintes, parmi lesquelles:

- le manque d'eau douce
- l'exploitation des amas coquilliers
- la pression de chasse
- le risque d'extinction d'espèces comme le Céphalophe à flanc roux, le Sitatunga et les Colobes bays

*Une zone tampon*: aire de développement durable soumise à des restrictions quant à l'ampleur et aux types d'activités. Cette zone est utilisée pour des activités de coopération compatibles avec les principes écologiques dont l'éducation environnementale, la récréation et la recherche fondamentale et appliquée.

Au niveau de la RBDS, les îles Bétenti (y compris le Bandiala et les passes de Fambine et Ndar), connues pour leur richesse spécifique en habitat et biomasse et qui se distinguent par l'importance de la diversité de la végétation (avec la présence de peuplements de *Prosopis africana*, de *Lophira lanceolata*) et de la grande faune (mammifères dont des singes, des guibs, cobes des roseaux) constituent la zone tampon.

A noter que les passes de Fambine et Ndar très riches en ressources halieutiques constituent pour la zone un important site de reproduction d'Ardeidés.

Sur le plan archéologique, 33 amas coquilliers dont 7 porteurs de tumulus sont relevés sur les rives du Bandiala et de ses affluents (1977).

Les principaux problèmes à résoudre sont: la destruction de la végétation naturelle due aux défrichements abusifs et les feux de brousse.

*Une zone de transition*: aire offrant le plus grand potentiel de développement durable. Cette zone de coopération peut se prêter à une variété d'activités agricoles, à des campements et à d'autres fins, et dans laquelle les communautés locales, les ONG, les GIE, les groupements culturels et d'autres bailleurs de fonds travaillent ensemble pour la gestion et le développement de la zone.

**Les îles Gandoul (y compris le Saloum), les îles Mar au Nord, les vasières de Fimela-Palmarin et Joal à l'ouest, les tannes de Fayil-Faoye au nord et l'interface estuaire-continent, de l'Est de Foundiougne à Missira constituent pour la RBDS la zone de transition.**

L'aire de transition au niveau de la RBDS est caractérisée par l'importance des parcs arborés à *Detarium senegalense* et à *Neocarya macrophylla*. Syn. *Parinari macrophylla*, la présence de rôneraies et de mangrove, l'existence d'un certain nombre de vasières, et d'amas coquilliers. Des sites de reproduction de la tortue verte sont rencontrés (dans la zone de Palmarin). La zone de transition est également marquée par l'importance du peuplement humain avec la présence d'importants villages. Les activités agricoles, la pêche, le tourisme de découverte y sont développées.

En fonction de l'importance de ces activités humaines, trois sous-zones sont distinguées: une zone faiblement humanisée, constituée par les îles du Saloum; une zone moyennement humanisée correspondant au domaine fluvio- marin compris entre Palmarin, Faoye et Fayil et une zone forte humanisée qui comprend la façade continentale de l'estuaire allant de Foundiougne à Missira.

Les contraintes majeures qui pèsent sur cette zone sont liées à la salinisation des terres, au manque d'eau douce, au passage fréquent de feux de brousse, à la forte pression du bétail et aux défrichements.

En se fondant sur la stratégie de Séville, l'exercice de zonation proposée pour la RBDS a regroupé l'ensemble des spécialistes ayant collaboré dans le cadre de la réalisation des études biophysiques et socioéconomiques.

### 3.3 Objectifs généraux du Plan

Quatre objectifs généraux sont visés:

#### 3.3.1 Conserver le patrimoine naturel et archéologique et restaurer les zones dégradées (Objectif général 1)

La réserve de biosphère du Delta du Saloum est riche sur le plan des écosystèmes mais également sur le plan de la diversité biologique, archéologique et culturel. En effet, d'importantes forêts du domaine classé comme du domaine protégé et de forêts galeries y sont identifiées, plus de 20.000 individus et/ou plus de 1% de la population mondiale de 21 espèces d'oiseaux d'eau y sont dénombrés. L'intense réseau hydrographique et la relative bonne conservation des écosystèmes estuariens du Saloum sont toutefois maintenus grâce à un dôme piézométrique qui alimente l'ensemble des vallées, en zone de terroir, et le fleuve Gambie. Ce réseau hydrographique explique en partie la richesse relative de la zone en ressources halieutiques notamment en poissons.

La diversité des écosystèmes dans ses différents milieux confère à la Réserve de Biosphère du delta du Saloum des rôles et fonctions multiples: habitat et nurseries pour la faune (oiseaux migrateurs, poissons, mollusques, crustacés, etc.), protection du littoral grâce à ses mangroves; lieu de reproduction (nidification, fraie, etc.). La RBDS offre également un cadre propice à une bonne conservation de la biodiversité avec ses aires protégées et une variété d'activités socio-économiques aux populations locales.

Du fait de la dégradation que subissent ces écosystèmes, la RBDS apparaît aujourd'hui de plus en plus vulnérable. **Le site a connu une baisse de la pluviométrie d'environ 30 % ces vingt dernières années.**

Les études hydrologiques menées dans le cadre de la variabilité climatique (Dacosta & Malou, 1997) ont montré un assèchement quasi permanent du réseau hydrographique au niveau de la RBDS. Elles font aussi état de l'insignifiance des apports d'eau douce en provenance de l'amont réduisant de manière drastique les débits des rivières. Ce déficit de pluies conjugué aux fortes évaporations a aussi entraîné l'hypersalinisation du milieu estuarien avec comme conséquences



une forte mortalité des palétuviers et une évolution progressive de la mangrove vers la formation de tanne. Les vallées continentales font également face à de profondes mutations. La baisse du niveau de la nappe phréatique qui entraîne l'assèchement des bas-fonds est la cause principale de la déperdition de cet écosystème vital. Il s'y ajoute en aval, du côté de la mer, l'avancée du front salé qui transforme le bas-fond en tannes nus ou herbus, et en amont l'érosion hydrique, particulièrement intense qui menace la végétation galerie et les terres de culture.

La forte croissance démographique (3% par an) a entraîné une grande pression sur les ressources naturelles marquée par une extension considérable du domaine agricole et une surexploitation des ressources ligneuses, halieutiques et archéologiques.

A cause de la précarité des équilibres écologiques, il apparaît nécessaire de mettre en œuvre une stratégie de gestion/conservation afin de maintenir les fonctions écologiques et culturelles de la Réserve.

Les résultats attendus de la réalisation de cet objectif sont les suivants:

Résultat 1. *le renforcement des mesures de conservation et de gestion des différentes zones de la RBDS;*

Résultat 2. *l'atténuation des facteurs naturels de dégradation du milieu (sécheresse, salinisation);*

Résultat 3. *la promotion de mesures spécifiques de conservation des écosystèmes et le frein des perturbations liées à l'action de l'homme.*

Des stratégies appropriées seront développées pour réduire les pressions qui pèsent de plus en plus sur les ressources naturelles du fait d'une augmentation des besoins en produits ligneux et en terres de cultures, et de l'utilisation de pratiques agricoles extensives. En effet, ces facteurs favorisent le développement des phénomènes d'érosion, la baisse de la fertilité des sols et l'ensablement des bas fonds, peuvent être freinés à travers des actions bien ciblées.

### **3.3.2 Mettre en place un système de surveillance continu de l'environnement (Objectif Général 2)**

Conformément au concept de réserve de biosphère, l'une des finalités de la RBDS est d'encourager les recherches orientées vers la compréhension de l'évolution des processus naturels, surveiller de façon continue les caractéristiques du milieu. La gestion à long terme des écosystèmes du milieu implique un suivi continu et performant de l'évolution de la situation, une amélioration des connaissances en ce qui concerne les ressources naturelles (la végétation, la faune, l'avifaune, les ressources en eau) et les activités socio-économiques dans la réserve. Ces données sont collectées et intégrées dans un Système d'information à référence spatiale

(SIRS) qui sera mis à jour. Une publication bi-annuelle fera la synthèse des données et l'état des lieux et des ressources.

Le suivi à long terme de l'évolution des biotopes et de la dynamique des écosystèmes sera entrepris par une étude diachronique au moyen d'images. Il est prévu de couvrir sur une durée de cinq ans une superficie de 200.000 ha. L'intégration de ces données dans un SIG et leur analyse permettront la définition de cartes d'occupation des sols par les différentes composantes de l'écosystème.

Pour permettre à la RBDS de jouer une fonction logistique il est nécessaire que l'amélioration et la capitalisation des connaissances sur le milieu soient assurées par la mise en place de structures interdépendantes de recherche et de surveillance opérationnelles.

Pour atteindre cet objectif, il est prévu de mener les activités suivantes:

- Assurer le suivi: de la végétation, de la faune, de l'avifaune, de l'ichtyofaune; des ressources en eau; et des ressources archéologiques;
- mettre en place d'une station de recherche.

### **3.3.3 Promouvoir des activités d'écodéveloppement en faveur des populations (Objectif Général 3)**

Conformément à la Convention sur la diversité biologique dont le Sénégal est signataire (*préambule alinéas 12 et 18 et article 10 alinéa c*), il est stipulé d'impliquer davantage les populations locales dans les prises de décisions et la réalisation des tâches pratiques au niveau des aires protégées et elles doivent avoir des bénéfices tant naturels qu'économiques de sa présence.

Quatre raisons concourent à l'implication des populations riveraines (Lykke, 1996):

- Résoudre l'état de défiance entre l'administration du parc et elles avec des conséquences allant du manque d'implication jusqu'à la destruction des aires protégées;
- Au plan éthique, les populations autochtones ont le droit de contribuer à la gestion des terres de leurs ancêtres;
- L'utilisation durable des ressources doit être incluse dans le plan de gestion; les usages compatibles avec la gestion durable des ressources doivent donc être encouragés et valorisés;
- Obtenir les connaissances sur les pratiques durables de gestion des ressources naturelles.

Les résultats attendus de cet objectif sont les suivants:

- Résultat 1: les capacités d'organisation et de mobilisation des communautés villageoises et des institutions locales sont renforcées.
- Résultat 2: les conditions de vie des populations locales sont améliorées grâce à la mise en œuvre de projets générateurs de revenus.
- Résultat.3: L'émergence d'une évolution positive des mentalités et des comportements face à l'environnement est favorisée.

### **3.3.4 Mettre en place un dispositif institutionnel propre à la RBDS (Objectif Général 4)**

Pour assurer leur pérennité, les actions de gestion et de conservation doivent être réalisées avec la participation de tous les acteurs concernés et doivent être en parfaite complémentarité avec l'ensemble des programmes et plans nationaux, régionaux, départementaux, locaux et sectoriels (PNAE, PRAE, Mission d'Aménagement des Vallées Fossiles, Programme COMARAF, etc.). Ceci nécessite donc la mise en place de nouvelles structures institutionnelles propres à la RBDS. Il est évident que ces structures doivent être pérennes afin d'assurer la continuité de la gestion participative de la réserve. C'est pourquoi leur composition ne fait appel qu'aux institutions et ressources humaines déjà présentes sur le terrain et assurées d'une continuité dans le temps.

## **3.4 Activités retenues dans le cadre des objectifs définis**

### **3.4.1 Conservation du patrimoine naturel et archéologique existant et la restauration des zones dégradées: Objectif général 1 (Objectif Général 1: OG1)**

#### **3.4.1.1 Pour le Résultat 1: Renforcement des mesures de conservation et de gestion des différentes zones de la RBDS**

**Tableau 2: Activités de renforcement des mesures de conservation et de gestion**

<b>Activités</b>	<b>Interventions</b>	<b>Zones ciblées</b>
A1.R1/OG1: Aménagement de l'aire centrale	- Aménager des retenues d'eau au niveau de la mare du dragon et des vallées de Massarinko, Salading'oto et de banding'oto; - Réintroduction d'espèces animales à travers des actions de mise en défens;	Zone Centrale

	<ul style="list-style-type: none"> <li>- Réhabiliter ou construire des postes de surveillance de Bakadadji, Mansarinko, Taïba, Karang, Missira, Sangomar et leur équipement en radio émetteur-récepteur, panneaux solaires et puits;</li> <li>- Aménager des couloirs de sécurité dans les tannes pour protéger certaines espèces menacées comme le Sitatunga, le Cobe des roseaux et le Colobe bai;</li> <li>- Aménager des sentiers écologiques, pour la promotion de l'écotourisme;</li> <li>- Installer des panneaux de signalisation tout autour de l'île aux oiseaux et deux miradors d'observation aux endroits propices à une observation discrète des colonies nicheuses;</li> <li>- Mettre en place d'une signalisation maritime portant l'inscription «<i>Parc national</i>» aux limites de la partie maritime du parc; Information et sensibilisation des populations sur l'importance du site;</li> <li>- Protéger la forêt de la Fathala contre les feux de brousse, à travers des activités de sensibilisation, et par la création des réseaux de pare – feux intérieurs et extérieurs;</li> <li>- Renforcer la réglementation sur les prélèvements (végétation et ressources halieutiques).</li> </ul>	
<p>A2.R1/OG1: Renforcement des capacités des services chargés de la gestion du Parc National du Delta du Saloum</p>	<ul style="list-style-type: none"> <li>- Doter le PNDS et le secteur forestier de Foundiougne de: <ul style="list-style-type: none"> <li>• moyens de déplacements adéquats;</li> <li>• moyens de lutte contre les feux de brousse;</li> <li>• moyens de communication et de surveillance;</li> <li>• matériel de bureau.</li> </ul> </li> <li>- Doter le PNDS et le secteur forestier de Foundiougne de: <ul style="list-style-type: none"> <li>• moyens de déplacements adéquats;</li> <li>• moyens de lutte contre les feux de brousse;</li> <li>• moyens de communication et de surveillance;</li> <li>• matériel de bureau.</li> </ul> </li> <li>- Améliorer les stratégies d'intervention du PNDS et du secteur forestier par un appui sur le plan: méthodologique (approche participative); de la communication et de l'Education Environnementale; de la Planification, du suivi et de l'auto-évaluation en milieu rural.</li> </ul>	<p>Zone Centrale</p>
<p>A3.R1/OG1: Création d'un réseau de sites de conservation</p>	<ul style="list-style-type: none"> <li>- Identifier un réseau de sites de conservation complémentaires.</li> <li>- Renforcer leur statut de conservation et favoriser la conservation des écosystèmes et d'échantillons d'espèces spécifiques de la RBDS;</li> </ul>	<p>Zone Tampon et Zone de transition</p>

	<p>Les sites retenus sont: la forêt classée de Sangako, l'île de Sipo, l'île Léba, la façade maritime de Palmarin, la partie médiane du Bandiala et le Bolon de Bakadadji, les bancs et vasières, le dôme piézométrique situé entre Karang, Keur Samba Nosso et Dielmon.</p> <p>Les principales communautés rurales concernées par ces sites sont: Djrinda, Bassoul, Dionwar et Bétenti, Palmarin, Toubacouta.</p> <ul style="list-style-type: none"> <li>- Intégrer, dans la planification du processus, une sensibilisation des populations, des autorités locales et des opérateurs économiques;</li> <li>- Responsabiliser les populations et les conseils ruraux dans la mise en place des infrastructures au niveau des sites.</li> </ul>	faiblement humanisée
A4.R1/OG1 Aménagement des forêts classées de Djilor, de Sangako, de Keur Sambel, de Patako	<ul style="list-style-type: none"> <li>- Matérialiser les limites des forêts à l'aide de l'aide de bornes de grandes dimensions;</li> <li>- Baliser le tracé périmétral avec des panneaux de signalisation en métal inoxydable;</li> <li>- Évaluer le potentiel et l'état d'utilisation actuel de chaque forêt en définissant des affectations de protection, de production et de régénération avec l'implication des populations;</li> <li>- Établir un système efficace de protection des forêts contre les feux.</li> </ul> <p>Le plan d'aménagement comprendra des actions d'accompagnement au profit des populations impliquées, afin de renforcer leur engagement et leur capacité à gérer efficacement les forêts classées.</p>	Zone Tampon
A5.R1/OG1: Aménagement des pêcheries	<ul style="list-style-type: none"> <li>- Organiser les populations riveraines en comités de vigilance pour: <ul style="list-style-type: none"> <li>• la surveillance des côtes;</li> <li>• le respect des maillages et de la cueillette correcte des fruits de mer;</li> </ul> </li> <li>- Aménager les pêcheries pour une pêche responsable par le biais de: <ul style="list-style-type: none"> <li>• l'adoption de couloirs d'entrée de poissons;</li> <li>• mécanismes consensuels autour de la rotation</li> <li>• des pêcheries;</li> <li>• la réhabilitation des aires traditionnellement protégées.</li> </ul> </li> </ul>	Zone tampon et Zone de transition faiblement humanisée
A6.R1/OG1.R1. Amélioration des connaissances sur les	<ul style="list-style-type: none"> <li>- Mettre en œuvre des études d'approfondissement des connaissances en vue de faire adopter les mesures appropriées relatives:</li> </ul>	Zone tampon

sites sauvages et l'adoption d'aires protégées terrestres	au refuge de la grande faune sur les îles Bétenti; à la présence de la panthère noire dans l'île Wuté; aux possibilités d'amodiation de cette île pour la chasse de la population de phacochères qui s'y trouve.	
A7.R1/ OG1: Sauvegarde et protection du patrimoine archéologique	<ul style="list-style-type: none"> <li>- Améliorer les connaissances sur les amas en vue de la protection des sites menacés;</li> <li>- Instaurer une politique de gestion participative pour conservation et la valorisation de ces amas;</li> <li>- Prendre des mesures conservatoires en vue d'une gestion durable de ce patrimoine (ces sites seront considérés comme des sanctuaires où aucune modification ne pourra être apportée en dehors du contrôle de l'Etat, à travers ses démembrements [ou des collectivités locales] et ils feront l'objet de mesures de conservation intégrale);</li> <li>- Permettre sur les autres sites, certaines activités non extractives au niveau des amas dont le couvert végétal ne présente pas un intérêt particulier aux yeux de la conservation et qui ne sont pas directement intégrés aux circuits touristiques (ce peut être le cas de la coupe légère de bois sans dessouchage).</li> </ul>	Zone tampon et zone de transition faiblement humanisée
A8.R1/OG1 Aménagement d'aires protégées marines	<ul style="list-style-type: none"> <li>- Mener des négociations sur les sites reconnus par les fora d'importance pour la biodiversité (fosses de Sandésang, de Diamniadio, les passes de Fambine et de Ndar, la Fosse de Fandiong) pour leur protection enmettant en place un programme de signalisation/ planification dans le temps et dans l'espace;</li> <li>- Initier des actions pour permettre de créer un réseau d'aires aménagées;</li> <li>- Faire jouer à l'estuaire son rôle de frayère et assurer une reproduction maximale par la fermeture durant des saisons bien ciblées.</li> </ul>	Zone de transition faiblement humanisée
A9.R1/OG1: Création de réserves de faune	- Assurer la promotion d'une réserve de faune à Bill, dans la communauté rurale de Diossong, et d'une autre réserve de faune entre Faoye et Fayil.	Zone de transition fortement humanisée
A10.R1/OG1: Création d'un Parc transfrontalier avec la Gambie (PNDS et Niumi )	- Renforcer le cadre de coopération scientifique entre le Sénégal et, la Gambie pour permettre le suivi de l'avifaune et en même temps, un développement mutuel des capacités techniques en faveur d'une meilleure gestion de cette importante zone humide transfrontalière. Pour en arriver à cette unité écologique reconnue comme telle, il faut:	Aire centrale

	<ul style="list-style-type: none"> <li>• utiliser le cadre de la coopération sous-régionale en mettant à profit les conventions internationales et les ONGs de même type;</li> <li>• procéder au jumelage pour une meilleure implication des décideurs politiques des deux pays et leur parfaite adhésion;</li> <li>• créer un groupe de travail réunissant les experts Gambiens et Sénégalais avec l'appui des institutions travaillant dans le domaine de l'environnement.</li> </ul>	
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### 3.4.1.2 Pour le résultat 2: Effets des facteurs naturels de dégradation atténués

**Tableau 3: Activités d'atténuation de la dégradation des ressources et habitats**

Activités	Interventions	Zones ciblées
A1.R2/ OG1: Mise en œuvre de techniques de maîtrise des ressources en eau	<ul style="list-style-type: none"> <li>- Développer des techniques d'aménagement initiées au niveau de la vallée de la Néma pour empêcher l'intrusion d'eau salée dans les vallées, retenir l'eau douce et la stocker par: la construction de microbarrages; des ouvrages de dérivation et des digues.</li> <li>- Réaliser le programme d'aménagement prévu au niveau des vallées de Bétenty ,de Diogaye, de Kossar et de Hamdalaye avec la collaboration des associations villageoises, des projets, des services de l'Hydraulique et le conseil rural.</li> <li>- Associer au programme ci-dessus un volet suivi hydrologique, dont les résultats permettront de connaître le niveau de la recharge de la nappe phréatique, mais aussi le niveau d'avancée du biseau salé, afin de dégager des recommandations pour l'aménagement et la mise en valeur des bas-fonds.</li> </ul>	Zone moyennement humanisée et zone fortement humanisée
A2.R2/OG1: Restauration de la mangrove	<ul style="list-style-type: none"> <li>- Promouvoir les méthodes de régénération assistée de la mangrove par:                             <ul style="list-style-type: none"> <li>• Le renforcement institutionnel des ONG intervenant dans la zone ainsi que des associations communautaires de base;</li> <li>• L'appui à la vulgarisation des techniques de reboisement mises au point pendant ces dernières années.</li> </ul> </li> </ul>	Zones de transition faiblement, moyennement et fortement humanisées

### 3.4.1.3 Pour le résultat 3: Les perturbations liées à l'action de l'homme sont freinées et des mesures spécifiques de conservation des écosystèmes sont favorisées.

**Tableau 4: Activités de restauration et de conservation des écosystèmes**

Activités	Interventions	Zones ciblées
A1.R3/OG 1: Développement de bois villageois et allègement des travaux des femmes	- Organiser des activités de reboisement par le biais des organisations villageoises, avec l'appui des structures du secteur forestier de Foundiougne et la collaboration des ONG ayant développées des expériences dans le domaine de l'aménagement des terres salées. (Ce programme pourrait contribuer à satisfaire en partie les besoins exprimés en bois de chauffe et en bois de service. Il devrait constituer aussi un moyen pour valoriser les potentialités forestières de certaines unités géomorphologiques des terres salées, telles les glacis de raccordement et les terrasses hautes).	Zone tampon et zone de transition faiblement humanisée et moyennement humanisée
A2.R3/OG 1: Sauvegarde des parcs arborés	- Mener des actions d'assistance à la régénération naturelle et d'enrichissement des parcs. Les actions de réhabilitation seront entreprises par les comités villageois en collaboration avec les agents des Eaux et Forêts. (Les sites prioritaires identifiés au niveau de la RBDS sont: les parcs à <i>Borassus aethiopium</i> (rôneraies de Moundé, de Falia et de Mar), les parcs à <i>Detarium senegalense</i> , et les parcs à <i>Neocarya macrophylla</i> Syn. <i>Parinari macrophylla</i> des îles Bétenti et Saloum).	Zone tampon et zone de transition faiblement humanisée
A3.R3/OG 1: Promotion des techniques de restauration et de conservation des sols	- Vulgariser des techniques agroforestières en vue: <ul style="list-style-type: none"> <li>• de lutter contre l'érosion éolienne et hydrique;</li> <li>• d'améliorer la fertilité des sols (brise vent, haie vive, cultures en couloirs, diguettes, compostage).</li> </ul> (L'essentiel des techniques de lutte contre la dégradation des terres est connu des populations et certaines d'entre-elles sont vulgarisées par des projets qui interviennent déjà dans la zone). <ul style="list-style-type: none"> <li>- Promouvoir une organisation villageoise adéquate pour la mise en place de plans d'aménagement de terroir villageois qui s'inscrivent dans la durée.</li> </ul>	Zone de transition fortement humanisée



### 3.4.2 Amélioration et capitalisation des connaissances sur le milieu de la RBDS (Objectif général 2: OG2)

#### 3.4.2.1 Pour le résultat relatif au système de surveillance

**Tableau 5: Activités d'amélioration des connaissances sur le milieu**

Activités	Interventions	Zones ciblées
A1.R1/OG2: Mise en place d'un Système d'Information Géographique (SIG)	- Centraliser et capitaliser toutes les données recueillies au niveau d'un SIG qui sera installé à cet effet et géré au niveau de la station de recherche par l'Institut des sciences de l'environnement.	Toutes zones
A2.R1/OG2: Mise en place d'une station de recherche	- Mettre en place une station de recherche équipée pour permettre aux différents chercheurs et étudiants de trouver sur place le minimum d'infrastructure et du matériel nécessaire. Cette station pourra servir de laboratoire naturel et de terrain d'observation pour la recherche scientifique, la formation mais aussi pour l'éducation tant au niveau local, national qu'international. Cette station de recherche, placée sous la direction du Comité Scientifique et coordonnée par l'ISE et la DPN, permettra également de centraliser et de coordonner l'ensemble des études qui seront réalisées dans la RBDS, évitant ainsi des répétitions inutiles.	Toutes zones
A3.R1/OG2: Suivi de la dynamique de la faune	- Mettre en place un programme de recherche pour accroître les connaissances sur la dynamique des populations des espèces comme le Sitatunga, le Cobe redunca, le Céphalophe de Grimm et le Céphalophe à flancs roux. Le programme sera assuré par une équipe d'experts de la DPN, de l'ENSA, de l'IRD et de l'UICN. Les travaux envisagés consisteront à procéder à des dénombrements, tous les trois ans, de la grande faune terrestre. - Procéder à un relevé régulier (une fois par mois par exemple sur le trajet Massarinko-Missirah) des empreintes sur les tannes, pour assurer le suivi écologique.	Zone centrale

<p>A4.R1/OG2: Suivi de la dynamique de l'avifaune</p>	<p>Les interventions envisagées consisteront à:</p> <ul style="list-style-type: none"> <li>- Assurer une évaluation constante et régulière des populations. Il s'agira de faire un dénombrement bi-annuel de l'avifaune, sur une période de 5 ans.</li> <li>- Améliorer les connaissances sur le comportement des oiseaux entre les vasières, mais aussi évaluer l'importance des vasières pour l'avifaune et mieux comprendre les relations fonctionnelles vasières/oiseaux;</li> <li>- Identifier, caractériser et cartographier les dortoirs et les sites de nidification des oiseaux;</li> <li>- Fournir les données de bases sur les paramètres de reproduction des différentes espèces (comportement, date et durée des différentes phases, taille des colonies, prédatons, taux de réussite et facteurs limitant, etc.) afin de confirmer l'importance internationale de ces colonies (site Ramsar) mais surtout afin d'identifier les mesures de protection et d'aménagement à mettre en œuvre.</li> </ul> <p>Ces activités seront conduites par la DPN en collaboration avec (WIWO), Wetlands International.</p> <p>Elles permettront de former des agents du Parc National du Delta du Saloum (PNDS), des agents de la Réserve de Niomi, ainsi que des guides villageois du PNDS, aux méthodes de suivi des colonies de reproduction.</p>	<p>Aire centrale Zone tampon et zone de transition faiblement humanisée</p>
<p>A5.R1/ OG2: Suivi de l'ichtyofaune</p>	<ul style="list-style-type: none"> <li>- Etudier l'évolution du potentiel halieutique du delta du Saloum par la détermination de la biomasse de l'ichtyofaune et la richesse spécifique;</li> <li>- Identifier les zones importantes de reproduction;</li> <li>- Etudier l'effort de pêche sur la fraction juvénile;</li> <li>- Etudier le fonctionnement écologique de la portion médiane du Bandiala (portion caractérisée par un fonctionnement hydrologique particulier et par une faune menacée de disparition);</li> <li>- Etudier les méthodes des gestion traditionnelle de la pêche;</li> <li>- Suivre la salinité des eaux dans le delta du Saloum;</li> <li>- Améliorer les connaissances sur le cycle biologiques de certaines espèces.</li> </ul>	<p>Zone tampon et zone faiblement humanisée</p>

<p>A6.R1/OG2: Suivi de la végétation</p>	<ul style="list-style-type: none"> <li>- Identifier des critères et des indicateurs de gestion durables;</li> <li>- Mettre en place un dispositif de suivi par l'installation de parcelles permanentes de contrôle au niveau des forêts en collaboration, avec l'Institut des Sciences de l'Environnement. Il est prévu de faire trois relevés sur 5 ans. Ce qui permettra d'obtenir des informations relatives à l'accroissement, à la régénération naturelle, à la phénologie entre autre des espèces ligneuses;</li> <li>- Conduire des études approfondies (enquêtes) pour l'évaluation des prélèvements et des besoins en ressources forestières ligneuses et non ligneuses, de même que l'étude des filières de commercialisation;</li> <li>- Mener une étude sur l'écosystème mangrove de la RBDS</li> </ul>	<p>Aire centrale Zone tampon</p>
<p>A7.R1/OG2 Suivi des pêcheries de crevette et d'ethmalose</p>	<p>La pêche de crevette est devenue l'une des principales sources de revenus de la zone, des migrants viennent de tout le delta pour s'adonner à cette pratique. Elle génère entre 800 millions et un milliard de francs par an (service des pêches de Foundiougne). Mais les prises sont très petites (200 individus par kg) malgré l'adoption de saison de fermeture et d'ouverture. Le service des pêches manque de moyens pour une adoption pertinente des périodes de repos biologique. Il s'agit donc, pour améliorer la situation, de:</p> <ul style="list-style-type: none"> <li>- doter le service des pêches d'outils de sensibilisation des acteurs;</li> <li>- d'assurer un suivi hebdomadaire pendant 15 mois avec la collaboration des divers acteurs en vue réunir les informations les plus précises sur le cycle et les périodes de repos des espèces.</li> </ul> <p>Pour l'ethmalose, compte tenu du fait que cette espèce fait l'objet d'une intense activité de pêche, puisque exportée en grande quantité dans les pays de la sous-région (Guinée, Mali, Burkina Faso), il s'agira:</p> <ul style="list-style-type: none"> <li>- de faire des relevés hebdomadaires portant sur les quantités prélevées;</li> <li>- de quantifier l'effort de pêche ce qui devrait permettre une analyse de la dynamique des peuplements.</li> </ul>	<p>Zone de transition fortement humanisée Zone de transition faiblement humanisée</p>

### 3.4.3 Promouvoir des activités d'écodéveloppement en faveur des populations de la réserve (Objectif général 3: OG3)

#### 3.4.3.1 Pour le Résultat 1: Les capacités des communautés villageoises et des institutions locales sont renforcées.

**Tableau 6: Activités de renforcement des capacités d'organisation et de mobilisation**

Activités	Interventions	Zones ciblées
A1.R1/OG3: Amélioration de l'organisation villageoise et création de Structures	<p>Pour une bonne gestion des ressources naturelles, il faudra promouvoir la mobilisation sociale des énergies en vue de lever les contraintes de la conservation et du développement. Ainsi, il faudra:</p> <ul style="list-style-type: none"> <li>- Mettre en place des comités, villageois représentatifs de tous les groupes sociaux;</li> <li>- Initier, en faveur de ces comités, la formation et l'encadrement adéquates pour leur permettre d'assumer la plénitude des responsabilités dans la gestion de la Réserve (création d'un corps d'écogardes). Cette organisation doit permettre la mise en place de mécanismes de résolution des conflits, la redynamisation des cadres de concertation entre les villages et les conseils ruraux pour l'utilisation des ressources communautaires. Elle devra aussi faciliter l'élaboration d'un code de conduite environnementale.</li> </ul>	Toutes zones
A2.R1/OG3 Elaboration de plans de gestion des terroirs villageois	<p>Du fait des insuffisances de la gestion moderne des ressources naturelles, et eu égard aux menaces qui pèsent sur les écosystèmes de la RBDS, il sera développé en rapport avec les populations, des systèmes de gestion aptes à garantir l'équilibre du milieu.</p> <p>Les stratégies de mise en œuvre vont porter sur:</p> <ul style="list-style-type: none"> <li>- l'information et la sensibilisation des villages polarisés;</li> <li>- la définition de règles et codes de conduites pour la gestion des pêcheries, des mangroves, des parcs et des amas coquilliers;</li> <li>- le pancartage des sites importants pour la reproduction des poissons, des oiseaux, de tortues et de lamantins;</li> <li>- la création de comités de vigilance, chargés de faire des patrouilles régulières au niveau des sites;</li> <li>- adoption de système de rotation et de repos biologiques des pêcheries.</li> </ul>	Toutes zones

### 3.4.3.2 Pour le résultat 2: Les conditions de vie des populations locales sont améliorées grâce à la mise en œuvre de projets générateurs de revenus.

**Tableau 7: Activités d'amélioration du cadre de vie des populations**

Activités	Interventions	Zones ciblées
<p>A1.R2/OG3: Amélioration de l'alimentation en eau des populations</p>	<p>L'approvisionnement en eau des populations se pose avec beaucoup d'acuité dans les villages de la zone tampon. En effet, les puits existants sont généralement de type traditionnel et sont caractérisés par des parois non cimentées. Ils sont confrontés aussi aux phénomènes d'éboulement en hivernage et d'envahissement d'algues des fonds, ce qui altère la qualité de l'eau et expose les populations à certaines maladies hydriques. En plus, ils tarissent très tôt en saison sèche et très souvent l'eau des puits est saumâtre, inutilisable pour les besoins de consommation humaine et de l'agriculture. Ceci est à l'origine du déficit en eau pour l'alimentation des populations et du bétail, et une contrainte au développement de l'arboriculture. Ce problème accentue la surcharge du calendrier de travail des femmes.</p> <p>Pour pallier à toutes ces contraintes, il faudra:</p> <ul style="list-style-type: none"> <li>- poursuivre le programme d'aménagement de puits modernes démarré dans la zone (Djinak et Sipo);</li> <li>- développer ce programme dans une dizaine de villages afin de renforcer l'impact de l'approvisionnement en eau des populations.</li> </ul>	<p>Zone tampon</p>
<p>A2.R2/OG3: Appui au développement du maraîchage et de l'arboriculture fruitière</p>	<p>La zone tampon recèle des potentialités naturelles favorables au développement de l'horticulture: l'existence de nombreuses vallées, une eau souterraine de qualité facilement exploitable. Cependant, un certain nombre de contraintes limitent son développement à savoir l'insuffisance de l'encadrement technique, le manque de moyens pour l'équipement des périmètres maraîchers, l'enclavement des villages, les difficultés d'approvisionnement en intrants, la prolifération des insectes ravageurs, la divagation du bétail et les animaux sauvages.</p> <p>Aussi est-il envisagé, avec la collaboration des structures techniques de l'agriculture et des ONG en présence dans cette zone:</p> <ul style="list-style-type: none"> <li>- d'initier les populations des localités de Néma, de Karang, de Bétenti, et Missirah aux techniques</li> </ul>	<p>Zone tampon</p>

	<p>d'agriculture biologique;</p> <p>- Organiser des sessions plurimodulaires de formation au bénéfice des groupements de femmes et de jeunes ciblés en priorité sur:</p> <ul style="list-style-type: none"> <li>• les techniques maraîchères;</li> <li>• les techniques de compostage;</li> <li>• l'utilisation de produits naturels (notamment extraits de <i>Azadirachta indica</i> comme pesticide)</li> </ul>	
A3.R2/OG3: Développement de projets apicoles	<p>Des expériences pilotes par le Centre de formation de Keur Babou Diouf et du Groupement d'Intérêt Economique Mass, Ahmadou et Sékou (GIE-MAS) de Toubacouta ont montré que l'apiculture est un secteur d'activité pouvant générer des revenus appréciables pour les populations. En effet, la zone abrite des écosystèmes de mangroves et des forêts de terre ferme avec un important potentiel pour l'apiculture. L'intérêt que les populations accordent à cette activité justifie la nécessité:</p> <p>- de promouvoir un programme d'apiculture moderne à travers:</p> <ul style="list-style-type: none"> <li>• l'organisation des populations en microstructures économiques telles les GIE mixtes;</li> <li>• la conduite de modules de formations pour ces organisations sur les techniques améliorées de production apicole permettant d'assurer des revenus consistants et de favoriser une plus grande implication des populations riveraines dans la conservation du milieu naturel.</li> </ul> <p>Le programme envisagé dans la zone tiendra compte des acquis existants et des actions projetées par les parties prenantes.</p>	Zone de transition faiblement humanisée
A4.R2/OG3: Création de banques villageoises	<p>La création de banques villageoises devrait permettre, à terme, la prise en charge, par les populations elles-mêmes, du financement des activités en amont et en aval de la production agricole, mais aussi d'activités non agricoles de façon à satisfaire aux divers besoins en matière de crédit. Elles seront conçues comme un moyen permettant aux populations, en particulier les femmes et les jeunes, de pouvoir s'engager dans une dynamique évolutive fondée sur la diversification de leurs activités, à la lumière des expériences acquises dans le cadre de la gestion intégré du Parc national des oiseaux du Dioudj.</p>	Zones de transition moyennement et fortement humanisées

<p>A5.R2/OG3 Valorisation des produits halieutiques</p>	<p>Les produits halieutiques transformés représentent une source de revenus pour les femmes des îles du Saloum et de Betenti. Il s'agira pour rentabiliser cette activité de transformation de:</p> <ul style="list-style-type: none"><li>- Moderniser les techniques de transformation actuellement utilisées en équipant les femmes en claies de séchage améliorées et de fumoirs);</li><li>- Doter les femmes en matériel de conditionnement et d'emballage des produits finis;</li><li>- Former les femmes sur les aspects liés à l'hygiène.</li></ul>	<p>Zone tampon et Zone de transition faiblement humanisée</p>
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### 3.4.3.3 Pour le résultat 3: L'émergence d'une évolution positive des mentalités et des comportements face à l'environnement est favorisée.

**Tableau 8: Activités relatives au comportement environnemental**

Activités	Interventions	Zones ciblées
<p>A1.R3/ OG3 Mise en place d'un programme d'alphabétisation</p>	<p>Le programme d'alphabétisation a pour objectif la conscientisation des populations. Il ciblera les femmes et les élus locaux et sera mené en collaboration avec les structures en présence dans la RBDS. Il s'agit du Centre de Recherche en Espace Mandingue (CEREM), de l'Entente des Groupements Associés de Toubacouta (EGAT) et du Groupement des Alphabétiseurs en Langues nationales (GALAN). Pour pérenniser les classes d'alphabétisation dans les villages, il est envisagé:</p> <ul style="list-style-type: none"> <li>- D'assurer la formation complète de deux relais villageois (1 femme et 1 homme) dans chaque village;</li> <li>- Conduire le programme en l'intégrant aux projets générateurs de revenus prévus.</li> </ul>	<p>Zone tampon et zone de transition</p>
<p>A2.R3/ OG3: Mise en place d'un programme d'éducation environnementale</p>	<ul style="list-style-type: none"> <li>- Le programme d'éducation environnementale envisagé est articulé sur la gestion des ressources naturelles et sera mis en œuvre à plusieurs niveaux. Il devra permettre la réalisation d'activités d'information, de sensibilisation, de conscientisation des populations à tous les niveaux (jeunes, adultes, leaders locaux, conseillers ruraux) pour les amener à adopter des attitudes et des comportements favorables à une gestion durable des ressources naturelles.</li> <li>- En milieu scolaire, le programme sera mis en œuvre par les enseignants en étroite collaboration avec les agents du Parc National du Delta du Saloum. Les expériences du PFIE et de ENDA/EDEV pourraient être capitalisées, notamment dans la gestion des micros projets scolaires.</li> <li>- Pour le grand public, il s'agira d'un programme d'éducation, de sensibilisation d'information et de communication au moyen de la radio et des émissions télévisées.</li> </ul> <p>Il est attendu de ce programme: une meilleure participation des populations à la protection des écosystèmes; une évolution positive des attitudes et des comportements vis à vis des ressources naturelles</p>	<p>Zone tampon et zone de transition</p>



	et de l'environnement; une diminution des feux de brousse et des conflits entre les gestionnaires du parc et les populations; ainsi qu'une maîtrise des textes et lois relatifs à la gestion des ressources naturelles.	
A3.R2/OG3: Promotion de l'écotourisme	<p>Le circuit des îles Bétenti passe à travers les petits bolongs et définit plusieurs sentiers écologiques partant de Oudié reng, de Sipo, Diogane et des îles Toubacouta et Yassa.</p> <p>La visite de l'île aux oiseaux et des îlots océaniques et le Bandiala. Des études complémentaires devraient être conduites pour confirmer la faisabilité de cette activité.</p>	Zone tampon et zone de transition faiblement et moyennement humanisée

### **3.4.4 Renforcer les capacités institutionnelles des organes et structures impliquées et promouvoir la coopération internationale (Objectif Général 4: OG4).**

Pour y parvenir, il est prévu:

- ⇒ *un appui institutionnel et le renforcement du Comité Scientifique (CS) et du Comité d'Orientation (CO);*
- ⇒ *la création de comités de gestion de l'efficacité;*

La raison d'être du comité scientifique est d'assurer la crédibilité scientifique et technique des actions de recherche et de développement à entreprendre dans la RBDS. Il procédera à l'évaluation des activités et apportera des appuis conseils.

- ⇒ *Un appui institutionnel au Comité d'Orientation (CO);*
- ⇒ *La création de cadres de collaboration opérationnels pour l'exécution des activités;*

L'exécution, le suivi et la coordination des activités relèvent de la responsabilité première de l'Unité d'Exécution, appuyée par l'UICN. L'exécution des interventions doit être assurée par les groupements villageois encadrés directement par des structures techniquement compétentes (telles que les ONG, les services des Parcs Nationaux, des Eaux et Forêts, des Pêches Maritimes et autres services techniques de l'Etat, CERP et projet de Missirah, etc) travaillant en étroite collaboration avec l'UICN. Ces structures, déjà présentes sur le terrain et ayant une expérience dans plusieurs des domaines touchés par ces activités prévues dans le Plan, sont en effet les mieux placées pour assurer l'exécution de ces travaux avec les populations. A cet effet et pour chaque intervention, les structures d'appui devront être désignées dans le cadre d'un contrat de collaboration.

- ⇒ *La mise en place d'un dispositif de suivi et d'évaluation;*

Les actions retenues dans le programme envisagé devront faire l'objet d'un suivi permanent en vue d'en mesurer l'exécution technique et financière et d'apprécier les résultats atteints. Des évaluations périodiques devront également permettre d'apprécier la performance par rapport aux objectifs, en même temps qu'elles permettront les ajustements et mises à jour nécessaires à tout Plan de gestion. Le suivi est un processus continu de collecte d'informations sur le déroulement des actions. Celui-ci sera assuré sur le terrain par l'UICN qui devra mettre en place un dispositif de collecte de ces informations lui permettant d'élaborer des rapports précisant notamment l'état de réalisation des activités ainsi que celles prévues pour les périodes à venir. L'évaluation peut être interne, externe (réalisée par des évaluateurs externes). Une auto-évaluation serait celle réalisée par la DPN et les populations bénéficiaires avec l'appui de l'UICN.

## 4. Modalités de mise en œuvre et planification des activités

Dans le processus de définition du plan de gestion de la RBDS, une attention particulière a été accordée à la phase de planification des activités retenues. Une période de cinq ans (cf. chronogramme) est programmée pour la mise en œuvre des activités au niveau des deux grands ensembles que sont l'aire centrale et les aires tampon et de transition.

La priorisation des activités se réfère aux conclusions des travaux de diagnostic participatif (MARP, des fora, des études thématiques, et aux résultats des projets pilotes réalisés dans le cadre du processus de formulation du Plan de gestion. En outre, elle s'appuie surtout sur les principes, les stratégies et conventions qui régissent les réserves de biosphère, notamment la Stratégie de Séville.

Cette planification des activités a tenu compte, après analyse, de leur importance pour promouvoir un développement durable de la RBDS mais aussi de leur faisabilité, de leur adaptabilité et de leur impact sur le milieu.

Ainsi, une activité est portée au rang élevé des priorités, si elle comporte à la fois une dimension hautement stratégique pour la conservation de la biodiversité et un aspect d'écodéveloppement pouvant soutenir durablement cette conservation.

En plus de ces critères, une priorisation qui tient compte du zonage a été considérée. Ce qui veut dire qu'à rang égal, une activité au niveau de la *zone insulaire* qui englobe le domaine amphibie et le domaine maritime (zone humide de l'aire centrale, la zone tampon et la zone de transition faiblement humanisée) est prioritaire par rapport à la *zone non insulaire* (zones de transition moyennement et fortement humanisées).

Au niveau du domaine insulaire, le critère retenu pour la priorité accordée à cette zone est la richesse de sa biodiversité avec: son écosystème mangrove en bon état, ses vasières constitutives de nourriceries, de dortoirs et reposoirs pour 100.000 oiseaux d'eau, ses bolons sites de reproduction et de croissance pour 114 espèces ichtyofauniques; ses fosses et herbiers refuges d'espèces menacées, comme les tortues marines ou les requins; ses îles non habitées, derniers refuges de la grande et moyenne faune sauvage, enfin, ses îlots de sable ou de mangrove qui accueillent près de 50.000 couples d'oiseaux reproducteurs par an.

Les deux premières années de mise en œuvre du plan de gestion doivent s'atteler à l'aménagement de cet espace par le renforcement de la protection des sites identifiés et l'utilisation rationnelle de l'estuaire. Tous les acteurs concernés seront sollicités, des cadres de concertation pour l'application participative du programme créés.

Un programme de suivi et de renforcement des acquis de la première phase sera mis en œuvre durant les trois années suivantes.

En zone non insulaire, il s'agira d'actions localisées d'importance variable. Deux zones y seront prioritaires: la forêt de Fathala et les vasières autour de Palmarin.

Pour la première, il s'agira de remettre en eau les mares et vallées, de favoriser la régénération naturelle des espèces ligneuses, alors que pour la seconde il s'agira de favoriser la création d'une aire protégée communautaire autour de cette vasière qui est la plus importante au plan nombre (13.000 individus par an) et diversité des espèces d'oiseaux d'eau de la zone d'une part, site de reproduction et de nourrissage de la tortue verte (*Chelonia mydas*), d'autre part.

Comme pour la partie centrale de la réserve, ces actions doivent s'échelonner durant les deux premières années.

Pour le reste, il s'agira de mettre en place un dispositif tampon pour atténuer la dégradation progressive de l'environnement comme la lutte contre l'ensablement des vasières et vallées et la remontée de la langue salée et, la reforestation de la mangrove. Des actions pour une gestion concertée autour des forêts classées seront initiées. Toutes ces activités entrent en secondes priorités quoique pour la première, un programme échelonné sur toute la période du plan sera mis en œuvre.

Dans la définition des actions, les priorités suivantes ont été retenues:

*Priorité 1:* Actions de protection et d'aménagement de sites d'importance pour la biodiversité sur la zone insulaire. Intenses activités de mise en œuvre, compris la sensibilisation, durant les deux premières années.

*Priorité 2:* Actions de renforcement des capacités de surveillance du domaine insulaire. Actions régulières d'appui à l'aménagement de la zone insulaire.

*Priorité 3:* Actions de conservation des domaines naturels de la partie côtière (zone de transition à intense activité humaine). Activités échelonnées dans le temps.

*Priorité 4:* Actions de protection et de restauration des écosystèmes dégradés ou anthropisés. Actions échelonnées dans le temps et ponctuels.

*Priorité 5:* Actions ponctuelles de sensibilisation.

**Tableau 9: Programme d'activités prioritaires**

Zone d'intervention	Priorité 1	Priorité 2
Zone centrale	<ul style="list-style-type: none"> <li>- Aménagement de la zone centrale (voir chronogramme de l'aménagement)</li> <li>- Suivi de la dynamique de l'avifaune</li> <li>- Renforcement des capacités des services chargés de la gestion du Parc National du Delta du Saloum</li> </ul>	<ul style="list-style-type: none"> <li>- Suivi de la dynamique de la faune terrestre</li> <li>- Suivi de la végétation</li> <li>- Mise en place d'un programme d'éducation environnementale</li> <li>- Promotion de l'écotourisme</li> </ul>
Zone tampon (suite)	<ul style="list-style-type: none"> <li>- Création d'un réseau de sites de conservation</li> <li>- Aménagement des pêcheries</li> <li>- Suivi de la dynamique de l'avifaune</li> <li>- Elaboration de plans de gestion des terroirs villageois</li> <li>- Promotion de l'écodéveloppement</li> <li>- Valorisation des produits halieutiques</li> <li>- Amélioration des conditions de la femme</li> <li>- Amélioration de l'alimentation en eau des populations</li> </ul>	<ul style="list-style-type: none"> <li>- Amélioration des connaissances sur les ressources et création d'aires protégées terrestres</li> <li>- Suivi de l'ichtyofaune</li> <li>- Suivi de la végétation</li> <li>- Mise en place d'un programme d'éducation environnementale</li> <li>- Promotion de l'écotourisme</li> </ul>
Zone de transition faiblement humanisée	<ul style="list-style-type: none"> <li>- Protection concertée des frayères</li> <li>- Création d'un réseau de sites de conservation communautaire</li> <li>- Aménagement des pêcheries</li> <li>- Suivi de la dynamique de l'avifaune</li> <li>- Elaboration de plans de gestion des terroirs villageois</li> <li>- Développement de projets apicoles</li> <li>- Amélioration des conditions de la femme</li> <li>- Valorisation des produits halieutiques</li> </ul>	<ul style="list-style-type: none"> <li>- Suivi de l'ichtyofaune</li> <li>- Mise en place d'un programme d'éducation environnementale</li> <li>- Promotion de l'écotourisme</li> <li>- Sauvegarde et Protection du patrimoine archéologique</li> </ul>
Zone de transition moyennement humanisée	<ul style="list-style-type: none"> <li>- Restauration de la mangrove</li> </ul>	<ul style="list-style-type: none"> <li>- Mise en œuvre de techniques de maîtrise des ressources en eau</li> <li>- Développement de bois villageois</li> </ul>
Zone de transition fortement humanisée	<ul style="list-style-type: none"> <li>- Elaboration de plans de gestions des terroirs villageois</li> <li>- Amélioration des conditions de la femme</li> <li>- Promotion des techniques de restauration et de conservation des sols</li> </ul>	<ul style="list-style-type: none"> <li>- Mise en œuvre de techniques de maîtrise des ressources en eau</li> <li>- Restauration de la mangrove</li> </ul>

Priorité 3	Priorité 4	Priorité 5
<ul style="list-style-type: none"> <li>- Création d'une réserve transfrontalière avec la Gambie (PNDS et Niomi)</li> </ul>		
<ul style="list-style-type: none"> <li>- Sauvegarde et Protection du patrimoine archéologique</li> <li>- Aménagement des forêts classées des travaux des femmes</li> <li>- Sauvegarde des parcs arborés</li> <li>- Protection concertée des frayères</li> </ul>	<ul style="list-style-type: none"> <li>- Restauration de la mangrove</li> <li>- Développement de bois villageois et l'allégement</li> <li>- Appui au développement du maraîchage</li> </ul>	<ul style="list-style-type: none"> <li>- Mise en place d'un Zone programme d'alphabétisation</li> </ul>
<ul style="list-style-type: none"> <li>- Restauration de la mangrove</li> <li>-Sauvegarde des parcs arborés</li> </ul>	<ul style="list-style-type: none"> <li>- Développement de bois villageois</li> </ul>	
<ul style="list-style-type: none"> <li>- Elaboration de plans de gestion des terroirs villageois</li> <li>- Création d'une réserve de faune</li> </ul>		
<ul style="list-style-type: none"> <li>- Création d'une réserve de faune</li> </ul>		

**Tableau 10: Chronogramme des activités**

Activités
Aménagement de l'aire centrale de la Réserve de biosphère
Renforcement des capacités des services chargés de la gestion du Parc National du Delta du Saloum
Création d'un réseau de sites de conservation
Aménagement des forêts classées de Djilor, de Sangako, de Keur Sambel, de Patako
Aménagement des pêcheries
Amélioration des connaissances sur les sites sauvages et l'adoption d'aires protégées terrestres
Sauvegarde du patrimoine archéologique
Aménagement d'aires protégées marines
Création de réserves de faune
Création d'un Parc transfrontalier avec la Gambie (PNDS et Niumi )
Mise en œuvre de techniques de maîtrise des ressources en eau
Restauration de la mangrove
Développement de bois villageois et l'allègement des travaux des femmes
Sauvegarde des parcs arborés
Promotion des techniques de restauration et de conservation des sols
Mise en place d'un Système d'Information Géographique (SIG)
Mise en place d'une station de recherche
Suivi de la dynamique de la faune
Suivi de la dynamique de l'avifaune
Suivi de l'ichtyofaune
Suivi de la pêcherie de crevette et de l'ethmalose
Suivi de la végétation
Amélioration de l'organisation villageoise et la création de Structures
Elaboration de plans de gestion des terroirs villageois
Amélioration de l'alimentation en eau des populations
Appui au développement du maraîchage
Développement de projets apicoles
Mise en place de banques villageoises
Valorisation des produits halieutiques
Mise en place d'un programme d'alphabétisation
La mise en place d'un programme d'éducation environnementale
La promotion d'activités écotouristiques
Le renforcer la crédibilité scientifique du Comité Scientifique
La création de cadres de collaboration opérationnels pour l'exécution des activités
la mise en place d'un dispositif de suivi et d'évaluation



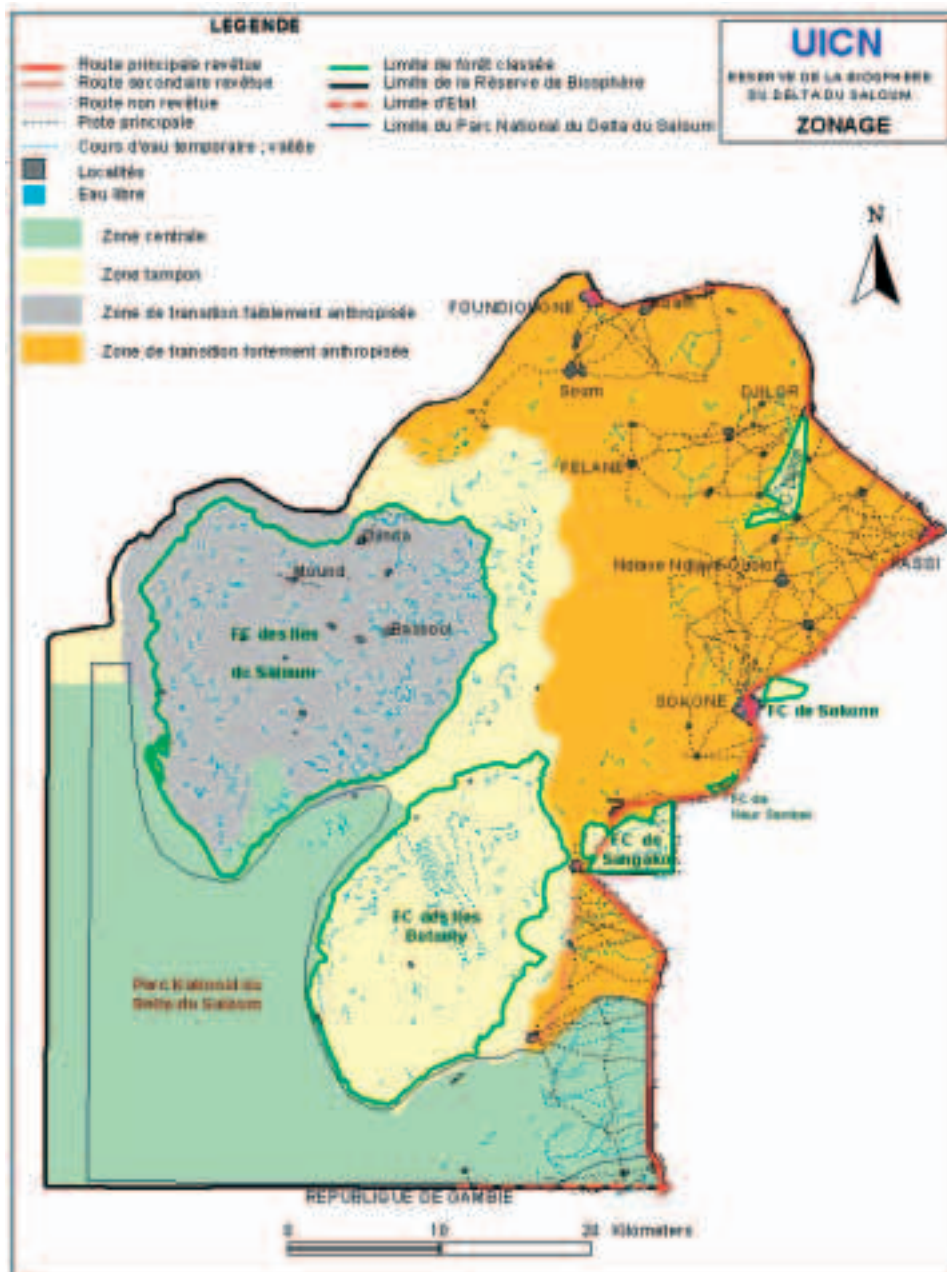


## Annexe 2

### Dossier de cartes







## Annexe 3

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- 10. UICN Sénégal (1998):** Etude exploratoire des terroirs villageois de l'arrondissement de Fimela, 26 pages + annexes.
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## **Auteurs des études thématiques et techniques**

### **Végétation**

Amadou Tidiane Bâ (Institut des Sciences de l'Environnement, UCAD)  
Bienvenu Sambou (Institut des Sciences de l'Environnement, UCAD)  
Assane Goudiaby (Institut des Sciences de l'Environnement, UCAD)  
Ngor Ndour (Institut des Sciences de l'Environnement, UCAD)  
Cheikh Mbow (Institut des Sciences de l'Environnement, UCAD)  
Abdoul Aziz Camara (Département de Biologie Végétale, UCAD)

### **Archéologie et Culture**

Marie Amy Mbow Diop (Institut Fondamental de l'Afrique Noire, IFAN)  
Omar Guèye (Institut Fondamental de l'Afrique Noire, IFAN)

### **Grande et moyenne faune sauvage**

Gérard Galat (Institut de Recherche pour le Développement, IRD).  
Anh Galat-Luong (Institut de Recherche pour le Développement, IRD)  
Moustapha Mbaye (Direction des Parcs Nationaux du Sénégal)  
Souleymane Ba (Secteur Forestier de Foundiougne)  
Jacques Bernard Rigoulot (Parc National du Delta du Saloum)  
Djibril Diouck (Institut de Recherche pour le Développement, IRD)  
Agents du Parc national du delta du Saloum et du Secteur Forestiers de Foundiougne

### **Oiseaux d'eau**

Jacques Peeters (Direction des Parcs Nationaux du Sénégal)

### **Tortues de mer**

Tomas Diagne (Fondation Rurale pour le développement, Village de Tortues)

### **Resources Halieutiques**

Papa Samba Diouf (Centre de Recherche Océanographique Dakar-Thiaroye/CRODT)  
Mariama D. Barry (Centre de Recherche Océanographique Dakar-Thiaroye/CRODT)  
Seydou Coly (Service Régional des Pêches de Fatick)

### **Ressources hydrologiques**

Raymond Mallou (Département de Géologie, UCAD)  
Honoré Dacosta (Département de Géographie UCAD)  
Amadou Ndiaye (Service Régional des Eaux et Forêt de Fatick)  
Saliou Mbodj (Projet d'Autopromotion et de Gestion des Ressources Naturelles)  
Elhadj Ibrahima Thiam (Direction des études hydrauliques)  
Julien Gomis (étudiant DEA, UCAD)

### **Transformation des produits halieutiques**

Niokhor Diouf (Institut de Technologie Alimentaire)

### **Etudes socio-économiques**

Ousseynou Diop (SENAGROSOL Consult)  
Mame Dagou Diop (SENAGROSOL Consult)  
Abdou Karim Guèye (SENAGROSOL Consult)  
Saliou Ndiaye (Ecole Nationale Supérieure d'Agriculture/ENSA)  
Fatou Samb (Direction des Parcs Nationaux)  
Amadou Diallo (Consultant)  
Jean-Laurent Kaly (étudiant à l'UCAD et à la DEFCCS)

### **Cartographie et Système d'Information Géographique**

Moussa Sall (Centre de Suivi Ecologique/CSE)  
Tahirou Dioaw (Département de Géographie, UCAD)  
Bienvenu Sambou (Institut des Sciences de l'Environnement, UCAD)  
Samba Ndao (Centre de Suivi Ecologique/CSE)  
Nathalie Prelmuter (Centre de Suivi Ecologique/CSE)  
Déthié Ndiaye (Centre de Suivi Ecologique/CSE)  
Ousmane Fall Sarr (Centre de Suivi Ecologique/CSE)  
Assane Goudiaby (Institut des Sciences de l'Environnement, UCAD)  
Ngor Ndour (Institut des Sciences de l'Environnement, UCAD)  
Cheikh Mbow (Institut des Sciences de l'Environnement, UCAD)



**REPUBLIQUE DU SENEGAL**  
Un Peuple - Un But - Une Foi



Ministère de la Femme, de la Famille  
et du Développement Social

**M.F.F.D.S.**

**Stratégie Nationale pour  
l'Egalité et l'Equité de Genre**

**S.N.E.E.G.**

**2015**



# LA SNEEG

STRATEGIE NATIONALE POUR  
L'EGALITE ET L'EQUITE DE GENRE  
AU SENEGAL POUR CONCRETISER UNE VISION :

**« Faire du Sénégal un pays émergent,  
sans discrimination, où les hommes et les  
femmes auront les mêmes chances de  
participer à son développement et de jouir  
des bénéfices de sa croissance. »**

Engageons-nous résolument dans sa mise en oeuvre  
et tous ensemble nous gagnerons !

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## LISTE DES SIGLES ET ACRONYMES

A CEP :	Agence de Caisse d'Épargne et de Crédit
AFAO :	Association des Femmes d'Afrique de l'Ouest
AGETIP :	Agence d'Exécution des Travaux d'Intérêt Public
AJS :	Association des Juristes Sénégalaises
APF :	Association pour la Promotion de la Femme
APIX :	Agence pour la Promotion des Investissements et des Grands Travaux
APROFES :	Association pour la Promotion des Femmes Sénégalaises
ASBEF :	Association Sénégalaise pour le Bien-Etre Familial
ASELFAE :	Association Sénégalaise pour le Leadership des Femmes en Agriculture et Environnement
BDF :	Bailleur de Fonds
CCF :	Comité Consultatif de la Femme
CDD :	Comité Départemental de Développement
CEDAF :	Centres Départementaux et de Formation pour la Femme
CEDAW :	Convention sur l'Élimination de toutes les Formes de Discrimination à l'Égard des Femmes
CENAF :	Centre National d'Assistance et de Formation pour la Femme
CIPD :	Conférence Internationale sur la Population et le Développement
CL :	Collectivité Locale
CLVF :	Comité de Lutte contre les Violences faites aux Femmes
CNCAS :	Caisse Nationale de Crédit Agricole du Sénégal
COFDEF :	Collectif des Femmes pour la Défense de la Famille
CONACAP :	Conseil National d'Appui aux Caisses Populaires
CONGAD :	Consortium des Organisations Non Gouvernementales d'Appui au Développement
COSEF :	Conseil Sénégalais des Femmes
CRAES :	Conseil de la République pour les Affaires Economiques et Sociales
CRD :	Comité Régional de Développement
CRDI :	Centre de Recherche pour le Développement International
CRETf :	Centres Régionaux d'Enseignement Technique Féminin
DPP :	Déclaration de la Politique de Population
DPPA :	Déclaration de Politique de Population Actualisée
DPS :	Direction de la Prévision et de la Statistique
DSRP :	Document de Stratégie de Réduction de la Pauvreté
EDS :	Enquête Démographique et de Santé
ENDA-GRAF :	Environnement et Développement du Tiers-monde/Groupe Recherche-Action-Formation
ENFEFS :	Ecole Nationale de Formation en Economie Familiale et Sociale
EPDS :	Examen des Programmes et de Définition des Stratégies
EPS :	Education pour la Santé
ES :	Egalité entre les Sexes
ESP :	Enquête sur les Priorités
EVF :	Education à la Vie Familiale
FAFS :	Fédération des Associations Féminines du Sénégal
FAR :	Femme en âge de reproduction
FAWE :	Forum des Educatrices Africaines
FDEA :	Femme, Développement, Entreprise en Afrique
FNGPF :	Fédération Nationale des Groupements de Promotion Féminine
FNUAP :	Fonds des Nations Unies pour les Activités de Population
FSAPH :	Fédération Sénégalaise des Associations de Personnes Handicapées
GEC :	Groupement d'Épargne et de Crédit
HCA :	Haut Conseil de l'Audiovisuel
IAD :	Institut Africain pour la Démocratie
IDEN :	Inspection Départementale de l'Éducation Nationale
IEC :	Information, Éducation et Communication
IFAN/CAD :	Institut Fondamental d'Afrique Noire/ Cheikh Anta Diop
IFD :	Intégration de la Femme dans le Développement

INEADE :	Institut National d'Etudes et d'Action pour le Développement de l'Education
MCA :	Millenium Challenge Account
MEC :	Mutuelle d'Epargne et de Crédit
MEF :	Ministère de l'Economie et des Finances
MFDSSN :	Ministère de la Famille, du Développement Social et de la Solidarité Nationale
MFEF :	Ministère de la Femme, de l'Enfant et de la Famille
MFFDS :	Ministère de la Femme, de la Famille et du Développement Social
MFSN :	Ministère de la Famille et de la Solidarité Nationale
MGF :	Mutilations Génitales Féminines
MICS :	Enquête par Grappe à Indicateurs Multiples
MNG :	Mécanisme National Genre
MSP :	Ministère de la Santé et de la Prévention
MST :	Maladies Sexuellement Transmissibles
NDI :	National Democratic Institute
NEPAD :	Nouveau Partenariat pour le Développement de l'Afrique
OMD :	Objectif du Millénaire pour le Développement
ONG :	Organisation Non Gouvernementale
OS :	Orientation Stratégique
OSC :	Organisation de la Société Civile
PAGPF :	Projet d'Appui aux Groupements de Promotion Féminine
PAMECAS :	Projet d'Appui aux Mutuelles d'Epargne et de Crédit
PANAF :	Plan d'Action National de la Femme
PAS :	Programme d'Ajustement Structurel
PDEF :	Programme Décennal de l'Education et de la Formation
PDIS :	Programme de Développement Intégré de la Santé
PDRH :	Projet de Développement des Ressources Humaines
PELCP :	Programme Elargi de Lutte Contre la Pauvreté
PIB :	Produit Intérieur Brut
PLCP :	Programme de Lutte contre la Pauvreté
PNB :	Production Nationale Brute
PNC :	Projet de Nutrition Communautaire
PNLP :	Programme National de Lutte contre la Pauvreté
PNLS :	Programme National de Lutte contre le SIDA
PNPF :	Programme National de Planification Familiale
PNUD :	Programme des Nations Unies pour le Développement
PTF :	Partenaire Technique et Financier
PTIP :	Programme Triennal d'Investissements Publics
RADDHO :	Rencontre Africaine pour la Défense des Droits de l'Homme
RASEF :	Réseau Africain de Soutien à l'Entreprenariat Féminin
RSJ :	Réseau Siggil Jigéen
SCOFI :	Scolarisation des Filles
SFE :	Sage-femme
SIDA :	Syndrome d'Immuno Déficience Acquise
SNEEG :	Stratégie Nationale pour l'Egalité et l'Equité de Genre au Sénégal
SONU :	Soins Obstétricaux et Néonataux d'Urgence
SR/PF :	Santé de la Reproduction/Planification Familiale
SWAA :	Society of Women Against Aids
TBS :	Taux brut de scolarisation
TDR :	Termes de Référence
TIC :	Technologies de l'Information et de la Communication
UCAD :	Université Cheikh Anta Diop
UEMOA :	Union Economique et Monétaire de l'Afrique de l'Ouest
UNACOIS :	Union Nationale des Commerçants de l'Informel du Sénégal
UNFPA :	Fonds des Nations Unies en matière de Population
UNICEF :	Fonds des Nations Unies pour l'Enfance
UNIFEM :	Fonds des Nations Unies pour la Femme
USAID :	Agence Internationale d'Aide au Développement des Etats-Unis
VIH :	Virus d'Immuno-déficience Humaine
WILDAF :	Femmes Droits et Développement en Afrique

**PREFACE**  
**DE SON EXCELLENCE MAITRE ABDOULAYE WADE**  
**PRESIDENT DE LA REPUBLIQUE DU SENEGAL**

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Dans mon message à la Rencontre de la Commission de l'Union Africaine tenue à Addis-Abeba en juillet 2004, je réaffirmais mon vœu pour l'instauration d'une parité effective entre les hommes et les femmes au niveau des institutions publiques, privées, nationales et internationales afin de surmonter les obstacles auxquels le Continent est confronté dans tous les secteurs du développement.

Sensibles à ce plaidoyer, les Chefs d'Etat de l'Union Africaine ont pris l'acte historique qui a consacré la parité au sein de l'Institution avec la nomination de cinq femmes commissaires en charge respectivement des Affaires sociales, des Affaires politiques, du Commerce et de l'Industrie, de l'Economie Rurale et de l'Agriculture.

En effet, les inégalités fondées sur le genre portent atteinte à la construction efficace et durable du développement, tant il est vrai qu'au-delà de la pluralité des idées politiques, religieuses et culturelles, la richesse des ressources humaines du Sénégal constitue un atout fondamental dans la lutte contre la pauvreté et pour l'instauration d'un développement durable.

En renouvelant l'engagement du Sénégal pour la poursuite de la mise en œuvre de la plate forme de Beijing dix ans après, qui a conduit à des avancées significatives, je demeure convaincu que le combat pour la promotion de l'équité de genre est un facteur primordial pour l'atteinte des Objectifs du Millénaire pour le Développement.

En concevant la Stratégie Nationale pour l'Egalité et l'Equité de Genre, le Sénégal cherche à consolider et à amplifier les acquis jusque-là engrangés pour se positionner au peloton de tête des pays où la femme jouit de toute sa dignité, de tous ses droits, de tout son statut et d'une existence plus juste et plus équitable vis-à-vis des hommes.

C'est pourquoi, je fonde beaucoup d'espoir sur ce document stratégique élaboré de manière participative dans une démarche analytique et prospective. Sans doute qu'il sera un instrument efficace pour la réalisation du souhait du Gouvernement de bâtir un Sénégal sans discrimination où les hommes et les femmes seront à la fois acteurs et bénéficiaires des fruits de la croissance.

Qu'il me soit permis donc de remercier, au nom du Gouvernement et du peuple sénégalais, tous ceux qui ont participé à la formulation de ce document, notamment l'équipe nationale multidisciplinaire composée de chercheurs et techniciens provenant des ministères sectoriels, des organisations féminines, de la société civile, des partenaires au développement.

Je lance, pour terminer, un vibrant appel aux acteurs étatiques, aux ONG et à tous les autres segments de la société pour leur contribution effective à la mise en œuvre de ce troisième cadre de référence pour la promotion de l'égalité et de l'équité entre les sexes.

Vivement que cette Stratégie Nationale pour l'Egalité et l'Equité de Genre soit une éminente contribution pour un Sénégal émergent à l'horizon 2015 !

**SON EXCELLENCE**  
**MAÎTRE ABDOULAYE**  
**PRÉSIDENT DE LA RÉPUBLIQUE DU SÉNÉGAL**

## INTRODUCTION

### **Pertinence d'une Stratégie Nationale pour l'Égalité et l'Équité de Genre (SNEEG)**

Il est aujourd'hui reconnu que le développement durable et, plus particulièrement la réduction de la pauvreté, ne pourra se réaliser sans l'élimination des inégalités entre les femmes et les hommes. Ce dessein de lier la question de la promotion de la femme, la croissance économique et le développement est devenu incontournable dans toutes les perspectives d'évolution des sociétés.

Conscient de cette exigence, le gouvernement du Sénégal a décidé d'adopter une démarche soucieuse d'égalité entre l'homme et la femme et d'intégrer progressivement les questions de genre dans les priorités de développement du pays.

L'élaboration de deux plans d'action en faveur de la promotion de la femme, respectivement en 1982 et en 1997 et l'évaluation du deuxième plan d'action (PANAF) en 2003 confirmer, par delà cette prise de conscience, l'engagement des autorités à améliorer les conditions de vie des populations et à promouvoir l'égalité des sexes.

Ainsi, les efforts déployés par le Sénégal ces vingt dernières années pour renforcer le statut, la position et les capacités des femmes ont été corroborés par les résultats de l'évaluation du PANAF qui ont fait état de gains significatifs en faveur des femmes sénégalaises dans plusieurs domaines : elles sont en meilleure santé, plus nombreuses à être économiquement actives et leurs droits fondamentaux sont davantage respectés ; les écarts entre les sexes dans l'éducation s'amenuisent ; la violence contre les femmes et l'excision des petites filles sont désormais punies par la loi.

Toutefois, malgré ces avancées, l'évaluation révèle que les femmes dans leur grande majorité continuent de subir de façon disproportionnée le poids de la pauvreté et de l'analphabétisme ; elles sont encore victimes de graves violations de leurs droits humains et de leurs droits en matière de sexualité et de reproduction ; elles sont les premières victimes de la pandémie du VIH/SIDA et nombreuses sont celles qui risquent encore aujourd'hui de mourir en donnant la vie.

Il apparaît ainsi qu'en dépit des réels progrès accomplis, il reste encore beaucoup à faire pour réaliser l'égalité des droits et des chances entre les filles et les garçons, les hommes et les femmes.

L'atteinte d'un tel objectif exige *un véritable changement* dans la façon même d'analyser la situation par rapport aux inégalités, d'examiner les raisons de cette situation et de déterminer des stratégies de réponses efficaces et pertinentes. Ceci justifie l'adoption de *l'approche genre* comme outil d'analyse et de planification dans la formulation de la présente Stratégie.

Ainsi, l'option du Sénégal d'élaborer une Stratégie Nationale pour l'Égalité et l'Équité de Genre répond au double souci de disposer (i) d'*un cadre global de référence* qui clarifie la vision du pays en matière de genre et l'engagement des différentes composantes de la société y compris les autorités politiques à réaliser cette vision et (ii) d'*un instrument opérationnel* qui permette de rendre visible les questions de genre dans la société, de proposer les mesures appropriées pour lever les contraintes à l'égalité entre les hommes et les femmes et d'obtenir les changements souhaités en matière de genre.

Plus spécifiquement, la SNEEG, de par ses démarches analytique et prospective, va contribuer à assurer l'adéquation entre ses priorités d'intervention et les options de développement du pays et, plus précisément, la cohérence des voies et moyens à mettre en œuvre pour accomplir l'égalité et l'équité de genre.

La SNEEG se pose ainsi comme un moyen pertinent de réalisation de l'égalité et de l'équité entre les femmes et les hommes et, par delà cet acquis, comme un gage de sécurité à la réalisation d'un

développement durable au Sénégal. Dès lors, sa disponibilité est une nécessité voire une exigence pour le pays.

### **Bénéficiaires de la SNEEG**

La Stratégie va bénéficier en premier à l'Etat et à ses démembrements ainsi dotés d'un outil déterminant dans la fixation des priorités nationales et la planification des interventions de développement pour une plus grande égalité entre les hommes et les femmes.

La Stratégie sera également utile aux organisations de la société civile et aux partenaires de la coopération bilatérale et multilatérale qui vont pouvoir harmoniser leurs interventions avec les priorités et orientations définies par la Stratégie.

Enfin, les principaux bénéficiaires de la SNEEG seront les différentes composantes de la population dont les préoccupations seront traduites en priorités de développement pour leur meilleure prise en compte dans les différents instruments de développement nationaux et sectoriels.

### **Démarche adoptée pour la formulation de la SNEEG**

La SNEEG a été formulée sur la base des conclusions de l'évaluation du deuxième Plan d'action de la Femme (1997-2001), réalisée en 2003, des orientations stratégiques du DSRP et des Objectifs du Millénaire pour le Développement. Son élaboration s'est déroulée sur une période effective de onze semaines allant du 11 novembre 2004 au 31 janvier 2005.

*L'analyse comparative entre les sexes*, plus connue sous le nom d'analyse selon le genre, ainsi que *l'approche programme* ont guidé la réflexion tout au long de la formulation du cadre de référence.

La formulation de la SNEEG est articulée autour de quatre domaines considérés par le Sénégal comme déterminants dans la promotion de l'égalité de genre, à savoir : la culture, les secteurs socio-économiques et les mécanismes juridiques, politiques et institutionnels. Ces domaines sont en cohérence avec les recommandations de la Conférence de Beijing sur les femmes qui invitent les Etats à prendre des mesures urgentes et pertinentes dans ces domaines en particulier, à l'effet de lever toutes les formes de discrimination à l'égard des femmes et de créer les conditions durables pour assurer l'équité et l'égalité entre les femmes et les hommes.

Plus précisément, l'élaboration de la SNEEG repose sur deux piliers majeurs : d'une part, l'analyse de situation du genre au Sénégal qui, à partir d'une analyse causale, a permis de mettre en relief la situation des femmes sénégalaises dans les domaines social, économique et politique et, d'autre part, la planification stratégique du nouveau cadre de référence pour la promotion du genre. Une importante *revue documentaire* couvrant la période 1997-2004 et des discussions de groupe ont servi à alimenter les différentes étapes du processus.

Pour mener l'exercice, une équipe nationale multidisciplinaire a été mise en place, comprenant 120 personnes, techniciens et chercheurs, provenant des ministères sectoriels, des organisations féminines, de la société civile et des partenaires techniques et financiers. Une consultante nationale et quatre personnes ressources ont été mises à disposition de l'équipe pour appuyer le processus.

L'approche participative et interactive adoptée durant tout le processus a permis d'instaurer des échanges fructueux aux différentes étapes de l'élaboration de la Stratégie et de tirer parti de toutes les expériences et initiatives des membres de l'équipe nationale.

Le processus d'élaboration de la Stratégie a démarré avec la tenue d'un atelier méthodologique de deux jours, les 08 et 09 novembre 2004. Ledit atelier a eu pour objectifs (i) de mettre l'équipe technique multidisciplinaire au même niveau d'information concernant le processus d'élaboration



de la Stratégie, (ii) de présenter la méthodologie d'élaboration de la Stratégie ainsi que les outils d'analyse et de planification retenus pour l'exercice. Il a été également l'occasion de faire un rappel sur le genre afin de créer au sein de l'équipe multidisciplinaire une compréhension commune des questions de genre et de l'approche genre et développement.

Un autre atelier de restitution a été organisé les 20 et 21 décembre 2004. Il a permis aux groupes de travail de restituer les résultats de leurs travaux portant sur l'analyse de situation et la planification stratégique proposée.

La version provisoire du document a été finalisée le 30 janvier 2005. Un atelier national de validation s'est tenu les 15 et 16 avril 2005 pour adopter consensuellement l'analyse de situation du genre et les propositions d'intervention faites pour lever les contraintes à la promotion équitable des acteurs et actrices de développement.

L'exercice d'élaboration proprement dit s'est déroulé en quatre étapes :

- 0- l'analyse de situation du genre au Sénégal en 2004 dans les domaines de préoccupation retenus. L'objectif étant de mettre en évidence les enjeux de l'égalité de genre en relation avec les questions de genre auxquelles les femmes et les hommes sont confrontés et d'identifier les contraintes et les causes qui les sous-tendent ;
- 1- l'identification des contraintes dans l'analyse de la situation ;
- 2- la formulation des résultats attendus de la Stratégie ainsi que la définition des indicateurs et la proposition des actions à mener ;
- 3- la rédaction des différentes parties du rapport sur la base des contributions des groupes de travail.

### **Durée de mise en œuvre de la SNEEG**

La Stratégie est planifiée pour une période de dix ans. L'horizon 2015 est le terme que la SNEEG se donne pour faire progresser l'égalité et l'équité dans les domaines prioritaires retenus et améliorer la situation des femmes grâce à une réelle réduction des inégalités qui les affectent négativement.

Ce terme est en adéquation avec les échéances retenues par le Gouvernement à travers le DSRP et la Communauté internationale à travers les Objectifs du Millénaire pour le Développement pour réduire la pauvreté, améliorer la qualité de vie des populations et diminuer considérablement les différences sociales et de genre sur l'ensemble du pays.

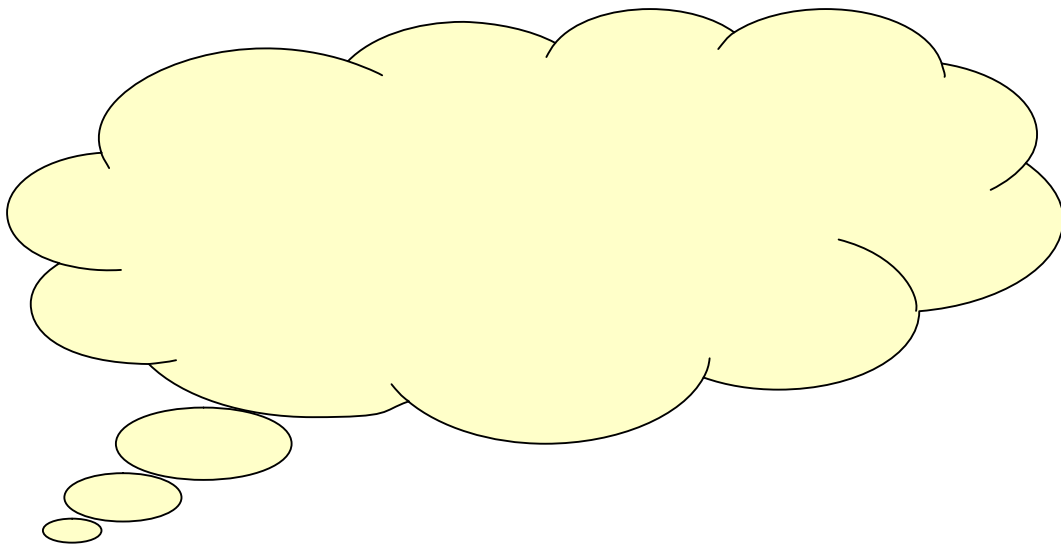
Il reste entendu que les changements de mentalité et de comportement qu'exigent l'égalité et l'équité entre les hommes et les femmes ne seront pas complètement obtenus en 2015, mais les mesures prioritaires de la SNEEG pourront être renforcées et/ou renouvelées autant de fois que nécessaire pour faire de l'équité et de l'égalité de genre les piliers du développement au Sénégal.

### **Plan du document**

La SNEEG est structurée en sept parties. Elle comprend une introduction, quatre chapitres, une conclusion et des annexes.

- \* L'introduction et la conclusion traitent respectivement de la pertinence d'avoir un cadre stratégique d'intervention pour le genre et des conditions préalables à la mise en œuvre efficace de la Stratégie pour l'Égalité et l'Équité de Genre.
- \* Le chapitre I décrit les contextes (externe et interne) dans lesquels s'inscrit la Stratégie ; il présente brièvement les cadres de référence relatifs au genre, développés aux niveaux international et national et fait le lien entre leurs choix et orientations politiques et économiques et ceux de la Stratégie.

- \* Le chapitre II présente la situation du genre au Sénégal et donne une appréciation globale de l'égalité et de l'équité entre les femmes et les hommes en mettant en exergue les questions d'inégalité de genre qui se posent actuellement ainsi que les contraintes à la promotion et à la participation effective et équitable des femmes et des hommes au processus de développement.
- \* Le chapitre III précise les orientations stratégiques, les objectifs à atteindre, les résultats attendus, les stratégies d'intervention et les actions retenues pour inscrire l'égalité de genre et la promotion de la femme dans un cadre d'évolution favorable d'ici 2015.
- \* Le chapitre IV propose un schéma institutionnel de mise en œuvre, de suivi et d'évaluation de la SNEEG.
- \* Les annexes, comprenant (1) la présentation synoptique de l'analyse de situation du genre, (2) la matrice d'intervention de la Stratégie, (3) la composition de l'équipe multisectorielle et (4) la bibliographie consultée, viennent compléter le document.



## CHAPITRE 1. CONTEXTE

### 1.1. ENVIRONNEMENT INTERNATIONAL ET EGALITE DE GENRE

C'est à partir des années 1990 que les questions de genre ont suscité un intérêt de plus en plus marqué au sein de la communauté internationale. Plusieurs conférences régionales et mondiales ont été organisées avec comme objectif de remodeler la vision sur les conditions de vie des femmes, les relations de pouvoir entre les hommes et les femmes et le respect équitable des droits humains dont les droits des femmes sont une partie intégrante.

De Rio à Copenhague en passant par le Caire et Beijing, l'accent a été mis sur le lien intrinsèque entre la population, le développement durable et l'égalité entre les hommes et les femmes. Chacune de ces conférences a permis de reconnaître, avec une force accrue, le rôle crucial des femmes dans le développement et la nécessité de leur participation équitable à la prise de décisions pour asseoir un développement durable.

Reposant essentiellement sur l'attachement aux droits de la personne et l'égalité entre les sexes, cet intérêt s'est concrétisé avec l'adoption du *Programme d'action de Beijing pour la promotion de la femme*.

La vingt-troisième session extraordinaire de l'Assemblée générale des Nations Unies, tenue en juin 2000 à New York pour examiner les progrès accomplis dans la mise en œuvre du Programme d'action de Beijing cinq ans après et la septième Conférence régionale africaine sur les femmes, préparatoire de Beijing +10, tenue à Addis Abeba en octobre 2004 ont été l'occasion pour la communauté internationale de réaffirmer leur engagement en faveur de l'égalité des sexes et du renforcement du pouvoir des femmes.

Ces deux événements ont également été une opportunité pour les dirigeants du monde de recommander l'adoption d'une perspective sexospécifique dans l'élaboration des politiques, programmes et budgets pour accélérer l'élimination des disparités et discriminations qui fondent les inégalités entre les hommes et les femmes. *L'intégration du genre dans le développement* est ainsi reconnue comme une stratégie déterminante pour réaliser l'égalité entre les femmes et les hommes.

L'adoption en septembre 2000 des *Objectifs du Millénaire pour le Développement* (OMD) est un renouvellement de cette prise de conscience et de l'engagement pris par les dirigeants du monde, lors des conférences organisées par les Nations Unies durant les deux dernières décennies, de promouvoir l'égalité entre les hommes et les femmes et d'accélérer la démarginalisation des femmes au profit de l'éradication de la pauvreté et d'un développement humain durable.

C'est ainsi que l'objectif 3 des OMD a été consacré à la promotion de l'égalité des sexes et à l'autonomisation des femmes. Cet objectif est l'occasion pour la communauté internationale de réitérer l'importance d'élaborer des politiques et programmes sensibles au genre et d'y inclure les besoins spécifiques, pratiques et stratégiques des femmes. En outre, il est sous entendu que les questions de genre doivent être prises en compte de manière transversale par chacun des autres objectifs. C'est ainsi que le Sénégal, retenu comme pays pilote pour le « Projet du Millénaire », bénéficie d'un appui technique et financier supplémentaire pour accélérer, dans une démarche synergique et opérationnelle, la mise en œuvre du DSRP et des OMD.

Dans la même optique, signalons l'éligibilité du Sénégal au Millenium Challenge Account (MCA) en 2004 et en 2005. Le Millenium Challenge Account est une initiative du Gouvernement américain en faveur des pays à faible niveau de revenus. Cette nouvelle opportunité permettra au Sénégal de disposer de nouvelles ressources pour lutter contre la pauvreté et promouvoir la croissance.

Au niveau régional, citons également l'avènement du Nouveau Partenariat pour le Développement de l'Afrique (NEPAD), qui est l'expression d'un engagement des dirigeants africains à promouvoir individuellement et collectivement le développement durable dans leur pays respectif et en Afrique. Le NEPAD a été l'occasion pour les chefs d'Etat et de gouvernement de rappeler que la marginalisation des femmes était encore réelle en dépit des progrès de ces dernières années ; de considérer l'égalité entre hommes et femmes et l'habilitation de ces dernières comme des facteurs essentiels de l'éradication de la pauvreté et du développement durable. Cette préoccupation est explicitement prise en compte au niveau de l'objectif de réduction de la pauvreté du NEPAD où il est stipulé que les problèmes spécifiques des femmes pauvres doivent être pris en compte dans les mesures anti-pauvreté<sup>1</sup>.

A cela il faut ajouter la volonté et la détermination communes des représentants des peuples du monde « d'édifier une société à dimension humaine, inclusive et privilégiant le développement, une société de l'information, dans laquelle chacun ait la possibilité de créer, d'obtenir, d'utiliser, de partager l'information et le savoir et dans laquelle les individus, les communautés et les peuples puissent ainsi réaliser l'intégralité de leur potentiel dans la promotion de leur développement durable et l'amélioration de leur qualité de vie »<sup>2</sup>. Dès lors, l'enjeu pour chacun de nos pays est de tirer parti du potentiel des technologies de l'information et de la communication (TIC) pour promouvoir les objectifs de développement énoncés dans la Déclaration du Millénaire et parvenir à un développement propice à l'instauration d'un monde plus pacifique, plus juste et plus prospère.

En somme, les contextes mondial et régional offrent au Sénégal de réelles opportunités pour l'opérationnalisation de la présente Stratégie. L'engagement de la communauté internationale en faveur de la réduction de la pauvreté, de l'égalité des sexes et de la mobilisation du potentiel des technologies de l'information et de la communication au profit de l'Afrique constitue, sans aucun doute, un atout essentiel à la mobilisation des moyens financiers, humains et techniques nécessaires pour réussir le pari de la croissance et du développement durable, indispensables à l'entrée du Sénégal dans le cercle des pays émergents.

## **1.2. CONTEXTE NATIONAL ET EGALITE DE GENRE**

### **Sur le plan géographique et démographique**

Le Sénégal est un pays de l'Afrique de l'Ouest, situé dans la zone soudano-sahélienne. Il s'étend sur une superficie de 196.722 km<sup>2</sup>. Avec un relief généralement plat, le Sénégal est limité au Nord et au Nord-Est par la Mauritanie, au Sud-Est par le Mali, il dispose d'une façade maritime de près de 700 km entièrement ouverte sur l'océan atlantique. Trois fleuves parcourent le pays : le fleuve Sénégal (long de 1700 km), le fleuve Gambie (750 km) et le fleuve Casamance (300 km). Le pays connaît une saison sèche qui va du mois de novembre à juin et une saison des pluies, qui couvre la période de juillet à octobre.

Le Sénégal compte onze régions administratives subdivisées en 34 départements, 65 Communes, 94 arrondissements, 320 Communautés rurales et près de 14.000 villages (DPS/MEF, 1996).

La population du Sénégal est estimée à 10.127.809 habitants selon les résultats préliminaires du 3<sup>ème</sup> Recensement Général de la Population et de l'Habitat, réalisé en 2003. Cette population, à l'instar de celle des pays d'Afrique au Sud du Sahara, est caractérisée par sa croissance malgré la baisse constatée du taux d'accroissement moyen annuel de la population qui est passé de 2,7% en 1996-1998 à 2,4% au cours de la période 1988-2002.

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<sup>1</sup> Extrait de la « Déclaration sur la démocratie, la bonne gouvernance politique, économique et d'entreprise » du NEPAD.

<sup>2</sup> Déclaration du Sommet mondial sur la société de l'information, Genève du 10 au 12 décembre 2003.

Cette amélioration est attribuée à la baisse de la fécondité due en grande partie au relèvement de l'âge au premier mariage combinée à une légère augmentation de la prévalence contraceptive.

Ainsi, malgré l'amorce du processus de transition démographique, la croissance de la population se traduit par une densification de plus en plus importante de l'occupation humaine du territoire national ; au niveau national la densité de population en 2003 (51 habitants au km<sup>2</sup>) est 1,5 fois plus importante que celle de 1988 (35 habitants au km<sup>2</sup>).

Ces résultats révèlent également un déséquilibre au niveau de la répartition spatiale de cette population. La population sénégalaise reste concentrée sur la partie ouest du pays et dans la capitale en particulier. La région de Dakar qui occupe 0,3% du territoire national, abrite 22% de la population totale du pays ; c'est la région la plus densément peuplée (4147 habitants au km<sup>2</sup>). A l'opposé de Dakar, c'est la région de Tambacounda qui détient la plus faible densité avec 11 habitants au km<sup>2</sup>.

La population du Sénégal est à dominante rurale (59%) et présente une structure démographique jeune (50% de la population a moins de 16 ans). Les femmes sont légèrement plus nombreuses que les hommes. Elles représentent 52% de la population. Le dernier recensement dénombre 4.886.485 hommes pour 5.069.717 femmes, ce qui donne un rapport de masculinité de 96 hommes pour 100 femmes.

Ce profil démographique illustre à la fois l'importance numérique des femmes, leur jeunesse (58% de la population féminine a moins de 20 ans) ainsi qu'une facette de leur responsabilité sociale. Il traduit bien le poids potentiel des femmes en tant que ressources humaines dans les réalités courantes et dans les perspectives de leurs communautés. Ce potentiel ne saurait toutefois être activé et devenir partie prenante décisive dans les choix des communautés, que si les femmes, au même titre que les hommes, ont la possibilité de développer pleinement toutes leurs capacités, d'influencer les processus et d'y intégrer leurs préoccupations et expériences. Elles ont besoin de voir se réaliser leurs besoins pratiques et pouvoir concrétiser leurs préoccupations d'ordre stratégique.

Le contexte d'ensemble est pour l'heure encore loin de permettre la satisfaction des besoins pratiques et la réalisation des intérêts stratégiques. La précarité des conditions de vie, les discriminations dans l'accès et dans le contrôle des ressources, entre autres, marquent les réalités dans les zones urbaines et rurales et affectent particulièrement les femmes.

**Sur le plan politique**, le Sénégal est une République laïque, organisée selon un régime présidentiel. Le Président de la République, élu au suffrage universel direct, définit la politique de la Nation. Le Gouvernement, avec à sa tête un Premier Ministre, est chargé de son exécution. Le pouvoir législatif est assuré par une Assemblée Nationale, également élue au suffrage universel direct. Le pouvoir judiciaire est exercé par les différents ordres de juridiction : le Conseil Constitutionnel, la Cour de Cassation, le Conseil d'Etat, la Cour des Comptes et les Cours et Tribunaux.

Des institutions consultatives et de médiation ont également été créées afin de consolider l'Etat de droit. Il s'agit notamment de la Médiature, du Conseil de la République pour les Affaires Economiques et Sociales (CRAES) et du Haut Conseil de l'Audiovisuel.

Le Sénégal a opté pour le multipartisme intégral depuis 1981. Actuellement, un peu plus de soixante partis politiques sont reconnus. La presse privée y connaît un fort développement de même que le mouvement associatif et la société civile.

Le paysage politique sénégalais a été fortement marqué par des changements intervenus au niveau politique, notamment l'alternance survenue en mars 2000 suite à des élections présidentielles transparentes. Le changement de pouvoir politique par la voie des urnes ainsi enclenché constitue un acquis majeur qui balise désormais la voie pour un renforcement de l'exercice des libertés et droits fondamentaux par le peuple sénégalais souverain en ce nouveau millénaire.

Parmi les faits saillants politiques on peut citer :

- l'adoption par référendum de la Constitution de 2001 qui proclame dans son préambule « l'accès de tous les citoyens, sans discrimination à l'exercice du pouvoir à tous les niveaux, l'égal accès de tous les citoyens aux services publics, le rejet et l'élimination sous toutes les formes de l'injustice, des inégalités et des discriminations ».
- la nomination en 2001, pour la première fois dans l'histoire politique du Sénégal, d'une femme, membre de la société civile, comme chef de Gouvernement.

Un autre fait important est la consolidation de la politique de décentralisation menée par le Sénégal depuis l'entrée en vigueur des lois 96-06 et 96-07 du 22 mars 1996 portant respectivement Code des collectivités locales et transfert des compétences à celles-ci. Cette étape décisive de la réforme territoriale a permis la déconcentration du pouvoir du niveau central aux collectivités locales. C'est ainsi que les domaines de population, environnement, santé, éducation, jeunesse, culture, sport, planification, aménagement du territoire, urbanisme et habitat sont devenus des compétences transférées aux collectivités locales, même si la mise en application de cette disposition est encore balbutiante. A noter qu'actuellement, la concrétisation de cette option politique est confiée à une femme, Ministre d'Etat, chargée des Collectivités locales et de la Décentralisation.

L'avènement de l'alternance politique au Sénégal consacre ainsi la consolidation de la démocratie et l'instauration d'une réelle dynamique en faveur de la promotion de la bonne gouvernance et du renforcement de l'égalité de droit et de chances des hommes et des femmes.

**Sur le plan économique**, le Sénégal a enregistré globalement de bonnes performances macroéconomiques au cours des dix dernières années. Avec un taux de 6,3% en 2003, la croissance retrouve la tendance observée sur la période. Le PIB par tête d'habitant est passé de 348.798 F.CFA en 2002 à 367.622 F.CFA en 2003. L'inflation est ramenée de 3% en 2001 à 2,3% en 2002. Les recettes fiscales se sont élevées à 627,3 milliards de F.CFA en 2002 contre 576,8 milliards de F.CFA en 2001. En 2002, le déficit budgétaire a été ramené à 1,6% du PIB du fait de la progression des recettes fiscales (9,8%) et de la baisse des dépenses de 1,9%. Le service de la dette extérieure publique s'élève à 116,4 milliards F.CFA en 2002 contre 87,9 milliards F.CFA en 2001.

Malgré ces performances économiques, le Sénégal est classé 157<sup>ème</sup> sur 177 pays selon le rapport mondial sur le développement humain publié par le PNUD en 2004. Cet état de fait montre que la satisfaction des besoins essentiels des populations reste encore très faible et que la pauvreté persiste. En effet, selon la deuxième Enquête Sénégalaise Auprès des Ménages (ESAM-II, 2001/2002), bien que l'incidence de la pauvreté ait sensiblement baissé de 67,9% en 1994 à 57,1% en 2001, 54 % de la population vit en dessous du seuil de pauvreté.

Face à la persistance de la pauvreté malgré les progrès économiques réalisés, le Gouvernement a élaboré en 2000, avec la participation des différents acteurs de la vie économique et sociale, un Document de Stratégie de Réduction de la Pauvreté (DSRP) pour la période 2003-2005.

Le DSRP a pour ambition de concilier les nécessités de réformes structurelles et de redressement de l'économie aux objectifs d'accroissement des revenus des populations les plus démunies. Il constitue aujourd'hui le principal cadre de mise en cohérence de l'ensemble des stratégies et politiques sectorielles et, à ce titre, le cadre de référence et de partenariat avec tous les acteurs et

actrices du développement. Il s'articule essentiellement autour de quatre (4) axes stratégiques : (i) la promotion des opportunités de création de richesses ; (ii) le renforcement des capacités des populations pauvres et la promotion des services sociaux de base ; (iii) l'amélioration des conditions de vie des groupes vulnérables et (iv) une approche participative de mise en œuvre et de suivi-évaluation basée sur la décentralisation du pilotage et de l'exécution.

Les efforts consentis pour assainir les finances publiques ont permis au Sénégal d'atteindre en avril 2004 le point d'achèvement, dans le cadre de l'initiative en faveur des Pays Pauvres Très Endettés (PPTE). Il a ainsi bénéficié d'un allègement de la dette extérieure de l'ordre de 470 milliards de F.CFA qui seront consacrés aux investissements en faveur de l'élargissement de l'accès des populations aux services de base.

Toutefois, l'intégration du genre dans le DSRP est encore insuffisante. En effet, les femmes, perçues comme une cible vulnérable, sont certes prises en compte au niveau de l'axe stratégique relatif à l'amélioration des conditions de vie des groupes vulnérables et au niveau des secteurs de l'éducation et de la santé. Cependant, dans les secteurs économiques, les rôles et potentialités différenciés des femmes et des hommes ne sont pas explicitement analysés et en conséquence ne bénéficient pas de mesures spécifiques dans les programmes d'actions prioritaires.

Dans ce contexte, la SNEEG trouve ici toute sa pertinence. Comme cadre de référence, *elle constitue un repère* pour les différents secteurs de développement qui disposent, dès lors, des justifications et orientations pour *faire le lien avec leurs propres cadres de référence* et assurer de manière objective une meilleure prise en compte des besoins différenciés des femmes et des hommes, non seulement par les programmes qui seront initiés au niveau de chacun des axes stratégiques du DSRP, mais également dans les politiques et stratégies d'intervention sectorielles.

### **L'analyse selon le genre**

est un instrument à l'aide duquel il est possible de mieux comprendre **les différences entre les deux sexes** relatives aux conditions de vie, aux besoins, à la participation, à l'accès aux ressources et à leur possession, à l'accès et à la participation au développement ainsi qu'à la prise de décision et aux différents rôles attribués aux femmes et aux hommes.

Elle permet de relever les **causes profondes de l'inégalité structurelle** entre les genres.



## CHAPITRE 2. ANALYSE DE LA SITUATION ACTUELLE DE L'ÉQUITÉ ET DE L'ÉGALITÉ DE GENRE AU SENEGAL

### 2.1. GENRE, CONTEXTE CULTUREL ET SOCIAL

#### 2.1.1. Caractéristiques de l'équité et de l'égalité de genre

L'analyse de la situation de l'équité et de l'égalité de genre dans le domaine social et culturel, pose globalement la question des relations sociales entre les hommes et les femmes. Dès la naissance, l'homme et la femme agissent en conformité avec les structures, systèmes et normes socialement établis. Ils adoptent les rôles et comportements sociaux que la société détermine et attend d'eux en tant qu'acteur social masculin ou féminin.

L'analyse appropriée de la situation de l'équité et de l'égalité de genre sur le plan social et culturel implique fondamentalement l'analyse des réalités dans lesquelles vivent les hommes et les femmes.

#### *Situation au niveau familial*

La société sénégalaise est composée de différentes ethnies (Wolof, Pulaar, Sereer, Diola, Mandingue, etc.) qui, en dehors de quelques exceptions, se caractérisent traditionnellement par une forte hiérarchie sociale.

Les valeurs socialement acquises sont véhiculées en leur sein à travers une socialisation dont les contenus et canaux d'inculcation (rites et cérémonies, interdits, pratiques comportementales, contes, adages et proverbes, etc.) se transmettent entre les générations. La famille est pour ces ethnies, l'institution de base à partir de laquelle s'organise principalement la vie sociale et culturelle. Malgré la diversité de leurs croyances et pratiques, les ethnies partagent la spécificité de la différenciation des rôles masculin et féminin et de la sanction inégale des statuts conférés aux hommes et aux femmes.

Les différentes cultures confèrent à l'homme et à la femme un traitement différent et une considération sociale inégale. Globalement, ces ethnies édifient les relations familiales entre les hommes et les femmes, à partir d'une inégalité fondamentale entre l'homme chef de famille et la femme mère et épouse. Ces statuts de base fondent les relations de pouvoir et d'autorité au sein de la famille, entre conjoints, parents et enfants, aînés et cadets.

Dans ces systèmes sociaux dotés surtout d'une organisation de type patriarcal, la vie des ménages s'érige selon une culture valorisée de subordination des femmes et de domination de l'homme. Traditionnellement, l'homme qui incarne l'autorité au sein du ménage instaure le climat d'ensemble et les règles, assure le contrôle et la gestion des biens familiaux, prend les décisions capitales et fournit les moyens de subsistance aux membres du ménage.

La femme, mère et épouse, a la charge sociale du fonctionnement de la vie domestique, elle réalise les travaux ménagers, prend soin des enfants et supporte la reproduction sociale de la main d'œuvre (agricole, salariée, etc.). Elle soutient l'homme dans sa charge sociale à la tête de la famille. Elle prend en charge tout ce qui concourt à organiser les conditions favorables à l'accomplissement du rôle de l'homme et en cas d'incapacité (absence ou de maladie), elle se substitue à l'homme dans la réalisation pratique de ses charges familiales.

La différenciation des rôles sociaux des hommes et des femmes et la vision de l'inégalité sociale entre ces catégories structurent leurs relations à tous les niveaux et dans tous les processus de la vie communautaire et sociale. Pour les communautés, la famille étant le fondement de la vie sociale, la maternité est au centre de la vie familiale et communautaire. La fécondité est valorisée par les

cultures ; la femme est sensée « donner des enfants au mari », à défaut, elle subit le rejet social. Le culte d'une fécondité élevée justifie la précocité du mariage et la prédominance de la polygamie.

Le rôle d'autorité de l'homme et la position de subordination de la femme sont traduits à travers les différentes institutions. Dans le mariage, acte social fondamental, l'homme détient le privilège du rôle actif, il exerce un contrôle sur la fécondité du couple. Dans les processus éducationnels familiaux et communautaires, il jouit d'un traitement spécial avec une plus grande permissivité et responsabilisation ; contrairement aux femmes qui sont limitées et contrôlées dans leurs ouverture et initiative. La femme lui doit respect et obéissance, voire pour certaines cultures (mandingues) un témoignage quotidien de gratitude. La violence alors inscrite dans cette relation comme sanction de toute désobéissance est une pratique courante que l'homme utilise, sous couvert du voile de la « sutura » ou de la discrétion imposé par l'ordre social, pour imposer à la femme le respect et la soumission.

Les rôles et statuts masculin et féminin, à travers la division sexuelle du travail, déterminent la répartition des tâches entre les hommes et les femmes. Inscrite dans le cadre des activités de production, de reproduction et au niveau communautaire, cette différenciation permet d'assigner aux hommes les travaux structurants et aux femmes les activités de maintien et de soins. Les hommes effectuent dans l'agriculture, la pêche, etc. les travaux lourds et assument des rôles de gestion dans les affaires publiques. Les femmes s'occupent des travaux les plus prenants et fastidieux, nécessitant attention et soins méticuleux. Elles organisent les activités communautaires (cérémonies familiales par exemple) qui incluent généralement des moments d'initiation ou de préparation de la jeune fille à son rôle d'épouse et de mère.

Dans le cadre de l'exécution de ces rôles et responsabilités, les hommes et les femmes ont des besoins et des moyens différents mais aussi des aspirations différentes quant à la satisfaction de leurs intérêts stratégiques. C'est seulement en fonction des rôles qui leur sont assignés qu'ils utilisent et contrôlent les ressources de base, accèdent aux bénéfices et services sociaux tels que l'éducation, la formation, la santé, etc. Ce sont les hommes qui décident de la répartition du patrimoine foncier familial et en planifient l'utilisation.

Les rôles sociaux sont traduits à travers des stéréotypes qui en font les portraits imagés facilement intériorisés comme étant dévolus aux hommes et aux femmes en fonction de capacités féminines/masculines « normales » et « naturelles ». Ces stéréotypes renvoient, selon les contextes, à une image dévalorisante de la femme et, dans certains cas, à une image d'acceptation ou de rattrapage social venant moduler la première. Les stéréotypes, richesse culturelle fièrement affichée, sont souvent confondus à dessein ou inconsciemment avec les sources religieuses. Ils gardent une force et un poids moral et psychologique à travers les générations.

Globalement, l'inégalité sociale dans les rôles des hommes et des femmes implique des disparités au niveau social. Les hommes et les femmes n'ont pas les mêmes possibilités. La société, en les préparant différemment leur a donné des capacités différentes et de plus, en conférant aux hommes un pouvoir et une autorité structurants, a généré une certaine masculinité qui oriente les dimensions de la vie sociale et culturelle. Elle a également certes conçu des leviers de rééquilibrage, mais ceux-là restent secondaires et positionnés en tant que palliatifs à des situations d'exception.

### ***Situation au niveau de l'éducation***

Composante essentielle du développement humain, l'éducation améliore la productivité du travail et constitue un levier pour le progrès sanitaire, socio-économique et démocratique. Elle est ainsi considérée comme un instrument pour la réduction de la pauvreté. Ce rôle incontournable de l'éducation dans la promotion du développement durable se trouve reflété au plan national dans le

DSRP, au niveau régional dans le NEPAD et sur le plan international dans les programmes d'action de la CIPD et de Beijing et plus récemment dans les OMD.

Un consensus s'est également dégagé dans tous ces documents de référence pour faire du renforcement des capacités des femmes un objectif majeur afin de promouvoir un développement durable et assurer à l'économie une croissance soutenue. C'est ainsi que la Déclaration Mondiale sur l'Education Pour Tous accorde la priorité absolue à l'éducation des filles, tant en milieu rural qu'en milieu urbain, du fait des rôles futurs qu'elles devront assumer en tant que mères, épouses, agents économiques et citoyennes.

C'est pourquoi, dès les premiers plans quinquennaux, l'éducation a été considérée comme un secteur prioritaire au Sénégal. Cette attention particulière est traduite dans le budget national, qui lui a consacré 40% de ses ressources en 2004.

Pour garantir le droit des populations à l'éducation, le Sénégal s'est doté, dans le cadre de l'Initiative des Nations Unies en faveur de l'Afrique, d'un Programme Décennal de l'Education et de la Formation (PDEF) (1998-2008).

Le PDEF cible les couches de la population les plus démunies et les plus touchées par le non accès à l'enseignement scolaire et l'analphabétisme. La matérialisation de ses objectifs majeurs (scolarisation de tous les enfants en âge d'aller à l'école à l'horizon 2010 et amélioration des performances du système éducatif) accorde la priorité à l'enseignement élémentaire comme pivot et levier pour atteindre l'objectif visé de scolarisation universelle.

Selon une approche tridimensionnelle basée sur l'accès, la qualité et la gestion, le PDEF cherche à promouvoir l'adéquation des programmes d'enseignement aux valeurs de la société sénégalaise et la participation de ces programmes à la résolution des problèmes de développement. Les axes d'opérationnalisation de cette option visent la démocratisation de l'éducation préscolaire, l'accès et la rétention des filles à tous les niveaux d'enseignement, l'amélioration de la qualité de l'enseignement et de la recherche universitaire.

Différents programmes et projets notamment le projet de renforcement du PDRH, le projet de construction de lycées au niveau de l'enseignement moyen et secondaire général, le projet d'amélioration de l'enseignement supérieur (PAES) et le projet de développement de l'Université Gaston Berger ont contribué à améliorer le secteur de l'éducation et à relever le taux brut de scolarisation.

Cependant, l'offre d'éducation reste caractérisée par un faible accès des filles à l'instruction mais aussi par une forte disparité selon le milieu ; garçons et filles, vivant en milieu rural, ont beaucoup moins de chances d'accéder au système éducatif et d'y réussir que garçons et filles vivant en milieu urbain.

L'élaboration de la présente Stratégie est l'occasion de donner l'état de la situation actuelle des filles et des femmes à travers les différents niveaux des systèmes d'éducation et de formation.

Au niveau du préscolaire, le taux national de scolarisation est seulement de 3%. L'offre d'éducation à ce niveau est très faible, concentré principalement dans les régions de Dakar, Thiès et Ziguinchor. En 2003, ce niveau a connu une croissance de 34% principalement dans les régions de Diourbel, Saint-Louis, Louga, Kaolack suite à la politique de promotion de la Case des Tout Petits. Le préscolaire est le seul niveau du système éducatif où le nombre de filles est légèrement supérieur à celui des effectifs masculins. Le taux de présence des filles a d'ailleurs régulièrement progressé et se situait à 52,7% en 2001-2002 avec un indice de parité de 1,11 en faveur des filles (DPS, décembre 2004). Ce résultat est dû à l'augmentation de l'offre qui est passée de 212 à 667 écoles

publiques et privées en 2001/2002 auxquelles sont venus s'ajouter le programme des garderies communautaires et de la Case des Tout Petits.

Au niveau de l'enseignement élémentaire, l'indice de parité, en dépit de l'instabilité qui le caractérise (0,79 en 1998-1999 ; 0,90 en 2000-2001 ; 0,89 en 2002), a connu des progrès. Le taux brut de scolarisation (TBS) y est passé de 59,7% en 1996/97 à 71,6% en 2001/2002. Durant la même période, le TBS des filles est passé de 53% à 67,6%.

En 2002-2003, le taux de scolarisation dans l'élémentaire a encore progressé avec un TBS global de 75,8% et une représentativité des filles de 72,3% contre 79,3% pour les garçons. A coté des disparités entre filles et garçons ainsi observées, le niveau élémentaire est marqué par des disparités entre les régions. Dakar avec un taux de 85,5% et Ziguinchor où plus de 9 enfants sur 10 sont scolarisés, sont avantagées par rapport aux autres régions et surtout à celle de Diourbel où moins d'un enfant sur deux est scolarisé.

La scolarisation des filles a connu des succès encourageants depuis 1996. Ces progrès ont été favorisés par les actions conjuguées de l'Etat, des partenaires au développement, des ONG et associations en termes d'augmentation de l'offre (3051 écoles en 1995-1996 à 5405 en 2001-2002) et de sensibilisation pour la scolarisation des filles.

Par ailleurs, le rôle joué par les CEDEP/SCOFI installés dans tous les départements, avec le soutien des IDEN et de l'UNICEF a été déterminant grâce aux campagnes de sensibilisation annuelles pour la scolarisation des filles. A l'origine, appuyés par le PDRH, ces comités SCOFI ont été renforcés et pérennisés pour poursuivre les actions développées et maintenir, voire consolider les acquis. Deux cellules genre ont été mises en place au Ministère de l'Education Nationale et à l'INEADE pour assurer une réelle prise en compte des questions de genre dans le système éducatif.

Toutefois, les résultats enregistrés sont encore loin de l'objectif de scolarisation de 100% attendu en 2010 et de celui de la parité filles/garçons qui devait être réalisée pour 2005 selon les OMD. En effet l'enseignement élémentaire est encore confronté à certaines contraintes caractérisé par un taux élevé de déperditions scolaires dû à l'inaccessibilité et à l'inadaptation des infrastructures, aux redoublements et aux exclusions, aux mariages et grossesses précoces ainsi qu'aux effectifs pléthoriques.

Les taux d'abandon restent élevés au CM1 (11% en 2001 et 23,72% en 2002) et au CM2 (10,5% en 2001 et 23,5% en 2002) avec très souvent des taux d'abandon et de redoublement supérieurs chez les filles. Selon les résultats de l'ESAM II, près d'un enfant âgé de 7 à 14 ans sur dix a déjà abandonné l'école. Les abandons scolaires sont plus élevés chez les filles. Le motif le plus souvent évoqué est lié au travail des enfants ; les statistiques indiquent que « plus d'un enfant âgé de 7 à 14 ans sur quatre abandonne le système scolaire du fait de son insertion professionnelle précoce dans le marché du travail surtout en milieu urbain (27%) et à Dakar en particulier (29%) ». Les causes qui touchent particulièrement les filles réfèrent aux mariages et aux grossesses précoces qui privent 9% des enfants âgés de 7 à 14 ans d'opportunités de poursuivre leurs études ; ce ratio atteint 13% en milieu rural, plus attaché aux valeurs d'une société traditionnelle favorisant le mariage précoce. Un autre facteur non moins important est celui de la pauvreté qui est à la base de l'abandon de près de 6% des enfants, du fait du faible pouvoir d'achat de leurs parents.

Au niveau de l'enseignement moyen et secondaire, le TBS des filles pour l'enseignement moyen est passé de 15,4% (1997/1998) à 19,3% (2001/2002) contre 26,2% à 29,8% pour les garçons. En 2002-2003, l'effectif des filles est passé de 41% en 2001-2002 à 41,4%. Concernant l'enseignement secondaire, le TBS est passé dans la même période de 5,90% à 6,60% pour les filles contre 12,4% à 13% pour les garçons (Source DEPREE). Au total, le TBS a connu un Taux d'Accroissement

Moyen Annuel (TAMA) de 1,91%. La progression du TBS des filles a été légèrement plus rapide que celui des garçons.

Ces résultats ont bénéficié, de 1997 à 2001, de l'augmentation de la capacité d'accueil au niveau du moyen secondaire grâce à la construction de 13 lycées et de 71 collèges d'enseignement moyen (CEM), ce qui a permis de toucher tous les chefs-lieux d'arrondissement. Le redéploiement du personnel attendu n'a pas été fait, mais le déficit a été compensé par le recrutement de 2000 vacataires.

Malgré cette amélioration au niveau de l'accès, la représentation des filles est encore faible. On constate à ce niveau un fort taux d'abandon de celles-ci, lié en partie à l'éloignement des écoles, aux mariages et grossesses précoces, au coût élevé du matériel didactique, à l'insuffisance des infrastructures et des équipements, au manque de formation des enseignants en genre et à la paupérisation grandissante des familles qui poussent les filles de plus en plus tôt dans la sphère productive.

Au niveau de la formation professionnelle, l'effectif des filles est passé de 1380 sur un effectif de 4058 élèves en 96/97, soit un taux de 43,10% à 1749 filles sur 3897 en 2001/2002, soit un taux de 44,88%.

Les progrès notés peuvent être attribués à l'accroissement de l'offre à travers la réalisation, comme prévue, de deux (2) nouveaux lycées dans les régions de Tambacounda, Ziguinchor, et la réhabilitation, au niveau régional, de tous les Centres Régionaux d'Enseignement Technique Féminin (CRETf) ainsi que la construction de nouveaux locaux pour l'Ecole Nationale de Formation en Economie Familiale et Sociale (ENFEFS) à Dakar. Quatre Centres d'Enseignement Technique Féminin (CETF), à Louga, Bambey, Pikine et Fatick ont été également réhabilités et équipés en partie et deux centres ont été construits à Diourbel et Tamba.

A noter que dans ces centres, de nouvelles filières ont été ouvertes en agroalimentaire, agriculture, élevage et coiffure. A cela, s'ajoutent les activités de sensibilisation et d'information menées, entre autres, par ASELFAE et FAWE pour inciter les filles à intégrer également les filières techniques et scientifiques.

Au niveau de l'enseignement supérieur, les femmes, tant au niveau des étudiantes que du personnel enseignant sont faiblement représentées. L'effectif des étudiantes à l'UCAD est passé de 5784 en 1996/1997 à 7378 en 2000/2001. Elles sont plus nombreuses dans les facultés de Médecine (34%), de Sciences Juridiques et Politiques (32%) et en faculté des Lettres (30%). Par contre, en faculté des Sciences, elles ne sont que 14%. La faible représentation des filles est liée à de réels problèmes de prise en charge pour mener à bien leurs études.

La représentation féminine au sein des instances de décision de l'Université est également insignifiante. Dans le corps enseignant, les femmes sont passées de 125 sur 952 soit 13% en 1996/1997 à 144 sur 971 soit 14,8% en 2000/2001. Le plan de carrière des femmes enseignantes du supérieur est lent en raison des nombreuses contraintes inhérentes à leur statut et à leur rôle de mère et d'épouse.

Au vu de ces chiffres, il apparaît que la situation d'ensemble du système éducatif formel est encore loin d'être performante. Les lenteurs de la décentralisation effective des interventions du secteur, la faiblesse des ressources financières, le manque d'établissements à cycle complet dans les zones périphériques, l'inadéquation entre l'offre et la demande, l'insuffisance ainsi qu'une répartition déséquilibrée des infrastructures scolaires, le déficit d'enseignants et la faible disponibilité des statistiques pour la planification constituent autant d'entraves à l'efficacité du système éducatif.

### ***Situation au niveau de l'alphabétisation***

Suite aux efforts déployés ces dernières années, l'analphabétisme a régressé au Sénégal dans la période 1994-2001, (cf. ESAM-I / 1994-1995) et ESAM-II / 2001-2002). Dès 1991, il a été créé un ministère délégué chargé de l'alphabétisation et de la promotion des langues nationales qui deviendra, en 1995, un ministère délégué chargé de l'éducation de base et des langues nationales. L'effort d'alphabétisation a été réalisé dans le cadre de différents programmes parmi lesquels le programme d'alphabétisation intensive du Sénégal (PAIS), le projet d'alphabétisation des Elus locaux et Notables (PADEN), et le projet d'alphabétisation des femmes (ALPHA FEMMES).

A côté de cela, des campagnes annuelles d'alphabétisation ciblant les jeunes de 9 à 14 ans dans les écoles communautaires de base et des groupes de 15 à 55 ans à travers les classes d'alphabétisation ont été menées en partenariat par plusieurs acteurs que sont l'Etat, les organisations non gouvernementales et les sociétés de développement. Les femmes ont constitué 83 % des apprenants dans les différentes langues : Wolof (48 %), Pulaar (30 %) et Sereer (11 %)).

Toutes ces actions ont permis de réduire le taux d'analphabétisme des femmes qui est passé de 78% en 1995 à 72% en 2001.

Toutefois, en dépit des efforts importants ainsi réalisés, seules 37,8% des adultes (âgés de 15 ans et plus) ont la capacité de lire et d'écrire dans une langue quelconque. Les femmes alphabètes constituent 28,2% et les hommes 49,1%. Même si une attention particulière est accordée aux zones rurales où sont implantées 95% des écoles communautaires de base, la population rurale sénégalaise reste à majorité analphabète. Seuls 23,3% des adultes sont alphabétisés en milieu rural contre 55,5% en milieu urbain

En conclusion, le grave problème du faible accès et des faibles performances des filles dans le système éducatif formel ne saurait être dissocié de celui de l'éducation en général. Considérée comme un levier pour la réduction de la pauvreté et le développement durable de façon générale, l'éducation demeure un des secteurs sociaux de base requérant des investissements importants pour l'atteinte du PDEF et des Objectifs du Millénaire pour le Développement.

Au regard des statistiques relevées dans ce chapitre, la résorption des inégalités de la carte scolaire reste un des axes prioritaires d'intervention vers lesquels devrait s'orienter la politique éducative. Les populations rurales souvent démunies et les pauvres résidant en milieu urbain semblent avoir opté pour l'insertion professionnelle de leurs enfants dans le marché du travail alors que les non pauvres investissent dans l'enseignement privé pour assurer l'avenir de leurs enfants. Ces réponses divergentes apportées par les pauvres et non pauvres confrontés à la situation de crise participent du maintien, voire même du renforcement des inégalités.

La désagrégation des données dans le secteur de l'éducation est une autre préoccupation à prendre en compte à l'effet de l'étendre à tous les niveaux du système éducation notamment l'enseignement moyen et secondaire, l'enseignement technique et professionnel, l'éducation spécialisée et l'enseignement supérieur. La disponibilité de telles données est indispensable d'une part, à la formulation des indicateurs à tous les niveaux du système éducatif relatifs entre autres à la demande, à l'offre, à l'achèvement des cycles et à la qualité et, d'autre part, à la constitution d'un système d'information pertinent sur la situation des filles et des garçons dans le système éducatif. .

### ***Situation au niveau de la santé***

Le Plan National de Développement Sanitaire et Social (PNDS) et le Programme de Développement Intégré de la Santé (PDIS) traduisent la volonté du Gouvernement de rendre, dans un souci d'équité, les services socio sanitaires de base accessibles à toutes les composantes de la population, quels que soient leur pouvoir économique et leur zone de résidence. Les dépenses

publiques de santé sont passées de 5,75% en 1990 à 10% pour l'exercice 2005 du budget national. Toutefois, cette hausse est encore loin de la norme de 15% fixée par l'OMS.

Les actions déployées dans le cadre du PDIS (surveillance épidémiologique, lutte contre la maladie, amélioration de la couverture sanitaire en infrastructures, prise en charge des urgences médicales et chirurgicales, relèvement du plateau technique, etc.), ont abouti à une situation sanitaire globalement améliorée. Le taux de mortalité est passé de 18 pour mille en 1988 à 10,88 pour mille en 2002. L'espérance de vie est passée de 54 ans en 1999 à 56,37 ans en 2002.

La santé des femmes s'est également améliorée de manière générale. Le taux d'accès aux soins prénatals est assez élevé sur l'ensemble du pays. En effet, 87,5% des femmes ont reçu des soins pendant leur période de grossesse en 2001-2002. On note cependant une augmentation continue d'après les Enquêtes Démographiques et de Santé au Sénégal (EDS) : le taux s'élevait à 64% en 1986 (EDS I), à 74% en 1992-93 (EDS II) et à 82% en 1997 (EDS III). Ces résultats dénotent une meilleure prise en compte de la santé de la mère et de l'enfant au fil des années.

L'espérance de vie des femmes à la naissance est passée de 50 ans en 1995 à 53 ans en 1998 (contre 48 ans et 51 ans pour les hommes). L'Indice Synthétique de Fécondité des femmes âgées de 15-49 ans est passé de 6,6 enfants par femme en 1986 (EDS I) à 5,2 en 1999 (ESIS). Le taux de couverture des consultations prénatales est passé de 73% en 1997 à 81% en 2001 (cf. MICS II, 2000). Le taux d'accouchement assisté par du personnel qualifié (sage femme, infirmier(ère), médecin) a connu également une légère avancée par rapport à son niveau de 1997. Il est estimé à 49% (ESIS, 1999) contre 48% en 1997 (EDS III). Il en est de même pour la couverture vaccinale contre le tétanos qui a connu une évolution régulière depuis 1997 et se situe selon la MICS II à 74,7% en 1999 contre 52,7% en 1997. Le pourcentage d'adolescentes mères entre 15-19 ans a connu une légère baisse en passant de 20% en 1993 (EDS II) à 18% en 1997 (EDS III). L'information des femmes sur le SIDA est de plus en plus effective (73% des femmes âgées de 15 à 49 ans, ont entendu parler du VIH/SIDA et 56% connaissent au moins un moyen de prévention (MICS II).

Concernant la morbidité, le paludisme reste toujours la première cause avec un taux de prévalence de 46,4%. L'UNICEF estime qu'il affecte 50% des femmes enceintes et 70% des enfants de moins de cinq ans (cf. Rapport UNICEF, 2001).

Cette évolution positive des indicateurs de santé des femmes et de santé maternelle en particulier au niveau national cache de très fortes disparités régionales. Dans les régions périphériques comme celle de Kolda par exemple, la mortalité maternelle reste très élevée allant jusqu'à 1200 décès pour 100.000 naissances vivantes (cf. Rapport UNICEF, 2001).

En ce qui concerne la fréquence des consultations prénatales, des écarts importants sont également constatés entre localités urbaines et rurales et les zones périphériques comme celles de Tambacounda (68%), Louga (73%) et Kolda qui connaissent les plus faibles taux. Cette même constatation reste valable pour le taux d'accouchement assisté où les régions de Kolda (28,3%), Louga (32,4%) et Tambacounda (27,7%) enregistrent les taux les plus bas.

Toutefois, la situation sanitaire est lourde de prévalences alarmantes. La mortalité infantile et infanto juvénile est encore à un niveau très élevé (cf. Enquête par grappe à indicateurs multiples/MICS, 2000) : sur 1000 naissances vivantes, 143 meurent avant l'âge de cinq ans. Sur 100 000 femmes qui donnent naissance, 510 meurent (450 en zone urbaine et 950 en zone rurale). L'infection VIH/SIDA a progressé malgré la faible prévalence. Le niveau de prévalence au sein de la population générale adulte de 15 à 49 ans est estimé à 1,4 %.

La propagation de tels fléaux trouve un terrain favorable dans la précarité des conditions de vie. La pauvreté, la faiblesse des revenus, l'analphabétisme des mères, les mauvaises conditions d'hygiène, les contraintes d'accès à l'eau et surtout à l'eau potable qui entretiennent les maladies infectieuses et parasitaires de l'enfance, la diarrhée, le paludisme, etc.

Les autres facteurs qui affectent la santé des femmes sont principalement la fécondité élevée, le manque d'information et de maîtrise sur leur corps, un mauvais état nutritionnel des femmes enceintes (anémies nutritionnelles), l'âge précoce à la première grossesse (avant 19 ans), les pratiques traditionnelles telles que l'excision et les mutilations génitales des femmes qui se pratiquent encore malgré la loi de 1999 les pénalisant, la faiblesse du taux d'utilisation des contraceptifs.

L'objectif de réduire la mortalité maternelle en faisant passer le taux de mortalité à 127,5 décès pour 100000 naissances vivantes en 2015 tel que retenu par le PDIS et les OMD, se trouve confronter encore aujourd'hui à des contraintes de plusieurs ordres, à savoir :

- le manque de disponibilité d'un personnel spécialisé et d'accès à des Soins Obstétricaux et Néonataux d'Urgence (SONU) de qualité ;
- le faible recours des femmes aux CPN, dicté par de fortes pesanteurs socioculturelles (mariage précoce, valorisation sociale de la première naissance à domicile, offre de services par un prestataire homme (ICP) et donc un retard à décider d'aller consulter les services de santé. L'ESIS (1999) indique à titre d'exemple que 14% des mères n'ont consulté personne ;
- la couverture sanitaire imparfaite se traduisant par un retard à arriver à un établissement de santé de première référence.
- le manque de prise en charge sociale des grossesses non désirées ;
- le rayon d'action moyen d'un poste de santé qui est de 9,3 km pour l'ensemble du pays avec de grandes disparités régionales, passant de 1,5 km à Dakar à 15,5 km dans la région de Tambacounda.
- l'insuffisance de personnel qualifié (sage-femme, infirmier(ère), gynécologue) surtout en milieu rural avec une couverture actuelle de 1 SFE/3371 FAR, loin des normes de l'OMS qui fixent une couverture de 1 SFE/300 FAR. Cette réalité semble découler des incidences des politiques d'ajustement notamment sur le recrutement des SF et infirmier(ère)s dans les écoles de formation de base (ENDSS) ;
- le coût élevé des prestations de services.

### **2.1.2. Atouts et germes de changement au plan social et culturel**

La situation de l'équité et de l'égalité de genre au Sénégal s'inscrit dans un contexte social et culturel où d'importantes mutations s'incrémentent petit à petit dans le tissu complexe des valeurs traditionnelles encore vivaces. Ces mutations se situent tant sur le plan du rôle des femmes que de la reconnaissance sociale de ce rôle.

Il existe aussi aujourd'hui une réelle mobilisation et un engagement actif des femmes et de la société civile pour une meilleure conscience sociale de la place des femmes. En dépit du statut inférieur des femmes, il existe une plus grande acceptation des atouts des femmes et de la valeur de leur contribution égale à celui des hommes dans les domaines clés du développement économique et social. La régression des images négatives sur les femmes, le changement des mentalités et le recul pratique des stéréotypes sexistes sont autant de potentiels favorables à des possibilités de rééquilibrage social. Il est certain que l'engagement communautaire peut être décisif dans le changement des mentalités et des pratiques, particulièrement si les femmes elles mêmes prennent conscience de leur rôle d'actrices de développement et se positionnent selon un réel leadership.

Cependant, l'influence de la modernité et les effets de la mondialisation, porteurs de valeurs émergentes et de nouveaux rapports sociaux, doivent être pris en compte par la SNEEG pour éviter



d'aller en porte-à-faux des valeurs culturelles qui fondent la société sénégalaise et de créer, en conséquence, des réactions de résistance susceptibles de retarder la réalisation de l'égalité de genre au Sénégal.

Par ailleurs, la prise en compte de la situation des femmes comme stratégie de développement est aujourd'hui le fait d'efforts conjugués des différents acteurs de développement (Gouvernement, ONG, associations d'autopromotion, organismes de financement).

Au cours de la décennie des Nations Unies pour la femme (1975-1985), les actions en direction des femmes s'inscrivaient dans la perspective de l'Intégration des Femmes dans le Développement (IFD) avec des actions et projets spécifiquement féminins visant l'amélioration de la situation des femmes, la valorisation de leurs activités traditionnelles, l'appui au développement d'activités génératrices de revenus et l'allègement de travaux domestiques.

Au niveau des stratégies nationales, le deuxième Plan d'Action National de la Femme (1997-2001) a mis en avant l'hypothèse qu'en améliorant le statut des femmes, on renforce la valorisation effective de toutes les ressources humaines du pays. En même temps, il souligne que la mondialisation de l'économie et de la communication impose la nécessité d'une prise de conscience des évolutions en cours. Dans cette optique, il déplore les stéréotypes qui enferment les femmes dans des modèles désuets.

Actuellement, l'approche genre est clairement inscrite dans la DPP en tant qu'enjeu de développement. Parmi les stratégies retenues dans ce cadre, il convient de souligner certaines dont on peut attendre un impact réel en matière d'équité et d'égalité de genre. Il s'agit notamment :

- de l'instauration d'un système de discrimination positive à l'égard des groupes défavorisés ;
- de la révision des manuels scolaires et de la sensibilisation des enseignants et autres communicateurs en vue de bannir les stéréotypes sexistes ;
- du renforcement de la participation des femmes dans la résolution des conflits et dans l'identification et l'octroi des aides humanitaires, en particulier au niveau des foyers de tension ;
- du renforcement de l'adhésion des leaders d'opinion aux objectifs d'égalité entre les sexes ;
- de la prise en compte du rôle et du statut des femmes et des hommes dans la mise en œuvre de la politique de population ;
- de l'éducation de la petite fille et du petit garçon au sein de la famille en vue d'éliminer toutes les formes de constructions sociales favorisant les stéréotypes sexistes.

L'atout fondamental que constitue l'adoption du genre dans la DPP s'inscrit dans un contexte global où différents mécanismes et politiques offrent globalement un cadre institutionnel favorable aux questions de genre. Citons à cet effet, les orientations retenues par le X<sup>ème</sup> plan (2002-2007), le DSRP (2003-2005) et les différents programmes sectoriels en cours, qui concourent à favoriser l'accès des populations aux services sociaux et infrastructures à la base, aux activités génératrices de revenus et au renforcement de leurs capacités. Le défi est d'assurer que les besoins des filles et des femmes sont régulièrement pris en compte.

L'éducation, levier fondamental pour le changement social a permis bien des progrès dans la vie des femmes. La volonté politique et la mobilisation de la société civile ont permis le relèvement du taux de scolarisation des filles, une auto-assurance des filles dans la prise en charge de leurs trajectoires scolaires.

Les filles instruites s'imposent de plus en plus dans les prises de décision au niveau de la famille et du ménage, tout comme les femmes adultes, elles manifestent une conscience citoyenne de plus en plus fine. Elles revendiquent leur place dans les instances de décision, développent un sens plus élevé de la responsabilité face aux biens publics. Ce patriotisme et cette conscience citoyenne se traduisent par leur mobilisation en faveur de la SCOFI, la participation communautaire à la gestion

des écoles et surtout à travers la féminisation des programmes d'alphabétisation. Dans le même sens, les femmes alphabétisées sont plus visibles dans leurs actions.

La santé de la reproduction de la femme, malgré sa vulnérabilité structurelle connaît certains atouts avec notamment la régression des tabous liés à la maternité, la stigmatisation sociale des viols et violences faits aux femmes. De tels facteurs constituent des atouts favorables aux possibilités pour les femmes, de négociation de nouvelles relations de considération et de respect.

### 2.1.3. Leçons apprises

Les leçons tirées des stratégies nationales mises en œuvre sont riches d'enseignements qui se situent à plusieurs niveaux :

Au niveau familial et communautaire, les relations entre les hommes et les femmes ont évolué singulièrement sous la poussée de la précarité des ressources et des conditions défavorables à l'exercice des responsabilités familiales. A noter que ces contraintes économiques ont très peu d'effet sur les relations inégalitaires de pouvoir entre l'homme et la femme ; en tout état de cause, ils ne remettent aucunement en question le statut et l'autorité de l'homme au sein de la famille.

Les femmes étant au cœur des mécanismes et palliatifs familiaux et sociaux de réponse à la crise économique, développent parallèlement de nouvelles attitudes. La confiance en soi, l'esprit d'initiative, la volonté d'entreprendre, la croyance et l'espoir que l'effort soutenu est le seul gage de succès, etc., sont devenus des atouts particuliers aux femmes. Dans les domaines où elles s'activent le plus, leurs expériences sont de plus en plus des modèles de référence. En témoignant d'un leadership effectif en matière de créativité pour les stratégies populaires de survie, elles ont, de façon certes encore informelle, jeté les jalons d'un potentiel de repositionnement des rôles sociaux.

Les capacités que les femmes ont acquises à travers leur dynamisme sur le plan organisationnel et associatif ainsi que l'élargissement de leurs rôles économiques et sociaux ont une incidence certaine sur les relations entre les hommes et les femmes. Ces acquis impliquent assurément pour elles, des capacités de négociation plus grandes, qui poussent petit à petit à un changement des mentalités et par conséquent d'adoption de nouvelles valeurs culturelles.

Ce potentiel de changement interpelle les autorités et les autres acteurs de développement à s'engager dans des actions de motivation, de renforcement des mécanismes d'échanges et de solidarité susceptibles de secréter la confiance et le respect mutuel de la valeur de soi et de l'autre entre les hommes et les femmes. En créant ainsi les conditions de nouvelles pratiques relationnelles et d'adoption de réflexes d'égalité et d'équité de genre, les rapports de pouvoir et d'inégalité vont sans doute se modifier dans le temps.

#### Au niveau de l'éducation

L'éducation des femmes et des filles de la même manière que celle des hommes et des garçons est certainement une condition sine qua non d'un développement durable. Cette éducation aura peu d'impact dans le développement si elle reste sélective en laissant en rade une grande partie de la population soit du fait des disparités dans l'offre d'infrastructures viables, soit en raison de contenus inappropriés ou encore sous le prétexte de résistances culturelles du reste largement en désuétude. Seule l'existence d'une masse critique de filles et garçons instruits pourra engendrer de la part des hommes et des femmes l'ouverture et la conscience responsables et citoyennes d'une auto promotion sociale et culturelle ainsi que les bases d'une meilleure communication avec l'extérieur. Dans une telle perspective, toute stratégie dans le domaine de l'éducation devra sauvegarder l'esprit d'équité et d'égalité de genre. La discrimination positive en faveur des filles ne doit donc nullement être appliquée au détriment des garçons.

#### Au niveau de la santé

Les politiques les plus profitables sont celles qui répondent aux besoins pratiques des femmes et aussi des hommes dans l'accès à des soins de qualité dans un rayon géographique de proximité, intégrant la prise en compte de leur demande sur le plan psychologique et émotionnel. La baisse de la morbidité et de la mortalité maternelle dépend fortement du rapprochement des structures sanitaires, de l'accessibilité liée aux coûts des prestations et des médicaments. Elle recouvre

également une dimension humaine et sociale qui revêt toute son importance pour répondre à des enjeux tels que :

- la rapidité de la prise en charge parfois entravée par le contrôle de l'homme souvent seul à disposer des moyens et/ou à décider de la référence aux structures sanitaires ;
- le renforcement de la volonté politique au profit du changement de comportements ;
- le développement d'une conscience collective de refus des violences (excision, sévices corporels, etc.) à l'endroit des femmes et des enfants ;
- la construction de valeurs sociales et culturelles qui remet en question les comportements et pratiques à risques chez les hommes et chez les femmes, notamment en matière de sexualité ;
- l'allègement du poids physique et psychologique de la pauvreté des ménages sur la vie et les perspectives des femmes ;
- la prise en charge de la SR où le contrôle social intègre des principes et normes à l'avantage des besoins pratiques et des intérêts stratégiques des hommes et des femmes ;
- l'utilisation effective du référentiel culturel (religion, coutumes), fait de valeurs de chasteté, d'abstinence, d'hygiène et de pureté, comme source d'éducation et de protection des filles contre la montée des IST invalidantes et du VIH-SIDA.

#### **2.1.4. Contraintes persistantes**

Malgré les avancées constatées en faveur de l'équité et l'égalité entre les hommes et les femmes, il importe de relever que celles-ci demeurent très fragiles. Il reste encore beaucoup à faire pour les circonscrire de manière durable dans un contexte socioculturel favorable. Dans cette optique, les contraintes à lever sont les suivantes :

- l'insuffisante volonté politique pour une remise en cause effective des rapports inégalitaires entre l'homme et la femme ;
- l'inégalité dans la répartition des rôles et des responsabilités entre l'homme et la femme au sein de la famille et dans la communauté ;
- l'accès inégal dans tous les niveaux d'enseignement ;
- la déperdition scolaire des filles plus importante au fur et à mesure qu'elles avancent de niveau, surtout en milieu rural ;
- l'analphabétisme élevé chez les femmes ;
- l'insuffisante prise en compte des besoins différenciés des filles et des garçons à tous les niveaux du système éducatif ;
- les taux de mortalité maternelle et de fécondité élevés ;
- la vulnérabilité des femmes et des adolescentes aux IST/SIDA ;
- la faible prise en compte des besoins spécifiques en SR des femmes, des hommes et des jeunes dans les politiques et programmes de santé.

## 2.2. GENRE, ECONOMIE ET PAUVRETE

### 2.2.1. Caractéristiques de l'équité et de l'égalité de genre

#### *De la participation des femmes et des hommes dans les secteurs d'activités économiques*

La population potentiellement active, constituée par l'ensemble des individus en âge de travailler (personnes âgées de 10 ans ou plus), représente 64,2% de la population totale estimée à l'ESAM-II de 2001-2002. Parmi les 55,3% habituellement actifs de la population en âge de travailler, 56,4% sont occupés et 43,6% sont des chômeurs.

La population active se caractérise par sa jeunesse, une forte concentration en milieu urbain et une inégale répartition entre les hommes et les femmes.

Les résultats de l'enquête montrent que plus de deux tiers de la population habituellement active (67,9%) se trouvent en milieu rural contre 32,1% en milieu urbain (17,4 % à Dakar et 14,6% pour les autres villes).

Au niveau national, les statistiques indiquent aussi que la population féminine en âge de travailler (3 557 403) est environ plus de 1,13 fois supérieure en nombre à celle des hommes (3 136 857). Quel que soit le milieu de résidence, on observe que plus de la moitié des personnes en âge de travailler sont des femmes. Cette situation pourrait être induite par le caractère sélectif de la migration qui affecte plus les hommes que les femmes.

Cependant, le statut par rapport à l'emploi semble mettre en relief un effet discriminatoire selon le genre. En effet, tout comme au niveau national, les femmes, par opposition aux hommes, sont généralement les plus confinées aux différents statuts d'inactivité quel que soit le milieu de résidence. En d'autres termes, les hommes sont virtuellement plus actifs que les femmes ; par exemple parmi les 55,3% d'individus habituellement actifs, 55,6% sont des hommes ; tandis que pour les 37,2% d'inactifs, 66,8% sont des femmes. La même tendance se dégage selon le milieu de résidence, surtout en milieu urbain pour ce qui est du poids des hommes parmi les actifs et en milieu rural pour l'inactivité des femmes où près de sept individus inactifs sur dix (69,2%) est de sexe féminin.

L'enquête sur l'emploi, le chômage et les conditions d'activité dans l'agglomération de Dakar, réalisée par la Direction de la Prévision et de la Statistique (DPS) en 2002, indique que le taux d'activité dans la région de Dakar est de 51,1% et que le taux d'activité des femmes est inférieur à celui des hommes (41,1% contre 62,1%). Ces disparités sont plus marquées dans la tranche d'âge 30-49 ans, âges auxquels les femmes subissent le plus les contraintes liées à la maternité et à l'éducation des enfants, ce qui les pousse à restreindre leur présence sur le marché du travail au profit des tâches domestiques.

En outre, on observe qu'au niveau national, le taux d'activité qui permet de caractériser la participation à l'activité économique est passé de 58,6% à 59,8% (soit un gain de 1,2 points), au cours de la période 1994/1995 et 2001/2002. Cette situation est sans nul doute induite par la mise en œuvre de programmes de développement générateurs d'emplois autant dans le secteur formel que dans l'informel. Ainsi, on assiste de plus en plus à une insertion importante de la population habituellement active dans la sphère de production de biens et services, laquelle insertion semble contribuer à l'amélioration du niveau de vie des populations mis en évidence dans l'analyse du profil de pauvreté au Sénégal de 2002.

On remarquera cependant que le taux d'activité des femmes est sous estimé du fait de la non prise en compte par la comptabilité nationale de la contribution des femmes au foyer qui sont classées dans la catégorie des inactifs. Le tableau de bord de la situation sociale au Sénégal réalisé par la

Direction de la Prévision et de la Statistique, édition 2000, confirme cette assertion en révélant que les activités fournies par les femmes dans l'économie des soins et dans l'économie solidaire ne sont pas comptabilisées.

La distribution de l'emploi dans les différents secteurs d'activité économique indique qu'en zone rurale, les femmes sont engagées pour l'essentiel dans l'agriculture, l'élevage et l'environnement où elles effectuent près de 82,6% des travaux contre 79,4% pour les hommes. Elles travaillent davantage sur les terres familiales et dans des activités de subsistance. Ceci est lié au fait que dans le contexte social et culturel du Sénégal, les femmes ont un accès limité à la terre et à la propriété foncière. L'ESAM II révèle à ce titre que les ménages dont le chef est de sexe masculin possèdent relativement plus de biens fonciers que ceux dirigés par des femmes : 60,9% contre 31,1% pour les terres agricoles ; 7,5% contre 6,4% pour les terrains d'habitation.

Les femmes rurales sont également très actives dans la transformation et la commercialisation des produits de l'agriculture, de l'élevage et de la pêche. Certaines d'entre elles s'investissent dans les cultures d'exportation notamment les produits maraîchers et l'horticulture et dans l'artisanat, même si elles sont le plus souvent confrontées à des difficultés de commercialisation. Cependant, il faut déplorer l'absence de données différenciées par sexe qui auraient permis une meilleure appréciation de la situation des femmes comparativement à celle des hommes dans chacun de ces secteurs. Ainsi, les femmes rurales s'investissent dans des activités multiples, à la fois domestiques et économiques.

*En zone urbaine*, les femmes sont également actives dans les secteurs formel et informel. Le secteur informel est le secteur qui emploie la main d'œuvre la plus jeune, la moins scolarisée et la plus féminine. D'après l'enquête sur le secteur informel dans l'agglomération de Dakar, publiée en juin 2004, 42,4% des emplois sont occupés par des femmes et 33,1 % des actifs ont moins de 26 ans. Les femmes exercent en majorité dans la restauration, le commerce de détail et les services. La situation professionnelle des femmes la plus courante est celle de travailleur indépendant puis vient la catégorie d'aide familiale.

Les femmes considèrent le secteur informel comme une alternative intéressante du fait qu'il exige moins de qualification et de spécialisation, qu'il est plus souple dans son organisation et plus adapté à la capacité financière et à l'emploi du temps des femmes. Pour elles, le secteur informel est une source privilégiée d'emplois qui leur permet, malgré la modicité des revenus qu'elles en tirent, de faire face aux responsabilités croissantes qui leur incombent dans l'exercice de leurs multiples rôles. La même enquête souligne en effet que les femmes qui travaillent dans le secteur informel pâtissent d'un déficit de revenu très marqué par rapport à leurs homologues masculins. En moyenne, les hommes perçoivent 82,9% de plus que les femmes. A noter cependant que le niveau d'études est une fonction croissante du niveau scolaire et constitue un atout dans le sens où il permet d'accéder à de meilleurs statuts et d'avoir un niveau de revenu plus élevé.

*Dans le secteur formel*, les femmes sont certes présentes mais, moins spécialisées, elles sont moins compétitives sur le marché du travail et y sont donc sous représentées.

Au niveau national, les résultats de l'ESAM-II montrent que près de neuf actifs occupés sur dix (88,4%) travaillent dans les entreprises individuelles ou du ménage. Le privé constitue le second secteur qui emploie des actifs avec 5,3%. Selon le sexe, il convient de noter que la part des femmes travaillant dans les entreprises individuelles ou du ménage (92,3%) est plus importante que celle des hommes occupés (85,1%). Alors que la situation inverse est observée pour ce qui est de l'administration publique et du secteur privé où l'on retrouve 3,7% des hommes contre 1,4% des femmes dans l'administration et 7,0% des hommes contre 3,2% des femmes dans le secteur privé.

Il faut également souligner que la recherche d'emploi chez la femme est tributaire de son statut et de son rôle dans le ménage, ce qui contribue à la désavantager sur le marché du travail.

### ***De l'accès et du contrôle des ressources productives par les femmes et les hommes***

Au Sénégal, les femmes rurales constituent près de 70% de la force de travail et assurent un peu plus de 80% de la production agricole notamment dans les cultures vivrières. Cependant, elles restent confrontées à un accès limité aux moyens de production.

L'accès à la terre est garanti de manière équitable à tous les citoyens par la Constitution et la loi sur le domaine national. En zone rurale où la gestion de la terre est confiée au Conseil rural, les conditions d'accès à cette terre sont régies par l'appartenance à la communauté et par la capacité de mise en valeur. Toutefois, l'accès effectif des femmes à la terre reste assujéti d'une part à la priorité accordée aux cultures commerciales du fait de leur prédominance sur les cultures vivrières et d'autre part à des contraintes socioculturelles.

Au niveau des intrants, les femmes éprouvent autant de difficultés pour disposer des intrants agricoles comme l'engrais qui est un facteur de production très important pour les cultures céréalières.

Dans le domaine des investissements à caractère industriel ou commercial, les obstacles qui se dressent à un accès correct des femmes à la terre sont liés à la faiblesse des moyens économiques qui les caractérise souvent.

Ainsi, bien qu'il y ait eu une avancée significative dans l'attribution des terres, les normes sociales qui favorisent la reconnaissance du statut de chef d'exploitation à l'homme plus qu'à la femme, la faible mobilité des femmes et leur niveau de revenu relativement bas, nous laisse croire à une discrimination de fait dans l'accès mais aussi, le contrôle et l'utilisation des produits de l'exploitation de ces terres.

### ***De l'incidence de la pauvreté sur les femmes et les hommes***

Le pourcentage des ménages pauvres est passé de 61,4% en 1994 (ESAM I, 1994-1995) à 48,5% en 2001 (ESAM II, 2001-2002) et compte tenu des performances économiques de 2003-2004, l'incidence de la pauvreté se situerait autour de 47,52% (Source DPS). Si la tendance se poursuit l'incidence de la pauvreté atteindrait 45% en 2005 comme prévu par le DSRP.

L'ESAM II indique aussi que la pauvreté est moins répandue dans les ménages dirigés par des femmes que dans les ménages dirigés par des hommes. Alors que 37% des ménages dirigés par une femme sont pauvres, un ménage sur deux dont le chef est un homme vit en dessous du seuil de pauvreté ; dans le même ordre d'idée, il est noté que le ménage dirigé par une femme a un niveau de dépenses moins élevé que celui dirigé par un homme.

Les raisons qui sous-tendent cette hypothèse font appel à plusieurs facteurs : (i) les femmes chefs de ménage sont plus autonomes et ont un meilleur accès aux ressources que si elles étaient mariées ; (ii) elles utilisent les ressources de façon plus efficiente que les hommes chefs de ménage et les dépenses tendent à mieux répondre aux besoins de base des ménages et des enfants ; (iii) face à la pauvreté, les femmes prennent beaucoup plus d'initiatives dans la mobilisation des ressources à travers les tontines et autres formes de regroupement auxquels peuvent s'ajouter des transferts de revenus du mari émigré et des parents qui contribuent à accroître le revenu total du ménage.

Ces justifications prouvent que la femme, économiquement dépendante, assignée traditionnellement aux travaux domestiques de son ménage et sans pouvoir de décision, a subi des mutations profondes ; les femmes voient leur rôle social prendre de nouvelles formes et s'élargir à davantage de responsabilités qui les poussent dans leur grande majorité à chercher du travail rémunéré hors du ménage. Ainsi, si de manière générale les acteurs innovent dans la précarité, les femmes en

particulier prennent beaucoup plus d'initiatives dans la mobilisation des ressources en plus de leur rôle de gestionnaire de l'espace domestique.

Cependant, les femmes dans leur ensemble sont plus vulnérables à la pauvreté malgré les résultats des enquêtes, du fait de leur statut et de leur position dans la société et des disparités fondées sur le sexe qui les affectent négativement. La détérioration de leurs conditions de vie est ainsi liée à la baisse constante de leurs revenus. La chute du pouvoir d'achat du ménage affecte leur niveau de production et par conséquent leur niveau de consommation. Or, la grande majorité des femmes chefs de ménage pratiquent plus d'une activité productive, mais leur statut de femme chef de ménage limite leur accès aux facteurs de production et donc réduit les opportunités qu'elles auraient pu avoir de générer des ressources supplémentaires.

Ceci est réaffirmé dans le rapport de l'ONU sur l'évaluation du programme d'action de Beijing où il est dit que « le fossé entre les femmes et les hommes pris dans le cycle de la pauvreté a continué de se creuser au cours de la dernière décennie. C'est généralement l'expression de « féminisation de la pauvreté » qui sert à désigner ce phénomène. Ce qu'on nomme la féminisation de la pauvreté résulte d'une réalité démographique impossible à contourner : puisqu'elles contrôlent moins de ressources, possèdent une part considérablement plus réduite des avoirs et perçoivent des revenus plus faibles, les femmes sont plus pauvres que les hommes »<sup>3</sup>.

### **2.2.2. Atouts et germes de changement**

L'évaluation du deuxième plan d'action national de la femme (PANAF 1997-2001) réalisé en 2003 a permis de mettre en évidence quelques atouts et germes de changements favorables à la promotion économique des femmes. Citons à ce titre :

**- Le renforcement des programmes d'équipements d'allégement mis à la disposition des femmes :**  
Dès 1992, en sus des interventions de l'Etat sur fonds propres, les femmes ont bénéficié de deux programmes de développement en faveur de la promotion du statut de la femme en l'occurrence, le Programme de Développement des Ressources Humaines/composante Femme (PDRH), financé par la Banque Mondiale et le Projet d'Appui aux Groupements de Promotion Féminine (PAGPF), financé par la Banque Africaine de Développement et le Fonds Nordique de Développement. Ces programmes ont permis la mise en place de plusieurs équipements d'allégement des travaux domestiques de la femme : équipements de transformation des produits agricoles ; équipements hydrauliques et matériels d'appui aux activités génératrices de revenus. A cela, s'ajoutent des infrastructures socio-éducatives notamment les cases foyers, espaces socio-économiques pour les femmes, les garderies communautaires et les cases des tout-petits réalisées à partir de 2001.

**- Une plus grande disponibilité des femmes à développer des activités économiques et à renforcer leurs aptitudes propres :**

Au regard du nombre important d'équipements d'allégement mis à la disposition des femmes, il est clair que le premier effet découlant de ces programmes est une diminution de la charge de travail des femmes et par ricochet un gain de temps favorable au développement d'autres activités de type soit économique, soit socio-éducatif.

L'adhésion progressive des femmes aux groupements et associations de promotion féminine ainsi que leur participation à des séances d'alphabétisation et d'IEC sur des thèmes liés à leur vie sociale ou à leurs activités économiques montrent qu'elles ne sont plus confinées durant toute la journée au travail domestique. De même, ce renforcement de leurs capacités leur permet de s'investir davantage dans le développement local de leurs communautés respectives. Aujourd'hui, la meilleure présence des femmes dans les conseils locaux et municipaux le confirme.

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<sup>3</sup> ONU, Département de l'information, avril 2000, fiche technique n° 1, « Examen et évaluation du Programme d'action de Beijing : Rapport du Secrétaire général » (E/CN.6/2000/PC/2).



- ***Une capacité accrue d'organisation et d'intervention des femmes*** grâce aux nombreuses activités d'alphabétisation et de formation organisées à leur intention. En effet, au plan organisationnel, s'est installée une dynamique fédérative. De plus en plus d'associations de femmes existent et se structurent mieux grâce à l'encadrement des structures d'appui et autres organisations non gouvernementales, ce qui renforce leur capacité d'intervention. Ce renforcement organisationnel a beaucoup concouru à la visibilité de leurs membres et de leurs dirigeantes qui deviennent de véritables leaders.

- ***Un meilleur accès des femmes aux facteurs et moyens de production*** favorisée par l'existence d'un environnement favorable au développement de politiques et de mesures juridiques administratives susceptibles de faciliter un meilleur accès des femmes à la terre et aux intrants au niveau de chaque région. A titre d'illustration, on note la meilleure présence des femmes dans les commissions d'attribution des terres mais aussi et surtout l'article 15 de la constitution de 2001 qui stipule que l'homme et la femme ont également le droit d'accéder à la propriété de la terre dans les conditions déterminées par la loi. Des actions de sensibilisation sont aussi développées pour un meilleur accès des femmes à l'information sur la loi sur le domaine national (loi n° 64-46 du 17 juin 1964).

Par rapport à l'eau, à l'énergie et à l'environnement, il peut être noté une plus grande implication des femmes dans les différents comités de gestion.

- ***Une amélioration du niveau de revenu et de l'offre de crédit affectée aux femmes grâce à la mise sur pied de fonds de crédit***

Dans cette optique, les réalisations enregistrées concernent des actions d'appui aux activités des femmes relatives à (i) la mise sur pied de fonds de crédit, de boutiques villageoises, d'implantation de GEC, de circuits de commercialisation, d'unités de transformation (fruits et légumes, céréales, briques...), la création de projets et le financement de micro-projets initiés par des femmes, l'installation d'un centre d'information commerciale et économique connecté au réseau mondial de Trade Point, (ii) des séances de sensibilisation sur les mécanismes d'accès au crédit et le gaspillage à l'occasion des cérémonies familiales, l'assouplissement des critères d'éligibilité, des sessions de formation dans des domaines techniques touchant leurs activités économiques quotidiennes.

En ce qui concerne l'accès au crédit, la prolifération de mutuelles, d'organisations et de réseaux accordant du crédit aux femmes témoigne de l'augmentation effective du volume de crédits accordés aux initiatives féminines. A cela, s'ajoutent les réalisations du Projet Crédit Femmes ainsi que des programmes de lutte contre la pauvreté (PLCP, AFDS, PAREP) qui font du crédit un important volet d'accompagnement de leurs activités respectives.

- ***Le renforcement des compétences en entrepreneuriat des femmes***

Durant la période couverte par le deuxième Plan d'action de la Femme, plusieurs actions de formation ont été développées en vue de relever les capacités et aptitudes des femmes dans les domaines techniques et de l'entrepreneuriat. Les domaines couverts portent sur les techniques de production et de gestion. Plusieurs activités de formation en techniques de production et de gestion ont été organisées.

Il faut également ajouter à cela un renforcement institutionnel qui a vu la création d'un ministère réunissant pour la première fois la petite et moyenne entreprise, l'entrepreneuriat féminin et la micro finance et la mise en place d'un fonds destiné à soutenir la promotion économique des femmes.

### **2.2.3. Leçons apprises**

Face à la situation ainsi décrite, les populations, l'Etat et les partenaires ont développé des stratégies de réponse perceptibles à deux niveaux :

Au niveau des populations :

Pour améliorer leurs conditions de vie face à la pauvreté, les populations ont développé des stratégies de réponse. Face à la cherté des produits de base, les femmes ont eu recours aux produits de substitution et à la rationalisation de la consommation pour les autres produits indispensables. On note également la réduction de manière significative de la consommation de produits comme la viande, le lait, le beurre, etc. Des recettes anciennes réputées moins onéreuses ont refait surface. Certains repas sont supprimés dans de nombreuses familles notamment le petit déjeuner et le dîner ; dans d'autres familles, c'est la réduction de la ration alimentaire en quantité et en qualité qui est appliquée.

Sur le plan sanitaire, du fait du coût élevé des soins et des médicaments, les populations font souvent appel à la médecine traditionnelle et utilisent de plus en plus les circuits clandestins de distribution de produits pharmaceutiques.

Au niveau de l'Etat et de ses partenaires :

La montée en puissance de la pauvreté et ses conséquences sociales négatives et différenciées sur l'homme et la femme ont conduit l'Etat, en rapport avec les partenaires au développement, à initier des programmes spécifiques de lutte contre la pauvreté avec la formulation d'une Stratégie de Réduction de la Pauvreté et l'élaboration d'un Document de Stratégie de Réduction de la Pauvreté (DSRP). A cela s'ajoutent des politiques affirmatives (discrimination positive) ayant pour but de favoriser l'intégration sociale des catégories marginalisées et vulnérables. Citons à ce titre (i) la facilitation de l'accès des populations démunies aux services sociaux, aux infrastructures et aux équipements de base ; (ii) la mise en place de programmes de création de richesses adaptés à la situation des groupes vulnérables (micro finance, alphabétisation fonctionnelle...); (iii) la promotion du développement communautaire. Plusieurs programmes ont été également développés durant la période 1990-2004, pour opérationnaliser ces politiques ; les plus significatifs sont les programmes d'équipements d'allègement, de lutte contre la pauvreté et de micro crédit destinés aux femmes en particulier.

Des fonds destinés à soutenir les initiatives des populations et en particulier les groupes vulnérables ont également été mis en place notamment le fonds de promotion économique, le fonds national d'action pour la promotion de l'emploi, le fonds de promotion de la jeunesse, le fonds de solidarité nationale et le fonds pour la promotion de l'entrepreneuriat féminin d'un montant de deux milliards de F.CFA. Les jeunes filles et les femmes sont des bénéficiaires potentiels au niveau de chacun de ces fonds.

Toutefois, malgré ces actions, la pauvreté continue d'affecter une part importante de la population du fait que la plupart de ces programmes, initiés dans ce cadre, s'attaquent davantage aux manifestations de la pauvreté qu'à ses causes principales. Il faut noter également l'insuffisance des moyens mis en œuvre qui limitent d'autant la portée des interventions en question, du fait de la position prioritaire qu'occupent encore les secteurs productifs dans les options stratégiques d'intervention et l'allocation des ressources disponibles.

#### **2.2.4. Contraintes à la promotion économique des femmes**

A côté de ces atouts, l'analyse de la situation des hommes et des femmes dans le secteur économique a révélé de réelles contraintes à la promotion économique de la femme. Ces contraintes sont les suivantes :

- Rôles stéréotypés de la femme et de l'homme dans la société ;
- Répartition inégale des fonctions dans la société ;

- Division inégale du travail domestique ;
- Accès limité des femmes aux moyens de production, à la technique et à la technologie ;
- Niveau d'éducation et de qualification différencié ;
- Féminisation de la pauvreté ;
- Conflit d'intérêt entre obligations professionnelles, sociales et familiales ;
- Perception neutre du milieu d'intervention et des réponses aux besoins en termes de croissance et de développement ;
- Faible connaissance des questions de genre au sein des secteurs économiques et insuffisance des compétences en matière d'application de l'approche genre comme outil de développement.

L'ensemble de ces facteurs, combinés les uns aux autres, explique en grande partie le cantonnement des femmes dans des activités de subsistance et dans le secteur informel, leur faible niveau de production et de productivité ainsi que leur accès limité aux opportunités d'investissement et d'emploi et globalement le faible pouvoir économique des femmes. Il y a lieu également de souligner la faible disponibilité de données désagrégées par sexe dans les statistiques des secteurs économiques. Aussi, est-il urgent de mener *des enquêtes spécifiques dans les différents secteurs de l'économie* pour mieux comprendre, mesurer et rendre visible la contribution des femmes à l'économie au même titre que celle des hommes.

## **2.3. GENRE, DROITS, PARTICIPATION A LA PRISE DE DECISION ET CITOYENNETE**

### **2.3.1. Caractéristiques de l'équité et de l'égalité de genre**

L'analyse de la situation de l'équité et de l'égalité de genre au Sénégal laisse apparaître un déséquilibre manifeste en ce qui concerne la jouissance des droits et l'exercice des devoirs pour l'homme et la femme. En effet, aussi bien dans l'espace familial, la société, que dans l'espace public, les hommes et les femmes disposent d'opportunités, de dispositions et privilèges différenciés.

Pourtant, de multiples initiatives sont mises en œuvre par les acteurs et partenaires au développement, lesquelles ont permis d'enregistrer des progrès remarquables en ce qui concerne les conditions de vie des femmes. Cependant, les avancées restent encore timides s'agissant du statut et de la position sociale. Le Sénégal étant encore en retard, en ce qui concerne la jouissance à égalité par les femmes et les hommes de leurs droits, l'application des textes et leur accès à la prise de décision.

De 2001 à 2004, malgré l'élaboration et la mise en œuvre du Plan d'Action de la Femme (1997-2001), les inégalités et les discriminations persistent dans la législation nationale. De même, dans la famille et dans la communauté, subsistent des stéréotypes soutenus par des traditions et coutumes qui restreignent très souvent le pouvoir de la femme. Aux niveaux méso et macro sociétal, outre la non effectivité de l'application des textes nationaux favorables à l'équité et à l'égalité de genre, il demeure une faible traduction dans la législation nationale des dispositions favorisées par l'adoption d'instruments internationaux de protection et de promotion des droits humains, particulièrement des droits des femmes.

Au cœur de ces inégalités de genre, se situe la notion de chef de famille attribuée à l'homme dans un contexte de prolifération de familles monoparentales ou de crise économique entraînant la direction d'un bon nombre de ménages par des femmes. La nécessité de prendre en considération cet aspect répond à un souci de combler un vide juridique en rapport aux besoins nouveaux découlant de l'évolution du contexte national mais aussi d'harmoniser les documents nationaux avec les instruments internationaux qui affectent à l'homme et à la femme la responsabilité d'une prise en charge conjointe de la famille.

Par rapport à la citoyenneté, les rapports inégalitaires entre l'homme et la femme au sein du ménage affectent fortement l'exercice de la citoyenneté par la femme. En effet, malgré la force électorale qu'elles constituent, les femmes jouissent d'un pouvoir de décision limité et d'une faible autonomie quant au vote en raison de conditions et de critères de choix fortement influencés par des considérations liées à leur statut de dépendance au niveau de la famille et de la société.

Quant à la participation des femmes aux niveaux politique, public, syndical et dans le secteur privé, elle connaît certes des avancées, mais la situation revêt encore beaucoup d'inégalités dans la représentation. Cependant, les disparités de genre par rapport à l'éducation et à la formation entravent le plein accès et le maintien des femmes dans les postes de responsabilité. Toutefois, la présence de femmes à certains niveaux favorise une reconnaissance par la société de la possibilité et de la capacité pour les femmes d'assumer des postes de responsabilité.

### **2.3.2. Acquis et Avancées**

La quête d'une équité et d'une égalité de genre au Sénégal a connu des avancées significatives, comme le relève l'évaluation de la mise en œuvre du Plan d'Action National de la Femme (1997-2001). Globalement, le contexte politique national est favorable et est influencé par un environnement international et sous-régional qui réaffirme son ouverture aux questions d'égalité et d'équité de genre.

En attestent, au plan international, les grandes conférences internationales sur les femmes, dont Beijing'95 fut une étape de consécration des droits de la femme à tous les niveaux. Ces grands moments sont renforcés par la signature et la ratification par le Sénégal de nombreux instruments fondamentaux protecteurs de la femme. Au plan sous-régional, l'inscription du genre au premier point de l'ordre du jour de la Conférence des Chefs d'Etat de l'Union Africaine de 2004, assortie d'une Déclaration solennelle sur l'égalité entre les hommes et les femmes en Afrique, demeure une initiative encourageante.

Prolongement de cette détermination, la Déclaration de Politique Générale du Premier Ministre en 2004 qui a accordé une place essentielle à la femme avec notamment l'engagement pour une égalité en matière de traitement fiscal qui pourrait être effectif dès 2005. Au Sénégal, la création d'un Haut Commissariat des Droits de l'Homme, confié à une femme, témoigne de la volonté d'une prise en charge substantielle des questions de droits humains, y compris les droits des femmes.

La revue des instruments internationaux qui protègent la femme et qui ont été ratifiés par notre pays, outre d'autres conventions et normes juridiques internationales protectrices des droits de l'homme en général, de l'enfant ou de la famille, fait ressortir spécifiquement (i) la Convention sur l'élimination de toutes les formes de discrimination à l'égard des femmes, premier instrument de référence en matière de droits des femmes, adoptée en 1979 par la communauté internationale et ratifiée par notre pays en 1985, (ii) le protocole facultatif à la Convention sur l'élimination de toutes les formes de discrimination à l'égard des femmes, ratifié par le Sénégal en 2002, (iii) la Charte Africaine des Droits de l'Homme et des Peuples, ratifiée en 1982 et (iv) le protocole à la Charte Africaine des Droits de l'Homme et des Peuples, relatif aux droits des femmes, ratifié le 1<sup>er</sup> Décembre 2004. Ces instruments internationaux couvrent toutes les catégories de droits relatifs à la femme, des droits économiques (travail et emploi, propriété, terre, production...) aux droits socioculturels (santé, éducation, formation, famille, violences...) en passant par les droits civils et politiques (participation à la vie politique et publique, représentation dans toutes les structures...).

En ce qui concerne la législation nationale, la constitution sénégalaise votée en 2001, dans son préambule, « *affirme son adhésion à la Convention sur l'élimination de toutes les formes de discrimination à l'égard des femmes et à la Charte Africaine des Droits de l'Homme et des Peuples..., proclame l'accès de tous les citoyens, sans discrimination à l'exercice du pouvoir à tous les niveaux, l'égal accès de tous les citoyens aux services publics, le rejet et l'élimination, sous toutes les formes, de l'injustice, des inégalités et des discriminations* ». Ses articles 7, 18 et 25, entre autres, soulignent respectivement la protection contre toutes mutilations physiques, l'interdiction et la punition du mariage forcé dans les conditions fixées par la loi, l'interdiction de la discrimination entre l'homme et la femme devant l'emploi. (Source : Constitution du Sénégal, adoptée au référendum du 07 janvier 2001).

Au niveau des codes en vigueur, lois et règlements nationaux, l'on constate que nombre de dispositions nationales ayant un impact sur la situation de l'égalité et de l'équité de genre existent notamment dans le domaine de la famille (Code de la famille, Code de la nationalité), dans le domaine du travail (Code du travail et de la sécurité sociale, Code général des impôts), au niveau pénal (Code de procédure pénale), et sur le plan foncier (Code foncier).

Nonobstant cet arsenal de mécanismes internationaux, régionaux et nationaux, la situation des droits des femmes au Sénégal reste préoccupante eu égard à plusieurs facteurs : a) l'application des

outils internationaux à l'instar de la Convention sur l'élimination des discriminations à l'égard des femmes, malgré leur valeur supérieure aux instruments nationaux, est insuffisante, de même que l'application des textes favorables à l'équité et à l'égalité de genre<sup>4</sup> ; b) des antagonismes subsistent entre les instruments internationaux ratifiés et la législation nationale<sup>5</sup> ; c) des décrets d'application ne sont pas systématiquement pris et publiés<sup>6</sup> ; d) des mesures favorables à l'équité et à l'égalité de genre sont anéanties par d'autres règlements spécifiques discriminatoires<sup>7</sup> ; e) dans la législation nationale, des vides juridiques subsistent par rapport à certaines mutations sociales<sup>8</sup> ; f) des textes restent peu connus par défaut de vulgarisation et de sensibilisation<sup>9</sup> ; g) il n'existe pas de mécanisme de suivi de l'application des textes favorables à l'équité et à l'égalité de genre<sup>10</sup>.

Ce constat entraîne une situation d'impunité des auteurs, dans un contexte où la vulnérabilité des femmes et des filles aux violences dans les foyers, la société et les zones de conflits s'accroît. Les conditions de travail des acteurs judiciaires et extra judiciaires, le poids de la pression sociale accentué par les stéréotypes sexistes et la position de dépendance et de subordonnée de la femme dans le couple, le coût et la lenteur des procédures, le trafic d'influence facilité par le pouvoir religieux, la hiérarchie, l'argent sont autant de facteurs favorisant cette impunité. A cela, s'ajoute l'insuffisante protection des personnes en situation difficile (réfugiés et déplacés, handicapés, émigrés, mendiants, professionnelles du sexe, détenus, exploités dans le travail...) notamment les femmes et les petites filles dont la faible prise en compte de leur sécurité sociale renforce leur position de vulnérabilité.

S'agissant de la citoyenneté, les actions de sensibilisation, les résultats des études et recherches menées dans ce domaine ont fait ressortir l'importante participation de la femme dans la vie

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<sup>4</sup> Le droit coutumier prime encore, surtout en matière foncière et particulièrement en milieu rural au détriment de textes comme la loi sur le domaine national qui ne recèle, pas en soi, de discriminations (MFDSSN, 2003 : 67).

<sup>5</sup> L'article 2 de la Convention sur l'élimination des discriminations à l'égard des femmes demande aux Etats de prendre toutes les mesures appropriées, y compris des dispositions législatives, pour modifier ou abroger toute loi, disposition réglementaire, coutume ou pratique qui constitue une discrimination à l'égard des femmes. L'article 16 d) consacre les mêmes droits et les mêmes responsabilités en tant que parents, quel que soit leur état matrimonial, pour les questions se rapportant à leurs enfants. Pourtant, de faibles mesures sont prises pour modifier toute disposition discriminatoire dans les textes spécifiques. Le cas du Code de la famille qui, dans certains de ses articles, 152, 153, 277, 279 et 309 présente encore des dispositions discriminatoires en est une parfaite illustration.

<sup>6</sup> La constitution sénégalaise affirme, dès son préambule, son adhésion à la Convention sur l'Élimination de toutes les formes de discrimination à l'égard des femmes, mais peu de décrets ont été pris depuis lors pour harmoniser l'esprit de la Convention et les instruments nationaux spécifiques (code du travail, loi sur la nationalité, code pénal, code de la famille...). D'autre part, la publication de dispositions prises dans le Journal Officiel n'est pas systématique ce qui ne facilite pas sa diffusion et corollairement son application par les acteurs judiciaires et extrajudiciaires.

<sup>7</sup> La loi n°99-05 du 29 janvier 1999 modifiant certaines dispositions du code pénal, avait procédé à la refonte de certaines dispositions juridiques en prenant en compte les avancées de notre démocratie et les engagements internationaux du Sénégal tout en améliorant les acquis en matière de promotion et de protection des droits de l'Homme (République du Sénégal (1999) : 832). Ainsi, la loi de 1999 prévoit, pour toutes formes de violences, des peines fermes. Or, la loi de 2000 permet aux juges de comprendre les situations de fait par rapport à certains cas de violences et de donner des circonstances atténuantes par accord de sursis.

<sup>8</sup> Le mariage précoce, pratique coutumière, aujourd'hui considéré comme une forme de violence faite à la fille, est jugé comme délit dans la constitution, mais au niveau du code de procédure pénale, il est seulement interdit mais non réprimé. Des vides subsistent aussi par rapport à l'accroissement de familles monoparentales.

<sup>9</sup> C'est le cas de la convention collective qui fixe le salaire minimum du personnel domestique : ni les employeurs, ni les employés ne le respectent (GREF, 1998 : 49).

<sup>10</sup> L'idée de mise sur pied d'un observatoire des droits de la femme et de la petite fille, censé être un instrument de veille et d'alerte pour la promotion et la protection des droits fondamentaux de la femme et de la fille, est née depuis 1998. Depuis ces trois dernières années, elle est seulement à l'étape de projet de décret.

politique. Avec 51% de l'électorat national, les femmes peuvent à elles seules, décider de l'issue du scrutin (IAD, 2000 : 47). Cette conclusion s'accompagne d'une prise de conscience par les femmes, elles-mêmes, de leur citoyenneté et de leur valeur dans le processus électoral. Même si l'étude confirme que la supériorité numérique des femmes sur les listes électorales est plus visible en milieu rural, il n'en demeure pas moins que l'autonomie des femmes par rapport à la décision sur le vote dans ce milieu reste mitigée en raison de leur statut de dépendance économique. La seconde difficulté par rapport à l'exercice de la citoyenneté par la femme sénégalaise concerne la gestion des pièces d'état civil et autres actes administratifs. Si l'obtention de pièces d'identification telles que le passeport, la carte d'identité nationale, la carte d'électeur, le bulletin de naissance s'avère facile pour les femmes, l'obtention d'un certificat de mariage surtout en période de crise du couple peut être difficile. De la même manière, au sein du couple, la détention des actes inscrits au livret d'état civil tels que le livret de famille, le certificat de décès ou de divorce n'est pas aussi évidente.

En résumé, dans le domaine de la citoyenneté, la jouissance des droits pose peu problème car les instruments juridiques ne présentent pas de discriminations, mais c'est dans l'exercice même de cette citoyenneté que des inégalités sont notées, renforcées par le fait que la société attribue l'exercice du pouvoir dans la sphère aussi bien domestique que publique à l'homme.

La citoyenneté voire la participation à la vie publique et politique ne se limite pas seulement au statut d'électrices, elle concerne aussi la possibilité pour la femme d'être élue et d'être représentée dans les instances de décision publique, politique, syndicale, dans le secteur privé, et ce à tous les niveaux de décision. Au Sénégal, l'occupation par les femmes de rangs ministériels et leur présence à l'Assemblée Nationale sont tardives et lentes (PNUD, 1999 : 153). Le premier poste ministériel occupé par une femme l'a été en 1978, soit dix-huit ans après l'indépendance. De mars 1978 à avril 1999, la moyenne totale est de 11% de femmes ministres.

La conjugaison des actions de plaidoyer des organisations de femmes et la volonté politique manifeste des autorités a permis d'enregistrer la nomination d'une femme Premier Ministre ainsi que le taux de présence le plus élevé des femmes dans le gouvernement avec 22,86% au cinquième gouvernement de l'alternance. Toutefois, ce taux est redescendu à 17,94% dans le gouvernement de novembre 2004. A noter que la situation actuelle s'accompagne d'une position significative dans l'ordre protocolaire (Femme Ministre d'Etat et tête de liste) et d'une présence accrue à des postes qui ne constituent pas seulement un prolongement du rôle social dévolu aux femmes (collectivités locales et décentralisation, élevage, coopération décentralisée et planification régionale, relations avec les institutions...).

Au niveau de l'Assemblée Nationale, la première femme parlementaire n'est élue qu'à la deuxième législature (1963-1968). De 13,5% à la neuvième législature (1998-2003), on est passé à 18,33% à la dixième législature (2001-2006).

L'analyse du bureau de l'Assemblée Nationale de l'actuelle législature (2001-2006) reflète qu'il n'y a aucune femme présidente, vice-présidente, secrétaire élue, présidente de groupe parlementaire. Une femme est enregistrée au poste de questeur et deux femmes occupent les postes de secrétaire générale et secrétaire générale adjointe. Ces deux dernières positions constituent la fin, hiérarchiquement parlant, de la liste du bureau. Au total, sur vingt et un (21) postes de responsabilité au sein de l'Assemblée Nationale, trois (03) sont occupés par des femmes soit 14,28% (Source : site Internet de l'Assemblée Nationale, Décembre 2004). Au niveau des conseils régionaux, municipaux et ruraux, une seule femme occupe la présidence d'un conseil régional. 19,4% des sièges des conseillers municipaux et 14,56% des conseillers régionaux sont des femmes (Source : Ministère de l'Intérieur, République du Sénégal, 2003).

Dans le Conseil de la République pour les Affaires Economiques et Sociales (CRAES), troisième institution du pays, sont présentes 30% de femmes. A noter que sur la liste des conseillers choisis par le Président de la République, 52% sont des femmes. Quant à l'occupation de postes de

responsabilité par les femmes (Vice Président, Secrétaire Elu, Président de Commission Permanente, Président de groupe) au sein du CRAES, elle est de loin meilleure à la situation à l'Assemblée Nationale car le taux de présence est de 27%.

Les femmes sont progressivement présentes dans des secteurs traditionnellement réservés aux hommes à l'instar du commandement territorial avec deux femmes Adjointes au Gouverneur, (mais aucune femme Gouverneur); au niveau de la section Douane de l'Ecole Nationale d'Administration, une femme y est inscrite pour la première fois en 2004 et au rang des Ambassadeurs, on dénombre deux femmes. Dans plusieurs secteurs, elles sont cependant quasiment absentes dans les postes de responsabilité même si elles sont fortement présentes à d'autres niveaux : 1% de femmes directrices d'écoles, proviseurs de lycées ou chefs de départements à l'université contre 26% de femmes institutrices à l'enseignement élémentaire, une seule femme médecin chef de région comparée au nombre de femmes sages-femmes et infirmières.

Sous le chapitre des hautes fonctions dans l'administration et les institutions publiques, dans une lancée encore timide, les femmes sont nommées dans des structures comme le Haut Conseil de l'Audiovisuel, Agence pour la Propreté de Dakar, Agence Nationale de la Case des Tout-petits, Agence pour la Promotion des Investissements (APIX), etc. Une femme est directrice de cabinet, et certaines sont présentes dans les directions des départements ministériels (Famille, Environnement,...). Le Ministère de l'Economie et des Finances bat le record avec trois femmes présentes dans ses directions : Budget, Solde, Planification des Ressources Humaines. Au titre des organisations internationales, les femmes qui y travaillent sur proposition du Gouvernement ne représenteraient que 3%. Dans le secteur privé, l'effectif de femmes cadres ne serait que de 4% (Source : Rapport Suivi des Objectifs du Millénaire pour le Développement, octobre 2003).

Dans les partis politiques, les associations patronales, les syndicats professionnels, la situation est similaire. Excepté, une femme fondatrice et secrétaire générale d'un parti politique, et une femme secrétaire générale d'un syndicat, les femmes sont quasi-absentes des instances décisionnelles de ces structures. Au sein des organisations de la société civile, plus spécifiquement dans les organisations mixtes, les femmes sont présentes dans les comités directeurs et exécutifs, mais y occupent peu de postes-clés. En matière de prévention, résolution des conflits et de construction de la paix, les femmes sont peu présentes dans les missions.

A l'origine de ces constatations, qui se manifestent essentiellement par une prédominance des hommes dans les instances de décision, figure d'une part la faible prise en compte des questions d'égalité et d'équité de genre par des mécanismes appropriés, particulièrement chez les décideurs à l'instar des chefs de partis politiques et dirigeants syndicaux, et d'autre part, la perception de la société ou de la femme elle-même de l'exercice du pouvoir.

### **2.3.3. Mutations et atouts**

Elles sont de plusieurs ordres. Au niveau institutionnel, nous pouvons noter la meilleure sensibilité genre de l'Union Africaine : cette tendance se manifeste par une inscription du genre à l'ordre du jour de la Conférence des Chefs d'Etat de l'Union Africaine de 2004, assortie d'une Déclaration solennelle sur l'égalité entre les hommes et les femmes en Afrique incluant plusieurs aspects dont les engagements (i) à ratifier le Protocole additionnel à la Charte Africaine des Droits de l'Homme et des Peuples (CADHP) d'ici décembre 2004, (ii) à appliquer la parité dans les instances de décision et (iii) à mettre sur pied un fonds d'appui aux initiatives féminines.

A noter aussi une meilleure perception des questions de genre au niveau du Président de la République et de l'Etat de manière générale. Elle s'est surtout traduite dans la récente Déclaration de politique générale du Premier Ministre dans laquelle plusieurs problématiques visant à améliorer les conditions de vie des femmes sont évoquées (scolarisation des filles, revue de l'imposition des



femmes salariées, prise en charge par la femme fonctionnaire des membres de sa famille sur le plan médical et pour les autres avantages sociaux, accès des femmes aux financements, ....).

Les autres indicateurs qui permettent de mesurer cette sensibilité étatique par rapport aux questions de genre concernent l'élaboration d'une Stratégie Nationale pour l'Equité et l'Egalité de Genre qui peut être reconnue comme une volonté nationale d'une part de fixer les objectifs à atteindre d'ici 2015 en matière d'équité et d'égalité de genre et d'autre part d'intégrer effectivement le genre dans l'élaboration des lettres de politique sectorielles grâce aux points focaux établis dans les différents départements ministériels.

Au niveau de la société civile, le mouvement des femmes connaît un développement institutionnel croissant avec la multiplication des réseaux, un travail régulier en synergie, une bonne prise en charge des intérêts stratégiques des femmes et une meilleure implication du mouvement des femmes dans tous les axes stratégiques pour une prise en compte du genre à tous les niveaux de décision et dans tous les secteurs.

Au niveau de la société sénégalaise, l'image de la femme s'est beaucoup améliorée avec une plus grande ouverture et une plus grande reconnaissance par la société des enjeux d'une bonne implication des femmes dans les différents aspects du développement.

Les stratégies développées à ce jour pour une meilleure prise en compte des droits des femmes, de leur citoyenneté et de leur représentation dans les instances de décision ont permis de cerner les problématiques actuelles et l'urgence de les résoudre à savoir : la nécessité d'avoir une vision prospective dans le domaine de l'Equité et de l'Egalité de Genre, la nécessité d'une meilleure implication/intégration des hommes mais aussi des jeunes filles dans le combat pour l'Equité et l'Egalité de Genre, l'importance de la mobilisation et de l'engagement des femmes leaders des associations et des femmes déjà promues dans des postes de responsabilité et la nécessité de capitalisation des bonnes pratiques en termes de synergie au sein de la société civile d'une part et d'autre part entre le ministère et les OSC.

#### **2.3.4. Contraintes persistantes**

Les contraintes persistantes qui affectent la jouissance et le plein exercice par les femmes de leurs droits à égalité avec les hommes se retrouvent d'une part au niveau de l'environnement institutionnel et de la réalité sociale d'autre part.

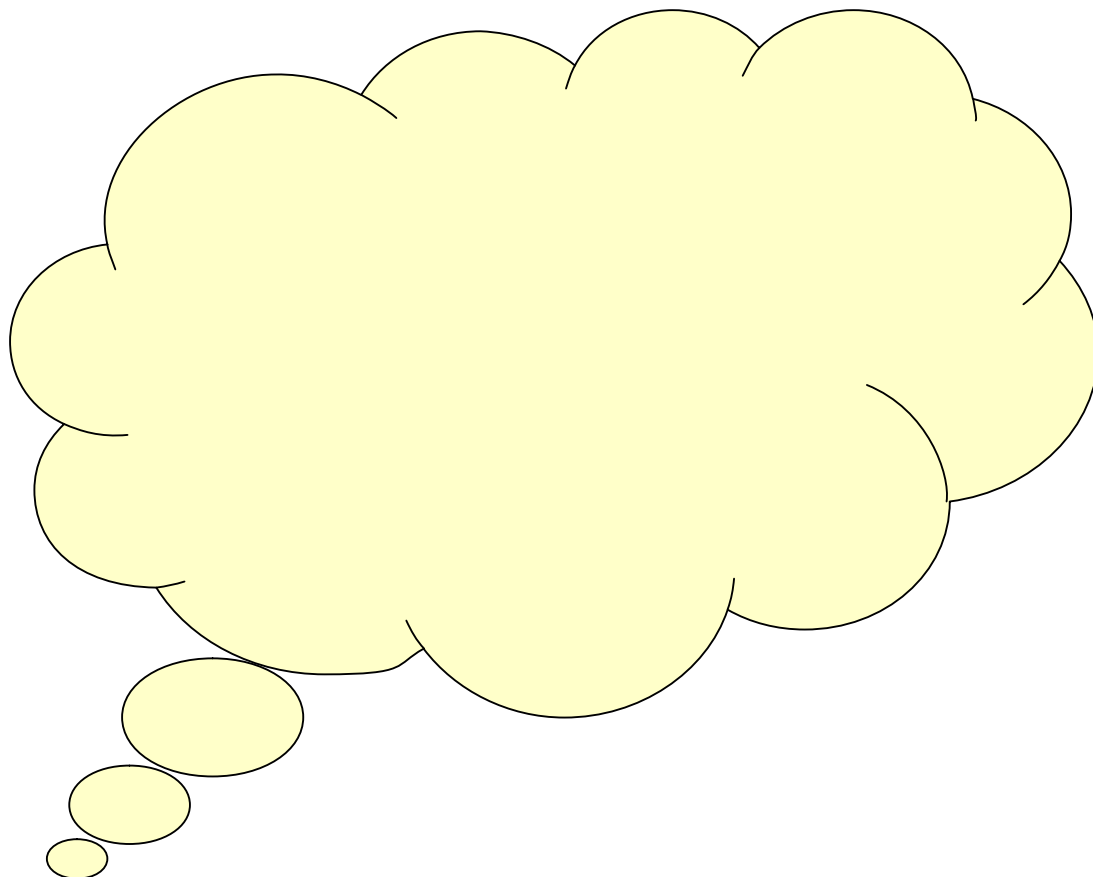
*Dans l'environnement institutionnel*, la contrainte majeure est la faible harmonisation de la législation nationale avec les textes internationaux et, en conséquence, la subsistance de dispositions discriminatoires et de vides juridiques dans la législation nationale.

Les autres contraintes réfèrent à :

- la non effectivité de l'application des textes favorables à l'EEG et la non mise en place de l'observatoire des droits de la femme et de la fille, structure qui peut, entre autres, veiller à l'application effective des textes ;
- la vulnérabilité des femmes et des filles aux violences dans les foyers, la société et les zones de conflits, confortée par l'impunité dans la plupart des cas ;
- la faible reconnaissance par la société de l'exercice des droits civiques et politiques par la femme ;
- la prédominance des hommes dans les instances de décision ;

- l'insuffisante prise en compte des questions d'égalité et d'équité dans les instances de décision du fait de la faible conscience des questions de genre chez les décideurs et leaders d'opinion et de la quasi-inexistence de compétences en genre dans ces instances.

*Au niveau de la réalité sociale*, les contraintes majeures enregistrées concernent la persistance du caractère patriarcal de la société sénégalaise et la prédominance des hommes à tous les niveaux de la vie économique et sociale, les menaces du fondamentalisme religieux, les relations inégalitaires de genre au sein du ménage et de la communauté, la faible connaissance par les femmes elles-mêmes de leurs droits et leur culture politique encore insuffisante.



## 2.4. GENRE ET MECANISMES DE PROMOTION, DE FINANCEMENT ET DE COMMUNICATION

### 2.4.1. Caractéristiques des mécanismes institutionnels d'intervention en matière d'équité et d'égalité de genre : Avancées et atouts

La promotion du statut social et économique de la femme et de l'égalité de genre bénéficie d'un dispositif institutionnel comprenant trois types de mécanismes : (i) les structures de promotion, (ii) les institutions de financement formelles et non formelles et (iii) les organes de communication.

D'une manière générale, ces mécanismes interviennent respectivement dans les domaines de l'appui-conseil, de l'encadrement, de la formation, du financement, de la sensibilisation, de la mobilisation sociale et de la diffusion des informations relatives à la promotion de la femme et du genre.

La formulation de la présente stratégie est l'occasion de faire le point de la situation dans chacun de ces mécanismes et de proposer les actions idoines pour accroître leurs performances et impacts sur les acteurs et actrices du développement.

#### ↳ Les mécanismes institutionnels de promotion

- **Le Mécanisme National Genre (MNG)**

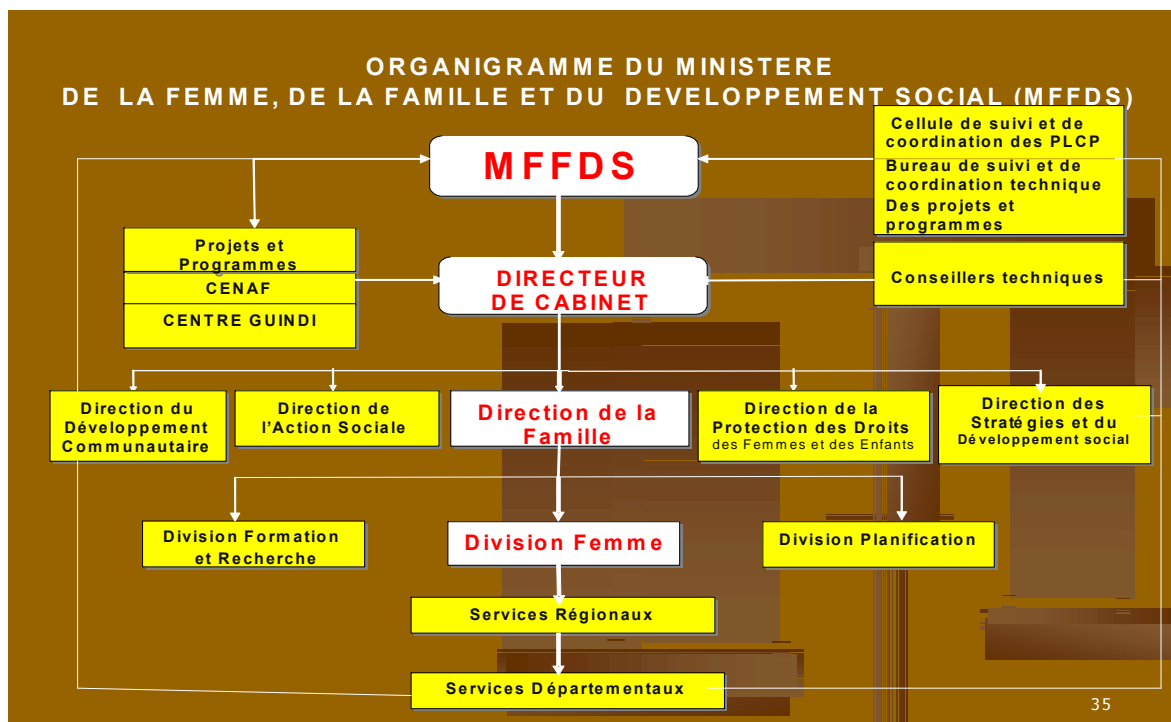
Au Sénégal, le Mécanisme National Genre est l'institution qui, dans l'appareil gouvernemental, a en charge la promotion de la femme. L'institutionnalisation d'un tel mécanisme s'est réalisée progressivement dès 1975, Année Internationale de la Femme.

L'engagement des pouvoirs publics dans cette démarche a été maintenu par les gouvernements successifs. Néanmoins, il faut souligner qu'à l'exception du Secrétariat d'Etat à la Condition Féminine créé en 1978, aucun des mécanismes qui ont suivi n'ont fait l'objet d'une dénomination exclusive consacrée à la femme ou au genre.

Les mécanismes qui ont existé de 1980 à 2004 ont connu diverses dénominations telles que Ministère du développement Social, Ministère Délégué auprès du Président de la République chargé de la Condition de la Femme et des Enfants, Ministère de la Femme, de l'Enfant et de la Famille, Ministère de la Famille et de la Petite Enfance, Ministère de la Famille, du Développement Social et de la Solidarité Nationale. Au niveau des directions, seules deux directions ont eu à avoir de manière explicite la charge de la promotion de la femme, il s'agit de la Direction de la Condition Féminine de 1981 à 1988 et, plus récemment, la Direction des politiques en faveur des femmes, créée en mai 2001 mais pour être supprimée six mois après.

L'actuel mécanisme gouvernemental, dénommé Ministère de la Femme, de la Famille et du Développement Social, depuis le 25 mars 2005, par décret n° 2005-249, est une parfaite illustration de cette option institutionnelle diffuse. Le fait de ne pas créer une structure explicitement consacrée à l'égalité de genre a pour effet, entre autres, (i) de limiter les moyens qui peuvent être consacrés à la promotion de la femme et à la réduction des inégalités liées au sexe, ceux-ci devant être partagés avec d'autres cibles et (ii) de fragiliser le mécanisme dans l'exercice de sa mission de promouvoir le genre.

L'analyse de l'organigramme du Ministère de la Femme, de la Famille et du Développement Social révèle également qu'au-delà de leur insuffisante visibilité dans la dénomination même du mécanisme, les questions de genre sont actuellement confiées à une des divisions de la Direction de la Famille, la division femme. Cette position institutionnelle, peu stratégique, est une contrainte à l'atteinte des résultats attendus du mécanisme tant au niveau de l'exécution que de la coordination et du suivi des interventions en faveur de l'égalité de genre. Elle affecte principalement sa capacité d'intervention et son leadership dans le domaine.



Les questions de genre sont transversales à l'ensemble des secteurs de développement et requièrent un mécanisme de coordination fort, capable de porter et de défendre l'égalité de genre dans tous les domaines de la vie économique et sociale et, principalement, de garantir leur prise en compte dans la formulation et l'exécution des politiques, programmes et projets nationaux et sectoriels.

A cela, il faut ajouter l'instabilité institutionnelle qui caractérise cette institution. Dans la seule période 1999-2003, le mécanisme en question a subi cinq remaniements ministériels avec comme conséquence, non seulement des changements au niveau de ses attributions, mais surtout une mobilité des ministres, du personnel et des ressources matérielles, humaines et financières, notamment celles provenant des programmes et projets d'appui. L'ensemble de ces éléments contribue à fragiliser le mécanisme sur l'échiquier national et à le rendre de plus en plus dépendant des partenaires extérieurs.

En dernière analyse, il faut noter l'écart constaté entre les intentions manifestées officiellement au niveau des décideurs et l'application qui en est faite dans la pratique. Une telle situation est sans doute à la base du faible impact des politiques gouvernementales de promotion de la femme et de l'égalité de genre.

La présente analyse du mécanisme national en charge de la promotion de la femme et de l'égalité de genre dévoile ainsi des insuffisances sur les plans institutionnel et organisationnel. Ces manquements exigent une intervention urgente et appropriée de la part des autorités afin de mettre le mécanisme en question dans des conditions favorables à la conduite efficace et efficiente de ses missions et en particulier la mise en œuvre de la présente Stratégie pour une réelle promotion de l'égalité de genre au Sénégal.

- **Les mécanismes d'appui**

A côté de l'institution gouvernementale en charge du genre, des mécanismes d'appui ont été mis en place à l'instar des points focaux et du Comité consultatif de la femme

### → *Les points focaux genre :*

Dès 1997, suite à l'élaboration du PANAF et sur instruction du Premier Ministre, chaque département ministériel a désigné un point focal genre ayant pour objet de faciliter la mise en œuvre de ce deuxième plan d'action pour la promotion de la femme et de contribuer ainsi à la prise en compte des questions de genre dans les politiques, programmes et projets des ministères techniques. Aujourd'hui, il existe 32 points focaux.

La mise en place des points focaux est donc un moyen d'opérationnaliser la transversalité du genre à travers les différents secteurs d'activité. Pour cela, les points focaux ont bénéficié d'un renforcement soutenu de leurs capacités en genre avec l'appui du Projet Genre du MFSSN financé par l'UNFPA.

Toutefois, la faible intégration des questions de genre dans les politiques et programmes de développement reconnue par l'évaluation finale du PANAF permet de dire que le point focal tel que conçu pose un problème d'opérationnalité.

Les limites identifiées sont liées en premier lieu au choix des personnes, dont le profil et le statut au sein de leur institution respective peuvent ne pas être appropriés ; le plus souvent, le point focal ne se situe pas à un niveau stratégique lui permettant d'influer sur les décisions au sein de son département en vue d'une meilleure prise en compte du genre à tous les niveaux d'intervention. En deuxième lieu, il faut noter que dans les faits, le point focal n'est pas réellement institutionnalisé dans sa structure de référence ; ses activités ne sont pas intégrées dans les cadres de planification et de programmation du ministère technique en question pour lui permettre de travailler dans un cadre bien défini avec des orientations et des objectifs de résultats clairs et de disposer ainsi des moyens matériels et financiers nécessaires pour exécuter sa mission.

A noter que les ministères de l'Education Nationale et de la Formation Professionnelle ont mis en place des Cellules genre. La Cellule genre est composée autour du point focal par des représentants des directions et services du département concerné. Ainsi conçu, la Cellule genre devrait permettre de consolider le concept de point focal en renforçant sa position institutionnelle et sa capacité d'intervention.

Dans le cadre de la mise en œuvre de la SNEEG, *il est recommandé à tous les ministères de s'inspirer de cette expérience et de mettre en place une Cellule genre* qui devrait être plus opérationnelle que la seule personne « point focal genre ».

### → *Le Comité Consultatif de la Femme :*

Le Comité Consultatif de la Femme a été créé pour servir de cadre de concertation et de pilotage à la Quinzaine Nationale de la Femme sénégalaise, instituée en 1980 par décret n° 80-269. Le Comité regroupe les représentants des organisations de femmes, des ONG, des syndicats, des partis politiques et des points focaux genre des différents ministères. Il est chargé de donner des avis sur les questions majeures relatives à la promotion de la femme mais il est à noter que l'organisation des événements spéciaux prédomine largement dans les activités du Comité. *Le CCF gagnerait à rééquilibrer ses interventions à cet effet.*

### → *Les programmes et projets :*

Ce dispositif institutionnel d'appui en faveur du genre est également soutenu par des programmes et projets développés en partenariat avec la communauté internationale en faveur de la promotion de la femme. Citons à ce titre quelques unes de ces interventions encore en cours : le projet de lutte contre la pauvreté (PLCP/BAD/FND), l'Agence du Fonds de Développement Social (AFDS/BM),

le projet d'appui à la réduction de la pauvreté (PAREP/PNUD), le projet de renforcement des capacités du MFSSN en genre (UNFPA).

La contribution de ces interventions a permis de doter le mécanisme national genre de moyens financiers, humains et matériels complémentaires à ceux de l'Etat au profit de l'amélioration des conditions de vie des femmes et de la réduction des inégalités qui affectent leur potentiel et capacités d'intervention en tant qu'actrices de développement. Il faut toutefois déplorer le peu de synergie qu'induisent ces projets avec le MNG, notamment au niveau de leurs programmes respectifs mais aussi en termes de transfert de compétences.

• **Les organisations de la société civile intervenant pour la promotion des femmes et le genre**  
Depuis la Conférence de Beijing de 1995, l'on note un regain de dynamisme des organisations de la société civile qui s'intéressent de plus en plus à la satisfaction des intérêts stratégiques des femmes en luttant pour l'amélioration de leurs conditions de vie et de travail, le relèvement de leur statut et la promotion de leurs droits.

Au Sénégal, les ONG, associations et organisations communautaires, à caractère social, économique, professionnel et religieux, constituent la principale composante de la société civile. Elles sont des entités collectives, sans but lucratif et interviennent dans plusieurs secteurs d'activité y compris dans les domaines de la promotion de la femme.

La majorité de ces organisations se sont regroupées pour former des fédérations et des réseaux à l'instar de la Fédération des Associations Féminines du Sénégal (FAFS), de la Fédération Nationale des Groupements de Promotion Féminine (FNGPF), de la Fédération des ONG du Sénégal (FONGS), de l'Association pour la Promotion de la femme (APF), du Conseil Sénégalais des Femmes (COSEF), du Réseau Africain de Soutien à l'Entreprenariat Féminin (RASEF), du Réseau Siggil Jigeen (RSJ), du Directoire des femmes en Elevage (DIRFEL), créé en 1999. A côté de ces organisations, il faut citer le CONGAD, Consortium des Organisations Non Gouvernementales d'Appui au Développement qui a, en son sein, un réseau spécialisé sur les questions de genre et le Comité National de Concertation des Ruraux (CNCR) au sein duquel existe un collège des femmes composé par les femmes des 18 fédérations que compte l'organisation.

Plus récemment, de nouvelles organisations ont vu le jour tels que les Clubs de Solidarité pour le Développement (CSD) en 2000 et le réseau « femme rurale et développement » en 2001.

Au niveau des partis politiques et des syndicats, les femmes s'organisent au sein de leur mouvement et œuvrent pour la défense de leurs droits et pour une participation équitable dans les instances de décision. A noter que dans tous les grands partis, il existe un mouvement national des femmes alors qu'au niveau des syndicats, deux seulement, l'Union Nationale des Syndicats Autonomes du Sénégal (UNSAS) et la Confédération des Syndicats Autonomes (CSA), ont créé une cellule genre qui leur a permis d'être à l'avant-garde des revendications pour la défense des droits des femmes travailleuses.

La plupart des organisations de la société civile sont représentées aux niveaux national, régional et local et interviennent selon une approche participative et décentralisée. Les domaines d'intervention privilégiés de ces organisations sont le renforcement des capacités institutionnelles, techniques et financières de leurs membres et leaders, la lutte contre la féminisation de la pauvreté, l'alphabétisation fonctionnelle, l'information et la sensibilisation, le développement de l'entreprenariat, la gestion de projets, la santé de la reproduction, la lutte contre les MST et le SIDA, la participation aux instances de décision et la gouvernance politique et économique.

L'existence de ces organisations qui œuvrent pour la promotion des droits socioculturels, juridiques, économiques et politiques est un atout supplémentaire pour la promotion de l'égalité de

genre. Leur position d'interlocuteur auprès du gouvernement et des bailleurs de fonds et leur proximité avec les communautés sur le terrain, en font des partenaires privilégiés dans la mise en œuvre de la présente stratégie. Elles constituent un potentiel appréciable de mobilisation et de plaidoyer au profit de la promotion de la femme.

Cependant, d'une manière générale, l'efficacité des organisations de la société civile intervenant dans le domaine du genre et de la promotion de la femme est limitée par plusieurs facteurs liés en grande partie à (i) l'insuffisance des moyens humains, matériels et financiers dont elles disposent, (ii) l'insuffisance des compétences en genre disponibles en leur sein, la non harmonisation et la dispersion de leurs interventions, et leur mobilisation pour l'égalité et l'équité de genre qui est plus circonstancielle qu'anticipative.

- **Le secteur privé**

Malgré quelques initiatives dans des domaines où les femmes sont particulièrement concernées notamment les équipements d'allègement et la transformation des produits agricoles et halieutiques, le secteur privé est peu impliqué dans la promotion du genre. Par ailleurs, au sein du secteur privé, les femmes sont sous représentées à tous les niveaux. Les raisons les plus couramment évoquées sont liées à leur statut et à leur niveau de qualification, reconnus comme des contraintes à la compétitivité des femmes et donc à leur présence sur le marché du travail.

La faible intervention du secteur privé dans la promotion du genre s'explique par l'approche genre qui est peu prise en compte dans ses actions, l'absence d'un mécanisme de collaboration avec le MNG et la faible connaissance de l'approche genre et développement.

- **Les partenaires de la Coopération internationale**

En matière de promotion de la femme, l'intervention de la communauté internationale a également subi l'influence des théories et des stratégies de développement qui ont vu le jour au cours de ces vingt dernières années.

Les années de la Décennie de la Femme sont celles où la problématique de la femme dans le développement a été clairement posée. La communauté internationale oriente alors ses actions de façon plus systématique vers les femmes. C'est le temps des projets spécifiquement féminins ou à volet féminin. Les secteurs d'intervention sont la santé, la nutrition, l'éducation et les activités génératrices de revenus. Dans leur conception et dans leurs stratégies, les projets initiés répondent à des urgences dans les secteurs sociaux. Les objectifs étant d'améliorer les conditions de vie des femmes, de favoriser leur participation au processus de développement en les organisant et de garantir la pérennisation des actions initiées en leur faveur en les impliquant dans les processus de formulation, de planification et de mise en œuvre.

La période des ajustements structurels a mis en évidence l'impact négatif de leurs mesures sur les groupes défavorisés et plus particulièrement les femmes. La communauté internationale réagit en manifestant un élan de solidarité affirmative en direction de ces groupes injustement affectés par les mesures économiques de l'ajustement structurel.

La Conférence Internationale sur la Population et le Développement, la Conférence Mondiale sur les Femmes et le Sommet sur le Développement Social ont concrétisé cet élan en considérant la question de la promotion de la femme comme une question de justice sociale et une condition préalable au développement durable et à la paix. Aujourd'hui, l'internalisation des recommandations issues de ces conférences est devenue la ligne de conduite au niveau des programmes et projets financés par les partenaires internationaux.

L'identification des inégalités qui entravent la pleine participation des femmes dans tous les secteurs de la vie économique et sociale et la mise en œuvre de mesures visant leur élimination, sont désormais les axes prioritaires d'intervention des partenaires de la communauté internationale. La non-discrimination entre les sexes est adoptée par certaines institutions comme critère de sélection des programmes et projets et les questions de genre sont intégrées dans les processus de conception, de formulation, d'exécution et de suivi/évaluation des interventions développées par les partenaires internationaux

En 1999, on assiste à une systématisation de ces démarches avec la mise en place par la communauté des bailleurs de fonds du Sénégal d'un cadre de concertation et de coordination inter agences. Ce cadre dénommé « Groupe informel pour la promotion de la femme » s'est constitué à l'effet de soutenir de manière plus cohérente et efficace l'égalité des sexes.

Une autre manifestation de la volonté des partenaires de la communauté internationale en faveur de la promotion de la femme est la nomination de points focaux « Genre et Développement » au sein de leur agence respective. Ces points focaux contrairement à ceux des ministères techniques sont plus opérationnels.

Les acquis ainsi explicités ont certes contribué à l'amélioration de la situation économique et sociale des femmes mais il n'en demeure pas moins que les efforts à fournir, pour répondre aux besoins, à la fois pratiques et stratégiques des femmes, sont encore importants. L'expérience ainsi accumulée devrait pouvoir être capitalisée et mise au service des besoins immenses des femmes qui restent à satisfaire.

Pour cela, la communauté internationale devra davantage inscrire les questions de genre dans une dynamique transversale qui lui permettra, par delà la prise en charge sectorielle de la satisfaction des besoins pratiques des femmes, d'axer ses interventions sur la satisfaction de leurs intérêts stratégiques et la transformation des rapports sociaux de genre, indispensables à la réalisation de l'égalité entre les hommes et les femmes.

#### ↳ **Les mécanismes de financement**

Les banques opérant au Sénégal ont une vocation principalement commerciale. Elles accordent du crédit à court, moyen et long termes selon des procédures clairement définies.

Aux renseignements portant sur l'activité, le banquier adjoint les informations portant sur la situation patrimoniale, les garanties réelles demandées le plus souvent à hauteur de 100% du prêt. Celles-ci peuvent se faire sous forme d'hypothèque, de nantissement, de cautions ou d'assurance vie. Or, pour ce qui est des garanties, on relève que les conditions d'accès des femmes à la propriété rendent difficile la fourniture de garanties de type immobilier.

L'ensemble de ces exigences dénote une certaine « culture financière » qui n'est pas à la portée de la plus grande partie des femmes encore moins les plus pauvres d'entre elles. Ainsi, bien qu'ayant vocation de financer les secteurs de l'économie, les produits qu'offrent les banquiers sont de par leurs conditions d'accès hors de portée des petits opérateurs en général et des femmes en particulier.

Toutefois, l'accès des femmes au crédit s'est trouvé nettement amélioré grâce au développement de la microfinance et à l'émergence des systèmes de financement décentralisés à l'instar des groupements d'épargne et de crédit (GEC) et des mutuelles d'épargne et de crédit (MEC), mis en place sur l'ensemble du territoire. Suivant les données fournies par le rapport annuel sur la surveillance des SFD au Sénégal, réalisé par la Cellule d'assistance technique aux caisses populaires d'épargne et de crédit (AT-CPEC) du Ministère de l'Economie et des Finances, on dénombre 725 SFD exerçant légalement des activités d'épargne et de crédit dont les 400 interviennent en milieu rural.



Sur le plan institutionnel, il faut noter l'existence de deux structures faîtières, également agréées par la Cellule AT-CPEC, il s'agit de la Fédération des Caisses de Crédit Mutuel du Sénégal dont est membre le Réseau des Caisses d'Épargne et de Crédit des Femmes de Grand-Yoff (RECEC) et de la Confédération des Caisses Mutualistes d'Épargne et de Crédit qui a comme cibles des hommes et des femmes. À côté de ces mécanismes encadrés par la Cellule AT-CPEC, les principales structures, actives sur le terrain sont : le CONACAP, le FDEA, l'ASACASE, le PAME qui s'occupe du volet microfinance de l'AGETIP, la FAFS, la FNGPF, l'APF et le RASEF.

Cependant, malgré l'expansion de la microfinance et des SFD, des disparités sont enregistrées au niveau de la couverture géographique et au niveau du taux de pénétration. Le rapport de la Cellule révèle que les régions de Diourbel et de Fatick ainsi que les départements de Kolda, Matam et Tambacounda sont peu couvertes par les SFD.

En dehors du système de financement décentralisé, les femmes peuvent accéder à d'autres mécanismes de financement par le biais de lignes de crédit mis en place au niveau des projets comme le projet de lutte contre la pauvreté (PLCP), le projet crédit femmes (PCF) ou au niveau de fonds comme le fonds de promotion économique qui dispose d'une ligne de crédit pour les femmes intervenant dans l'artisanat, le fonds de crédit de la FNGPF d'un montant de 500 millions de F.CFA et tout récemment le fonds pour l'entrepreneuriat féminin doté de 2 milliards de F.CFA. Ces lignes de crédit sont destinées à l'octroi de subventions pour l'acquisition d'équipements d'allègement des tâches agricoles et domestiques des femmes, la formation, le financement des besoins en fonds de roulement ainsi que la mise en place de fonds de garantie pour faciliter l'accès aux crédits bancaires.

Malgré cet important dispositif de financement, le niveau de financement des besoins des femmes et de l'égalité de genre est faible. Cet état de fait trouve son explication dans l'accès inégal des hommes et des femmes aux financements des banques, le manque de garanties des femmes, la faiblesse du niveau de revenu et d'épargne des femmes et la faiblesse du volume des financements octroyés pour la réalisation de projets d'envergure.

#### ↳ **Les mécanismes de communication**

Les acteurs de la communication existant au Sénégal sont constitués par les médias publics et privés, les communicateurs traditionnels, les relais communautaires, les artistes et les leaders d'opinion. Organisés en associations et en réseaux, ils sont de plus en plus impliqués dans la production et la diffusion de l'information, la sensibilisation et le plaidoyer en faveur de la promotion du genre. Les mécanismes les plus actifs sont le Réseau des Journalistes en Population et Développement, le Réseau des Parlementaires en Population et Développement et le Réseau Islam-Sida-Education.

L'ouverture de l'espace audio-visuel, marqué par la présence d'une presse plurielle, de plusieurs stations FM dotées d'antennes régionales et d'une radio « Manoré FM » consacrée aux femmes, le renforcement organisationnel dans le secteur de la communication, l'existence d'un capital associatif important en tant que moyen d'action collective et de pression sur les politiques, la disponibilité de la plupart des acteurs de la communication et de l'information à servir des causes comme celle de la promotion de la femme et de l'égalité entre les hommes et les femmes, sont des atouts importants pour le développement d'une véritable stratégie de communication capable de porter la problématique de l'égalité entre les hommes et les femmes pour un développement durable.

Les atouts, ainsi décrits, ne suffisent pas à masquer la faiblesse de l'impact des interventions des mécanismes de communication et d'information en faveur de l'avancement des questions de genre.

Cette contrainte est liée à l'insuffisante prise en compte de l'approche genre au niveau de ces mécanismes, à l'existence de peu de compétences dans le domaine et au fait que la plupart de ces acteurs interviennent de manière épisodique au gré des événements et ne disposent pas d'un plan stratégique d'intervention sur ces questions, fondé sur un engagement réel à participer à la lutte contre les résistances au changement et les obstacles de toute nature qui freinent la réalisation de l'égalité de genre.

#### **2.4.2. Contraintes subsistantes**

La contrainte principale à laquelle sont confrontés les mécanismes institutionnels de promotion, de financement et de communication est le faible impact des interventions en faveur de l'égalité et l'équité. Les raisons les plus couramment évoquées tout au long de cette analyse de situation sont :

- l'insuffisante capacité d'intervention de ces mécanismes liée à trois facteurs : (i) l'insuffisance des moyens humains, matériels et financiers dont ils disposent, (ii) la faible maîtrise de l'approche genre et développement par les différents acteurs, et (iii) le déficit des compétences en genre ;
- la faible application de l'approche transversale en matière de genre ayant comme conséquence une faible harmonisation des interventions et une dispersion des actions ;
- le bas niveau de financement des besoins en faveur de la promotion de la femme et de l'égalité de genre lié à la faible contribution financière des partenaires au développement pour le genre et à l'insuffisante maîtrise par les bénéficiaires des outils et des mécanismes de mobilisation des fonds.

## CHAPITRE 3. CADRE STRATEGIQUE D'INTERVENTION

### 3.1. Vision, but et objectifs de la SNEEG

#### 3.1.1. Une vision

Reconnaissant que les objectifs de réduire la pauvreté et de réaliser un développement durable au Sénégal ne pourront être atteints sans tenir pleinement compte des besoins et intérêts différents des femmes et des hommes, les plus hautes autorités du pays, à l'occasion des différents messages à la nation du Président de la République et à travers la déclaration de politique générale du Premier Ministre en juin 2004, ont réitéré leur engagement à « *Faire du Sénégal un pays émergent, sans discrimination, où les hommes et les femmes auront les mêmes chances de participer à son développement et de jouir des bénéfices de sa croissance.* »

Fort de cet engagement, le Sénégal a choisi de concrétiser cette vision en formulant une Stratégie Nationale pour l'Égalité et l'Équité de Genre qui sera déterminante dans la réalisation de cette vision.

La SNEEG ambitionne donc de contribuer de façon déterminante à l'atteinte des objectifs de développement du pays tels que traduits dans les cadres de référence que sont la Déclaration de la Politique de Population, le Document de Stratégie de la Réduction de la Pauvreté et les Objectifs du Millénaire pour le Développement en veillant à l'égalité et à l'équité de genre.

Plus particulièrement, la SNEEG va concourir à l'amélioration des conditions de vie des différentes catégories de la population, au renforcement de leurs capacités et à la diversification des sources de croissance du pays.

Ainsi, l'égalité entre les hommes et les femmes est au cœur du progrès économique et social. Sa réalisation interpelle tous les acteurs et actrices de développement en amont et en aval du processus.

#### 3.1.2. Un but et des objectifs

La SNEEG a pour finalité de contribuer à la réalisation de l'égalité et de l'équité de genre au Sénégal. A cet effet, elle vise deux objectifs à savoir :

- (i) l'instauration d'un environnement institutionnel, socioculturel, juridique et économique favorable à la réalisation de l'égalité de genre au Sénégal,
- (ii) et l'intégration effective du genre dans les interventions de développement dans tous les secteurs.

### 3.2. Enjeux et priorités d'action

#### 3.2.1. Quatre enjeux

En choisissant d'énoncer ainsi les fondements de la SNEEG, le Sénégal vise à gagner la bataille du développement économique durable avec les femmes qui sont désormais reconnues comme une force active incontournable.

Sur la base de l'analyse de la situation du genre au Sénégal, la SNEEG est articulée autour de quatre leviers fondamentaux reconnus actuellement comme **enjeux de l'équité et de l'égalité entre les hommes et les femmes**. Ces enjeux sont :

- (i) la valorisation de la position sociale de la femme et le renforcement de ses potentialités ;
- (ii) la promotion économique des femmes en milieu rural et urbain ;

- (iii) la promotion de l'exercice équitable des droits et devoirs des femmes et des hommes et le renforcement de l'accès et de la position des femmes au niveau des sphères de décision ;
- (iv) l'amélioration de l'impact des interventions en faveur de l'égalité et de l'équité de genre.

Pour chacun de ces enjeux, l'analyse de situation a mis en exergue la complexité des problèmes qui affectent tout particulièrement la femme et l'ampleur des besoins auxquels il faut répondre pour atteindre l'égalité de genre. Elle a également permis d'identifier des groupes cibles sur lesquels il apparaît urgent d'agir pour améliorer leur situation et créer les conditions de réalisation de l'égalité de genre.

Ainsi, la SNEEG accordera, pour la période 2005-2015, la priorité aux *femmes du milieu rural*, aux *femmes du secteur informel*, aux *femmes entrepreneurs*, aux *jeunes filles scolarisées et celles déscolarisées*, aux *femmes chefs de ménage*, aux *femmes travailleuses*, aux *petites filles et adolescent(e)s*, aux *femmes analphabètes et aux femmes handicapé(es)*, apparues au cours de l'analyse de situation comme particulièrement défavorisées et vulnérables. De plus, le diagnostic de la situation ayant révélé une nette différenciation de statut et de position entre l'homme et la femme dans la famille et dans la société ainsi que des relations étroites de pouvoir, d'influence et de dépendance, qui lient l'homme et la femme dans tous les domaines, *le garçon et l'homme* seront également des cibles de la Stratégie.

C'est dans cet esprit, et sur la base des priorités de développement du Gouvernement et des engagements internationaux, que les objectifs et les stratégies d'intervention, ci-dessous présentés, ont été définis pour chaque enjeu en vue de lever les contraintes qui freinent la réalisation de l'égalité de genre et limitent, en conséquence, la participation des femmes au processus de développement.

### 3.2.2. Des priorités d'action

#### **Enjeu 1 : Valorisation de la position sociale de la femme et renforcement de ses potentialités.**

L'objet de cet enjeu est de promouvoir les attitudes et les pratiques favorables à l'équité et à l'égalité de reconnaissance, de traitement, de chances et de résultat envers les femmes et les hommes et plus particulièrement de renforcer, à côté des secteurs de l'éducation et de la santé, la position sociale et la capacité d'action de la femme.

A cet effet, **les objectifs spécifiques visés** adressent à la fois les questions culturelles et sociales notamment l'éducation et la santé et consistent à :

- amener les différentes composantes de la société à adhérer et à œuvrer pour l'égalité et l'équité de genre ;
- favoriser l'égalité d'accès, de chance, de réussite et d'achèvement à tous les niveaux du système éducatif ;
- contribuer à l'éradication de l'analphabétisme ;
- assurer la prise en compte des besoins différenciés des filles, des garçons, des femmes et des hommes dans le secteur de l'éducation ;
- contribuer à la réduction de la mortalité et de la morbidité maternelles ;
- participer à l'accroissement du taux d'utilisation de la PF tant en milieu rural qu'en milieu urbain ;
- relever le niveau d'information et de protection des femmes et des adolescentes contre l'IST/SIDA ;
- prendre en compte les besoins différenciés de santé et de SR des femmes, des adolescent(e)s et des hommes dans le secteur santé.

**Les stratégies** retenues pour soutenir la réalisation de ces objectifs reposent sur (i) un vaste programme d'information et de sensibilisation des groupes cibles sur les questions de genre, (ii) la mobilisation sociale des populations en faveur des changements de mentalité et de comportement indispensables à la réduction des inégalités liées au sexe, et (iii) le plaidoyer auprès des décideurs et leaders pour un soutien actif à l'équité et à l'égalité de genre.

La formation en genre des différentes catégories de la population, la recherche sur les facteurs et comportements socioculturels ainsi que l'intégration de l'approche genre dans la conception, la planification et la budgétisation des interventions dans le secteur de l'éducation et de la santé seront des stratégies de soutien essentielles à l'instauration de l'égalité de genre.

### **Enjeu 2 : Promotion économique des femmes en milieux rural et urbain.**

La SNEEG prend comme point de départ la reconnaissance du faible pouvoir économique des femmes et la féminisation croissante de la pauvreté, et propose pour assurer leur promotion économique, **les objectifs spécifiques suivants** :

- Elargir le champ d'intervention économique des femmes ;
- Amener les hommes et autres membres de la famille à prendre une part active dans la gestion du foyer et à partager les responsabilités ;
- Promouvoir l'accroissement de la capacité d'investissement des femmes et d'égalité d'accès au marché du travail ;
- Assurer la prise en compte des besoins différenciés des femmes et des hommes aux niveaux macro, méso et micro économiques.

Pour atteindre les objectifs ainsi fixés, **les stratégies** qui seront développées reposent sur le renforcement de (i) la participation des femmes dans tous les secteurs d'activité, (ii) leur accès aux moyens de production, à la technique et à la technologie, (iii) leurs capacités techniques d'intervention et (iv) la facilitation de leur accès aux mécanismes de financement.

La mobilisation sociale et la sensibilisation pour un meilleur partage des fonctions et responsabilités dans la famille et dans la société, le plaidoyer en faveur de la création d'un environnement économique favorable, le renforcement des compétences en genre des agents techniques du développement seront des stratégies de soutien incontournables.

Dans cette optique, l'intégration de l'approche genre dans les secteurs économiques sera une condition sine qua non à la levée des contraintes à la promotion économique des femmes.

### **Enjeu 3 : Promotion de l'exercice équitable des droits et devoirs des femmes et des hommes et renforcement de l'accès et de la position des femmes au niveau des sphères de décision**

Partant du fait que la promotion de l'égalité et de l'équité de genre passe nécessairement par l'élimination de toute forme de discrimination fondée sur le sexe et le respect des droits fondamentaux de la personne y compris ceux des enfants et des femmes, la SNEEG entend œuvrer à l'amélioration du statut de la femme et au renforcement de sa participation à la vie publique à travers **les objectifs spécifiques suivants** :

- Supprimer les dispositions discriminatoires et suppléer les vides juridiques dans la législation nationale ;
- Garantir l'application effective des droits des femmes ;
- Assurer aux femmes le plein exercice de leurs droits civiques et politiques ;
- Contribuer à l'élimination des violences faites aux femmes et aux enfants ;
- Promouvoir l'égalité et l'équité de participation des femmes et des hommes dans toutes les instances de décision et à tous les niveaux ;
- Assurer la prise en compte des besoins différenciés dans les instances de décision ;

**Les stratégies** proposées pour soutenir l'atteinte de ces objectifs accordent la priorité à (i) l'instauration d'un cadre juridique égalitaire et conforme à la Constitution et aux instruments internationaux ratifiés par le Sénégal et au renforcement de l'autonomie d'action et de la capacité de décision des femmes, (ii) l'information et la sensibilisation des justiciables et des acteurs judiciaires sur les droits des femmes, (iii) un important plaidoyer en direction des décideurs et des leaders d'opinion pour leur application (iv) le renforcement de la protection des droits des personnes y compris celles en situation difficile, (v) la sensibilisation des différents acteurs de la société à l'exercice égal de la citoyenneté par l'homme et la femme, à leur égale capacité à occuper les mêmes fonctions et à exercer le pouvoir dans les instances politiques et dans les secteurs de développement économique.

Ces stratégies seront soutenues par la mise en place d'un observatoire national des droits de la femme et de la petite fille, qui sera chargé de veiller à l'application des principes d'équité et d'égalité entre les femmes et les hommes.

#### **Enjeu 4 : Amélioration de l'impact des interventions en faveur de l'égalité et de l'équité de genre**

La mise en place d'un dispositif performant au niveau institutionnel ainsi que le renforcement de la synergie des interventions dans le domaine du genre sont des conditions nécessaires pour la mise en œuvre efficace, le suivi et l'évaluation de la SNEEG. **Les objectifs spécifiques** retenus à cet effet se résument comme suit :

- Donner au mécanisme gouvernemental en charge du genre une réelle capacité d'intervention et de décision ;
- Accroître la capacité d'intervention des mécanismes d'appui à la promotion du genre et des organisations de la société civile (OSC) intervenant dans le domaine du genre ;
- Demander l'implication effective du privé dans la promotion du genre à tous les niveaux et la prise en compte effective des besoins différenciés des femmes et des hommes dans les interventions des partenaires techniques et financiers (PTF) ;
- Requérir les contributions de l'Etat, des Collectivités locales (CL) et des PTF à la promotion de l'égalité et de l'équité de genre ;
- Augmenter le volume de financement accessible pour la satisfaction des besoins des femmes et de l'égalité de genre ;
- Impliquer davantage les acteurs de la communication et de l'information (hommes et femmes) dans la production et la diffusion de l'information sur le genre.

Pour soutenir la réalisation de ces objectifs, **les stratégies à développer concernent le renforcement sur le plan institutionnel** de : (i) la capacité institutionnelle et organisationnelle des différents mécanismes, (ii) leurs compétences en genre ainsi que la synergie des interventions y compris de la coordination et du suivi entre les différents intervenants en genre et développement.

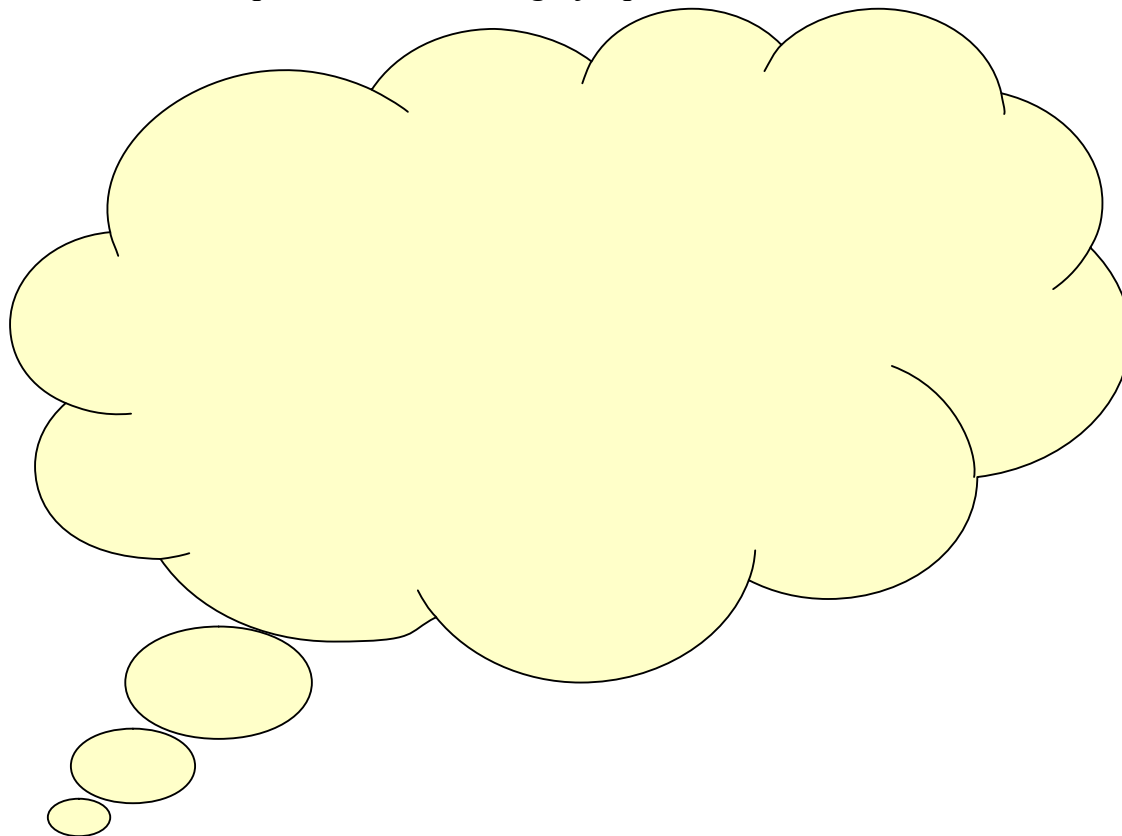
Le développement d'un système d'information et de recherche sur les questions de genre, et l'intégration de l'approche genre dans la conception, la planification et la budgétisation des actions de développement et le développement d'une stratégie de communication et de plaidoyer pour soutenir l'égalité et l'équité de genre seront des stratégies d'appui essentielles à la prise en compte des contraintes, besoins, motivations et options différenciés des femmes et des hommes dans les interventions de développement.

Un plaidoyer en direction des institutions de financement existantes et le secteur privé pour une plus grande ouverture aux initiatives liées au genre viendra soutenir la promotion économique des femmes.

**La matrice d'intervention complète de la Stratégie Nationale pour l'Égalité et l'Équité** est présentée à l'annexe 2. Elle intègre les résultats attendus de la mise en œuvre de la Stratégie, les indicateurs et les actions proposées.

Cette matrice est **un cadre de référence** qui permet de visualiser l'ampleur des actions à mener ainsi que la logique des relations de cause à effet issues de l'analyse de situation.

Aussi, est-il proposé de procéder à la priorisation des objectifs et actions dans le cadre de la formulation d'un ***Programme triennal d'action prioritaire genre et développement***; ce programme sera l'outil opératoire de la Stratégie jusqu'en 2015.



**Déclaration et Programme d'action  
de Beijing, Quatrième Conférence mondiale  
des Nations Unies sur les femmes, Beijing 1995**

## CHAPITRE IV - SCHEMA DE MISE EN ŒUVRE DE LA STRATEGIE

### 4.1. Principes directeurs pour la mise en œuvre de la SNEEG

Le schéma de mise en œuvre de la SNEEG repose sur *quelques principes de base* :

- L'exécution de la SNEEG interpelle l'Etat en tant que facilitateur, mais aussi toutes les autres parties prenantes en tant qu'acteurs et actrices de développement. Le rôle de stratège de l'Etat, dans ce contexte, doit être une réalité.
- L'interdépendance des enjeux et des objectifs de la SNEEG exige une synergie des interventions, indispensable à l'inscription des questions de genre sur le sentier de l'équité et l'égalité, seul chemin apte à réduire la pauvreté et à garantir le développement durable.
- La coordination des activités de la SNEEG entre les différentes structures impliquées dans leur exécution et les bailleurs de fonds qui en assurent le financement, est reconnue au MNG qui l'exerce effectivement.
- La société civile sera l'un des acteurs majeurs de la mise en œuvre et du suivi de la SNEEG ; à ce titre, elle sera membre à part entière des différentes instances de concertation et de suivi qui seront mises en place.
- L'atteinte des résultats de la SNEEG est fortement corrélée à l'efficacité du schéma institutionnel de mise en œuvre qui dépend à son tour de l'engagement de toutes les parties prenantes à le respecter et à le mettre en œuvre tel que défini.

Le schéma institutionnel de mise en œuvre de la SNEEG est articulé comme suit :

### 4.2. Modalités d'exécution, de coordination et de suivi-évaluation

La Stratégie Nationale pour l'Egalité et l'Equité de Genre devient ainsi le cadre de référence pour tous les partenaires au développement, bénéficiaires et acteurs, liés à l'Etat, à la société civile, au secteur privé ou à la coopération internationale qui œuvrent pour un développement durable au Sénégal.

Dans cette perspective, la définition d'un schéma de mise en œuvre pertinent s'impose. Il sera soutenu par quatre piliers qui seront les garants de sa performance, à savoir :

- La clarification des rôles et responsabilités des parties prenantes à la mise en œuvre de la stratégie ;
- La définition de mécanismes de coordination, de concertation et de suivi-évaluation, souples et efficaces ;
- La mobilisation de ressources financières nécessaires au financement des programmes identifiés ;
- L'élaboration d'une stratégie de plaidoyer et d'une stratégie de communication pour soutenir la mise en œuvre de la stratégie.

#### 4.2.1. Les acteurs impliqués dans la promotion de l'égalité et de l'équité de genre

##### ● *Le mécanisme national genre*

Le mécanisme national genre est la structure nationale en charge de la promotion de la femme et du genre. Il a pour mission de définir les orientations nécessaires pour la planification et la programmation des actions à mener dans le domaine de l'égalité et de l'équité de genre. En tant qu'interface entre les partenaires impliqués dans la promotion du genre, le mécanisme national assurera la coordination technique, le suivi et l'évaluation de la mise en œuvre de la SNEEG.



Enfin, le mécanisme national est responsable des résultats atteints dans le domaine de la promotion de l'égalité et de l'équité de genre. A ce titre, il devra rendre compte au gouvernement, qui l'a mandaté et aux partenaires impliqués dans la mise en œuvre de la Stratégie. Cette mission lui donne mandat de s'enquérir auprès de toutes les parties prenantes des informations nécessaires pour juger de l'évolution de la situation de l'égalité et de l'équité de genre et procéder ainsi aux réajustements nécessaires en vue de garantir l'atteinte des objectifs de la SNEEG.

- ***Les ministères sectoriels***

Les ministères sectoriels sont les structures gouvernementales en charge des politiques et programmes relevant de leur secteur respectif. *Ils seront directement impliqués dans l'exécution de la SNEEG* à travers la prise en compte des objectifs de la stratégie dans leurs programmes. A cet effet, les points focaux genre auront un rôle déterminant à jouer notamment en assurant le suivi de la prise en compte du genre dans les objectifs, stratégies et programmes de développement ainsi que dans les budgets de leur secteur respectif.

Dans le cadre de la mise en œuvre de la SNEEG, les points focaux travailleront en étroite collaboration avec le mécanisme national et les autres parties prenantes. Il est également proposé que les points focaux soient membres des différentes structures de coordination, de concertation et de suivi qui seront mises en place au niveau national.

L'objectif de telles dispositions est de soutenir l'intégration effective de l'approche genre dans les interventions de développement, et de favoriser la synergie des interventions en faveur de la femme.

- ***La société civile***

Les ONG et associations ainsi que les réseaux travaillant dans le domaine Genre et Développement ont un rôle à jouer dans l'instauration d'un climat d'égalité entre les sexes dans les domaines social, culturel, économique et politique. *En partenariat avec les ministères techniques et le MNG, ils seront les agents d'exécution par excellence sur le terrain.* Leur expertise dans les différents domaines d'intervention de la stratégie et leur expérience dans le domaine du développement à la base seront des atouts certains dans le cadre du partenariat qui va ainsi s'établir autour de la mise en œuvre de la SNEEG.

- ***Les Partenaires techniques et financiers***

Les institutions de coopération bilatérale et multilatérale sont des partenaires indispensables dans la mise en œuvre de la SNEEG. L'insuffisance des ressources de l'Etat requiert une collaboration étroite avec la communauté internationale pour mobiliser les financements nécessaires au développement du pays. La promotion du genre n'est pas en reste et aura également besoin de ces compléments de ressources. *Les organisations bilatérales et multilatérales seront des institutions d'appui technique et de contribution financière* pour la mise en œuvre de la SNEEG.

A ce titre, le Réseau informel des bailleurs de fonds pour le genre, qui sera converti prochainement en un Groupe Thématique Genre, sera un cadre idéal de coordination et de concertation pour les PTF qui vont intervenir dans l'exécution de la SNEEG. Il sera sans aucun doute un outil de plaidoyer pertinent pour la mobilisation des ressources nécessaires à la réalisation des actions de la SNEEG.

- ***Les Parlementaires***

A travers leurs structures internes et réseaux, *ils seront des partenaires incontournables pour le plaidoyer* pour la promotion de l'égalité et de l'équité de genre et la mobilisation des ressources. Les femmes parlementaires en l'occurrence joueront un rôle déterminant au sein de l'Assemblée Nationale et auprès du gouvernement pour faire voter les textes et prendre les mesures appropriées qui garantiront aux femmes la place qui leur revient de droit dans la société.

- ***Les professionnels de la communication***

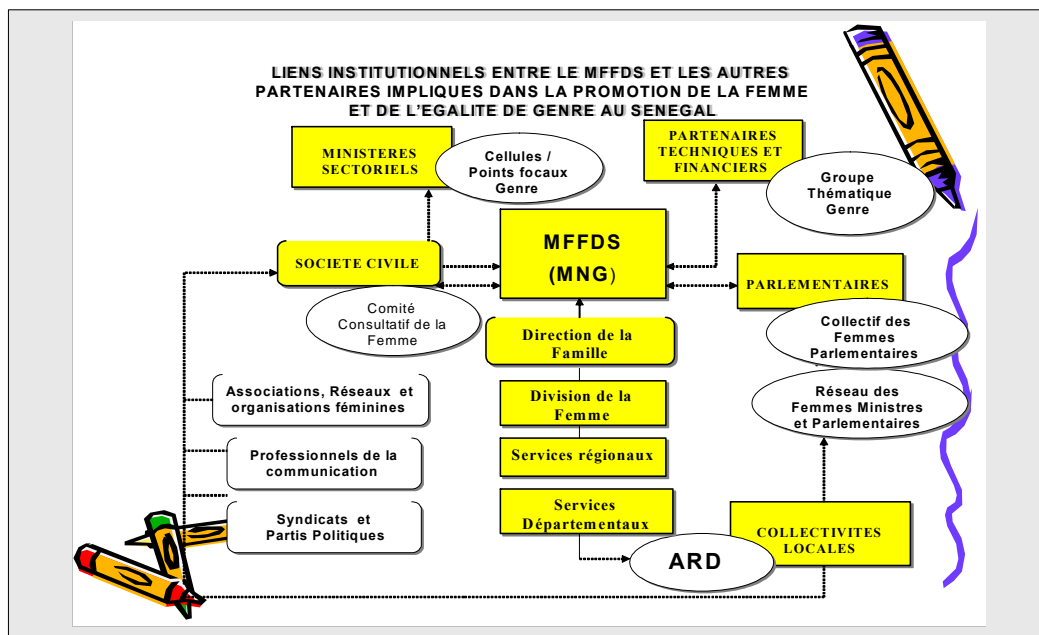
Les médias, les communicateurs traditionnels, les relais communautaires et les artistes seront également des partenaires privilégiés pour l'information et la sensibilisation des populations, mais aussi au niveau du plaidoyer auprès des autorités politiques et des leaders d'opinion pour un changement de comportement et la création d'un environnement favorable à la promotion du genre. *Ils seront les principaux acteurs de la stratégie de communication* qui devra accompagner la mise en œuvre de la SNEEG.

- **Les Collectivités locales (CL)**

Les Collectivités locales sont les institutions décentralisées, représentées par les Régions, les Communes et les Communautés rurales. Les CL *seront directement impliquées dans l'exécution de la SNEEG* à travers la prise en compte des objectifs de la Stratégie dans leurs programmes d'intervention. A cet effet, les Agences Régionales de Développement (ARD), en rapport avec les services techniques déconcentrés aux niveaux local, départemental et régional auront un rôle déterminant à jouer dans la planification, la programmation et la budgétisation des actions de développement en vue de garantir la prise en compte du genre à tous les niveaux.

- **Les groupes cibles bénéficiaires**

Les groupes cibles ne seront pas des bénéficiaires passifs, mais plutôt des acteurs-bénéficiaires. Ils s'investiront pleinement dans la définition de leurs besoins et priorités, dans la formulation des projets et programmes devant répondre à leurs préoccupations, ainsi que dans le financement et la mise en œuvre des actions à mener. Ils seront parties prenantes dans les activités de planification, de suivi et d'évaluation. A travers leurs différentes formes d'organisation, *ils seront des interlocuteurs incontournables pour la mise en œuvre de la SNEEG.*



#### **4.2.2. Des structures de coordination, de concertation et de suivi-évaluation.**

Pour garantir la réussite de la mise en œuvre de la SNEEG, il conviendrait de mettre en place et de faire fonctionner régulièrement des structures de coordination, de concertation et de suivi. Les organes, ci-dessous présentés, sont les mêmes que ceux précédemment retenus pour le PANAF dont l'évaluation finale a reconnu leur pertinence, malgré une opérationnalité déficiente durant l'exécution du PANAF ; la raison majeure avancée à cet effet étant l'engagement insuffisant de l'Etat et de ses partenaires dans la mise en œuvre du PANAF, engagement qu'il faudra nécessairement renforcer dans le cadre de l'exécution de la SNEEG.

Ainsi, le schéma institutionnel de mise en œuvre de la SNEEG sera articulé autour des mécanismes suivants :

##### ***Un Comité Ministériel Genre et Développement***

Au niveau décisionnel, il est proposé de mettre en place, sous la présidence du Premier Ministre, un Comité Ministériel Genre et Développement. *Le Comité sera l'instance d'orientation et de décision en matière de genre.*

Il se réunira une fois par an, sur la base du rapport de situation du genre au Sénégal qui sera présenté par le MNG, à l'effet (i) d'examiner l'état d'avancement de la mise en œuvre de la SNEEG et (ii) de donner les orientations et directives nécessaires à la promotion de la femme et à l'avancement de l'égalité de genre.

##### ***Un Comité technique de suivi-évaluation***

Placé sous la présidence du MNG, *le Comité technique de suivi-évaluation est l'organe de concertation et de coordination* dans les domaines de la promotion de la femme et de l'égalité de genre. Il sera composé des points focaux genre de tous les départements ministériels, des représentants des organisations de la société civile, du Groupe Thématique Genre des bailleurs de fonds, du secteur privé et de quelques personnes ressources, partenaires dans le cadre de la mise en œuvre de la SNEEG. Le Comité technique a pour mission d'appuyer le mécanisme national dans la mise en œuvre de la SNEEG. Plus spécifiquement, il devra :

- Assurer une bonne communication entre les différents acteurs impliqués dans la mise en œuvre de la SNEEG par la tenue de réunions trimestrielles ;
- Assister le MNG dans l'élaboration des documents destinés au Conseil interministériel;
- Aider à la recherche et à la mobilisation de ressources financières internes et externes et à la constitution de banques de données sur les différents enjeux de la SNEEG ;
- Participer aux missions de suivi et d'évaluation de la SNEEG ;
- Veiller à l'application des directives du Conseil interministériel.

##### ***Un organe de coordination technique***

*Le Mécanisme National Genre est l'organe pilote* de la mise en œuvre de la SNEEG. Conformément à ses missions, il lui revient de planifier et de coordonner l'exécution de la SNEEG. Dans ce cadre, il aura essentiellement pour tâches de :

- Assurer la coordination des interventions dans le cadre de la mise en œuvre de la SNEEG ;
- Entretenir le dialogue avec les parties prenantes à la mise en œuvre de la SNEEG ;
- Soutenir la mobilisation des ressources pour le financement des programmes de la SNEEG ;
- Participer aux exercices de programmation de l'Etat et des partenaires techniques et financiers.
- Exploiter les rapports de suivi qui seront produits par la Cellule de Suivi du Programme de Lutte Contre la Pauvreté et des OMD du Ministère de l'Economie et des Finance ;
- Produire des rapports de suivi sur la mise en œuvre de la SNEEG et un rapport de situation annuel sur l'égalité et l'équité de genre au Sénégal ;
- Constituer une base de données sur la situation des femmes et des hommes et assurer sa mise à jour régulièrement ;

- Introduire auprès du gouvernement les propositions de mesures législatives et réglementaires relatives à l'égalité et à l'équité de genre ;
- Procéder, en relation avec les partenaires, à l'évaluation à mi-parcours de la mise en œuvre de la SNEEG et à son évaluation finale.

Pour assurer la coordination des interventions avec efficacité, le MNG établira des protocoles de collaboration avec les différents intervenants.

De même au niveau du suivi et de l'évaluation, le MNG travaillera étroitement avec la Cellule de Suivi du Programme de Lutte contre la Pauvreté du Ministère de l'Economie et des Finances et les Cellules régionales de suivi du DSRP.

Pour capitaliser les résultats du suivi-évaluation, il est proposé au MNG de mettre en place un système d'information sur le genre dans chacun des domaines prioritaires d'intervention de la Stratégie. Ce système sera alimenté par une production conséquente de données désagrégées par sexe provenant des différents secteurs d'activités et par les résultats des études thématiques et enquêtes ponctuelles réalisées sur le sujet. ***La collaboration de la Direction de la Prévision et de la Statistique sera sollicitée dans ce cadre.***

Cette démarche a pour objet (i) de mieux informer sur l'évolution de la situation des jeunes, des femmes et des hommes, (ii) de contribuer à l'élaboration des argumentaires qui seront utilisés lors des activités de sensibilisation, d'information et de plaidoyer et (iii) de faciliter le suivi et l'évaluation des programmes de la Stratégie.

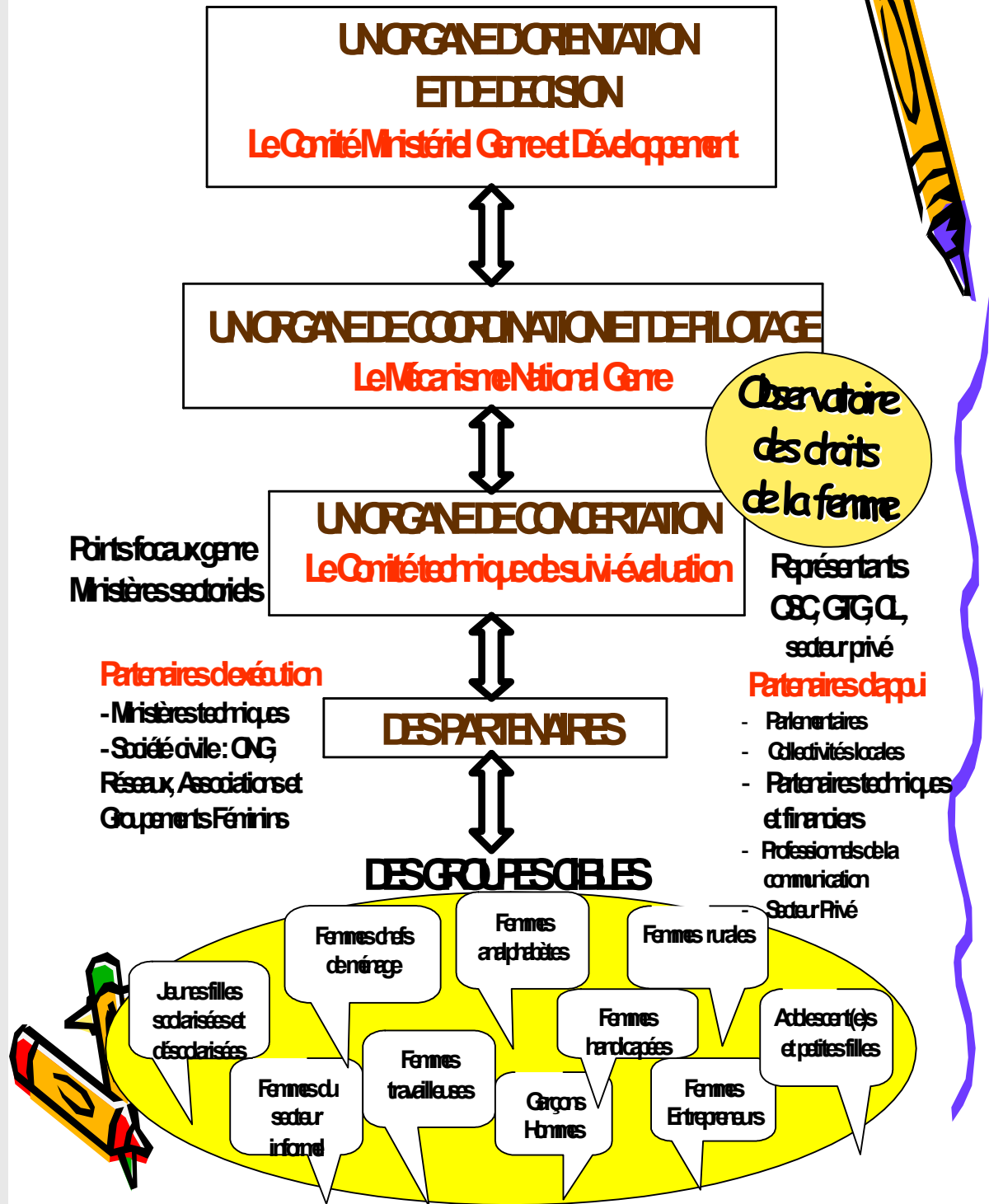
Afin de permettre au MNG de jouer efficacement son rôle, ***il est suggéré de lui assurer une position institutionnelle plus visible, plus autonome et plus efficace.***

#### ***Un organe de contrôle***

*L'Observatoire des Droits de la Femme (ODF)* est un mécanisme, prévu d'être mis en place par les autorités, suite à l'élaboration du deuxième Plan d'action (PANAF) à l'effet de renforcer la protection des droits des femmes et des petites filles. Plus spécifiquement, l'ODF a pour mission d'une part de faire respecter les droits des femmes et des petites filles et d'autre part de contrôler l'application des textes législatifs et réglementaires en relation avec les conventions internationales en la matière. A ce titre, *il jouera un rôle de veille et d'alerte de la mise en œuvre de la SNEEG. Aussi, est-il recommandé de le mettre rapidement en place et de le doter des moyens nécessaires à l'exercice correct de ses missions.*

Le schéma institutionnel, ainsi défini, a plusieurs avantages : (i) il établit une charte des responsabilités très claire sur ce qui est attendu de chaque partie prenante à la mise en œuvre de la SNEEG ; (ii) il favorise la collaboration et la synergie des intervenants et enfin, (iii) il contribue à consolider les capacités techniques du MNG en planification, suivi et évaluation conformément à ses missions. La représentation graphique de ce schéma est ci-dessous reproduite.

# Cadre Institutionnel de Mise en oeuvre de la SNEEC



### 4.2.3. Des mécanismes et outils de suivi-évaluation et de plaidoyer

Pour soutenir l'opérationnalisation des organes, ainsi définis, des mécanismes et outils de suivi-évaluation sont proposés, il s'agit en particulier :

- des Cellules GED/Points focaux à créer dans tous les secteurs au niveau national ;
- des protocoles de collaboration entre le mécanisme national et les autres partenaires
- d'un système d'information genre et développement au niveau national ;
- des rapports de suivi-évaluation sur l'exécution de la mise en œuvre de la SNEEG régulièrement produits par les parties prenantes ;
- d'un rapport annuel de situation à soumettre au Président de la République ;
- des argumentaires thématiques sur les questions de genre dans tous domaines de la vie économique et sociale pour soutenir le plaidoyer en faveur de la création de l'environnement institutionnel favorable à la promotion du genre et à son intégration dans le développement ;

### 4.3. Stratégies d'appui à la mise en œuvre de la SNEEG

Il est recommandé au MNG d'élaborer, dès à présent, une stratégie de plaidoyer pour la mobilisation des ressources et une stratégie de communication pour soutenir la mise en œuvre de la SNEEG et rendre visibles ses résultats.

#### ☞ *Une stratégie de plaidoyer pour la mobilisation des ressources*

Pour faciliter la mobilisation du financement de la SNEEG, il est proposé au MNG :

- d'élaborer un document de plaidoyer contenant (i) un résumé de la Stratégie ainsi qu'un dépliant présentant d'un côté les disparités hommes/femmes et de l'autre les engagements politiques en matière d'égalité et d'équité, (ii) un argumentaire pertinent pour convaincre l'Etat et les partenaires techniques et financiers de la nécessité pour le pays de mettre en œuvre la Stratégie pour l'Egalité et l'Equité de Genre et d'avoir pour cela l'engagement des principaux acteurs à contribuer concrètement à sa mise en œuvre ;
- de préparer un calendrier de mobilisation des ressources qui tiennent compte des cadres de programmation de l'Etat et des partenaires techniques et financiers ;
- de constituer des alliances stratégiques avec des personnes convaincues de la nécessité de promouvoir l'égalité et l'équité de genre pour mener un plaidoyer actif en direction des différents décideurs, des leaders d'opinion, des partenaires techniques et financiers et du secteur privé.

#### ☞ *Une stratégie de communication pour soutenir la mise en œuvre de la SNEEG*

La SNEEG, pour être mise en œuvre dans les meilleures conditions, devra être soutenue par une bonne stratégie de communication. Une telle initiative a pour objet d'informer et de sensibiliser les diverses catégories d'audience autour de la SNEEG en vue de (i) susciter leur adhésion et leur participation effective, (ii) obtenir les changements de comportement souhaités en faveur de l'égalité de genre et (iii) partager les échanges d'expérience et la dissémination des recherches.

A cet effet, la stratégie de communication va allier la *communication de masse* en s'appuyant sur les médias publics et privés et la *communication de proximité* basée sur une intervention plus ciblée en direction des différentes catégories de la population. Les décideurs, les parlementaires, les élus locaux, les leaders d'opinion (chefs coutumiers et religieux), les employeurs, les ménages seront des *cibles privilégiées* pour les activités d'information, de sensibilisation, de mobilisation sociale et de plaidoyer.

Le Ministère de l'Information et de la Communication, les médias publics et privés, le réseau des journalistes, le réseau des Femmes Ministres et Parlementaires, le Comité Consultatif de la Femme, les réseaux genre, les communicateurs traditionnels, les artistes, les associations sportives et culturelles, les relais communautaires, les chercheurs de l'université, les enseignants et les ONG spécialisées en IEC seront *les partenaires* pour la conduite de la stratégie de communication. La

stratégie de communication devra être soutenue par une production conséquente de *supports* d'information

#### 4.4. Besoins et structure du financement de la stratégie

##### ☞ *Besoin de financement*

Le coût global des programmes de la SNEEG se chiffre à **30.466.000.000 F.CFA** pour la période 2005-2015. Il se répartit par enjeu comme suit :

Enjeux de la SNEEG	Besoin de financement en millions de F.CFA	% du coût total
<i>Enjeu 1 : Valorisation de la position sociale de la femme et renforcement de ses potentialités</i>	<b>5.200 F.CFA</b>	<b>17%</b>
<i>Enjeu 2 : Promotion économique des femmes en milieu rural et urbain</i>	<b>8.401 F.CFA</b>	<b>28%</b>
<i>Enjeu 3 : Promotion de l'exercice équitable des droits et devoirs des femmes et des hommes et renforcement de l'accès et de la position des femmes au niveau des sphères de décision</i>	<b>4.645 F.CFA</b>	<b>15%</b>
<i>Enjeu 4 : Amélioration de l'impact des interventions en faveur de l'égalité et de l'équité de genre</i>	<b>12.220 F.CFA</b>	<b>40%</b>
<b>TOTAL</b>	<b>30.466 F.CFA</b>	<b>100%</b>

##### ☞ *Structure du financement*

La mise en oeuvre des programmes de la SNEEG implique la mobilisation de ressources accrues de la part de l'Etat et des partenaires techniques et financiers.

###### *\* Au niveau de l'Etat*

La mobilisation de ressources au titre des dotations budgétaires nationales constitue un facteur important pour le succès de la mise en œuvre de la SNEEG. Elle marquera également, l'engagement effectif de l'Etat à œuvrer pour l'égalité et l'équité de genre et la promotion des femmes. ***Cet engagement se traduira par le renforcement institutionnel du mécanisme national, et l'allocation d'au moins 15% de chaque budget sectoriel à la prise en compte du genre.***

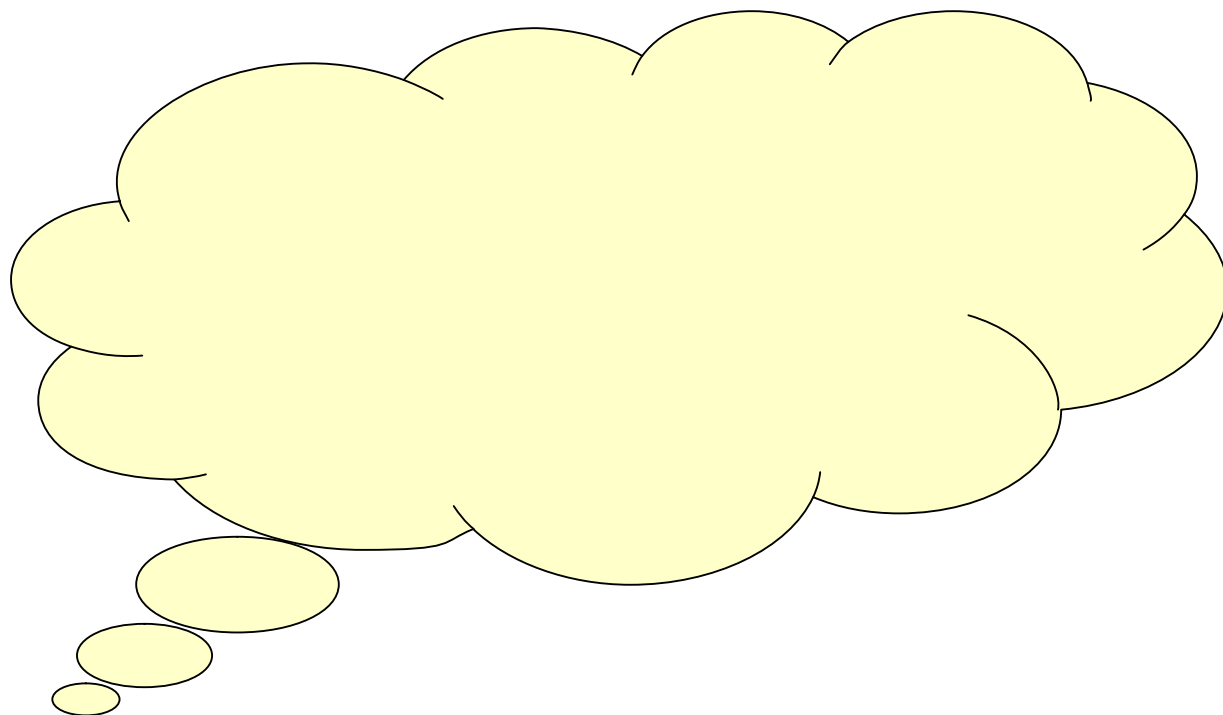
###### *\* Au niveau des Collectivités locales*

Il est attendu des Collectivités locales une contribution significative à la promotion du genre grâce la prise en compte effective du genre par tous les instruments de planification et de budgétisation utilisés. ***Cet engagement sera concrétisé par une allocation systématique d'au moins 15% de leurs ressources à la promotion de la femme et de l'égalité de genre aux niveaux local, départemental et régional.***

###### *\* Au niveau des partenaires techniques et financiers*

Une fois le document de la SNEEG adopté par le gouvernement, *les partenaires bilatéraux et multilatéraux seront invités à des concertations sur les différents enjeux de la SNEEG* pour l'identification de leur centre d'intérêt et la détermination des modalités d'intervention et des contributions nécessaires à l'exécution de la SNEEG. Ces concertations seront organisées conjointement par le Ministère de l'Economie et des Finances, le Ministère du Plan et du Développement Durable et le Mécanisme National Genre.

La mobilisation des ressources sera facilitée par *l'intégration effective de la matrice logique d'intervention de la SNEEG dans le DSRP* dont une révision est prévue très prochainement. Le MNG devra veiller à cela et s'impliquer activement à tous les niveaux du processus d'élaboration du prochain DSRP.





## CONCLUSION

La présente revue de la situation des sénégalais et des sénégalaises enseigne que c'est encore au cœur de la famille, espace largement régulé par les idéologies culturelles, politiques et religieuses, qu'est ancré le débat sur l'égalité des sexes. C'est au sein de la famille que les rôles sociaux assignés au garçon et à la petite fille, à l'homme et à la femme sont signifiés et mis en pratique. Ces rôles induisent des inégalités sociales qui conditionnent leur participation au sein de la communauté, dans l'économie, au niveau de l'Etat et plus globalement au développement.

L'analyse de situation reconnaît également que les femmes, forces actives indispensables pour le développement, sont encore sous représentées dans les sphères de la vie économique et pratiquement exclues des niveaux de la prise de décision du fait de leurs statut et position sociale inférieurs. Or, il est largement admis aujourd'hui que l'on ne peut plus parler de démocratie, de bonne gouvernance et de développement sans la participation équitable des hommes et des femmes, en tant qu'individus, citoyens et acteurs de développement.

Aussi, toute intervention en faveur de l'égalité de genre devra t-elle en priorité, agir sur ces inégalités structurelles qui privent le pays de la moitié de sa population, forces vives essentielles à son développement, comme le soulignent certains observateurs en parlant de "*réserves de croissance latentes*" et dont la sous utilisation entraîne ce qu'ils ont également appelé "*une opportunité manquée de croissance et de transformation*"<sup>11</sup>

En élaborant une Stratégie Nationale pour l'Egalité et l'Equité de Genre, le Sénégal adopte résolument une perspective sexospécifique pour réaliser l'égalité entre hommes et femmes et le développement durable. Cependant, l'expérience a trop souvent montré qu'il ne suffit pas de disposer des cadres de référence et autres instruments d'intervention pour assurer leur application et opérer les changements nécessaires.

Dans le cadre des questions d'égalité de genre plus qu'ailleurs, disposer d'un cadre de référence est certes indispensable mais pas suffisant. Il est clair que la mise en œuvre de la Stratégie Nationale pour l'Egalité et l'Equité de Genre ne pourra se faire en l'absence d'une ferme volonté des autorités à l'exécuter et de l'engagement actif de toutes les parties prenantes à y prendre part. Il faut beaucoup de volontarisme pour faire avancer la question de l'égalité.

La prise de mesures essentielles à un réel renforcement institutionnel et organisationnel du mécanisme national en charge du genre et de la promotion de la femme, à la création d'un environnement favorable à l'égalité et à l'équité de genre, au renforcement des capacités en genre et en planification des différents acteurs ainsi que la mobilisation des ressources techniques et financières nécessaires sont les conditions sine qua non à la mise en œuvre de la Stratégie pour l'équité et l'égalité de genre.

***Relever le défi de la mise en œuvre est donc la prochaine étape à franchir pour le Sénégal s'il veut s'inscrire dans la trajectoire du développement durable. L'heure est donc à la concrétisation des engagements pour une véritable égalité de genre !***

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<sup>11</sup> World Bank, Can Africa claim the 21<sup>st</sup> century?, Africa development Bank, Africa Economic Research Consortium, Global Coalition for Africa, United Nations, Economic Commission for Africa and World Bank, 2000.

# ANNEXES

## ANNEXE 1. PRESENTATION SYNOPTIQUE DE L'ANALYSE DE SITUATION

### ANALYSE DE SITUATION DOMAINE CULTUREL ET SOCIAL

PROBLEME CENTRAL	PROBLEMES INTERMEDIAIRES	CAUSES / FACTEURS EXPLICATIFS
<b>Statut d'infériorité de la femme dans la famille et dans la société sénégalaise</b>	Valeurs et croyances culturelles en faveur de la soumission de la femme à l'homme	Systèmes patriarcal et patrilinéaire  Mariages coutumiers  Stéréotypes et préjugés sexistes
	Volonté politique insuffisante pour une faible remise en cause des rapports inégalitaires entre l'homme et la femme	Influence de la coutume et de l'interprétation négative (ou tendancieuse) des religions à l'égard des femmes  Supériorité socioculturelle de l'homme
	Inégalité dans la répartition des rôles et des responsabilités entre l'homme et la femme au sein de la famille et dans la communauté.	Rôles domestique et de reproduction assignés de fait à la femme et socialement valorisés  Rôle de chef de famille et pouvoir de décision reconnus exclusivement à l'homme
<b>Inégal niveau d'instruction, d'éducation et de qualification des filles/garçons et des femmes/hommes</b>	Accès inégal dans tous les niveaux d'enseignement	Couverture en infrastructures scolaires encore insuffisante et dispersée  Préjugés sur les bienfaits de l'école et de la scolarisation des filles
	Déperdition scolaire des filles plus importante au fur et à mesure qu'elles avancent de niveau surtout en milieu rural	Grossesses précoces  Participation excessive aux tâches domestiques pour aider la mère  Faible niveau de revenu des familles
	Analphabétisme des femmes élevé	Faible opportunité d'éducation alternative  Inadaptation de certains programmes d'alphabétisation à la situation et aux besoins réels des femmes  Responsabilités familiales, pression sociale et résistance du mari
	Insuffisante prise en compte des besoins différenciés des filles et des garçons à tous les niveaux du système éducatif	Faible conscience des questions de genre chez les enseignants et les autorités de l'éducation  Compétences insuffisantes en genre dans le système éducatif

PROBLEME CENTRAL	PROBLEMES INTERMEDIAIRES	CAUSES / FACTEURS EXPLICATIFS
<p><b>Plus grande vulnérabilité de la santé de la reproduction (SR) des femmes et des adolescentes</b></p>	<p>Taux de mortalité maternelle élevé</p>	<p>Insuffisance des structures obstétriques et de la qualité des services liés à la maternité notamment en milieu rural</p> <p>Vie sexuelle précoce</p> <p>Grossesses précoces, rapprochées ou tardives et à risque</p> <p>Complication suite aux avortements et A l'excision</p> <p>Surcharge de travail domestique</p> <p>Violences domestiques</p> <p>Coût élevé de la prise en charge</p> <p>Pauvreté des ménages</p> <p>Facteurs socioculturels ayant un effet négatif sur la SR des femmes</p> <p>Endémie palustre</p>
	<p>Taux de fécondité élevé</p>	<p>Rapport inégalitaire entre l'homme et la femme en matière de choix et de responsabilité en matière de SR</p> <p>Valorisation du rôle de reproduction de la femme dans la société</p> <p>Faible taux de prévalence contraceptive</p>
	<p>Vulnérabilité des femmes et des adolescentes aux IST/SIDA</p>	<p>Activité sexuelle précoce chez les jeunes</p> <p>Multiplicité de partenaires et polygamie</p> <p>Sous information des femmes, adolescent (e) s et des hommes sur ces questions</p> <p>Dépendance économique et sociale</p>
	<p>Faible prise en compte des besoins spécifiques en SR des femmes, des hommes et des jeunes dans les politiques et programmes de santé</p>	<p>Insuffisance des services offerts en matière de SR</p> <p>Insuffisance de compétences en genre dans le secteur</p>

#### ANALYSE DE LA SITUATION

**DOMAINE ECONOMIE ET PAUVRETE**

<b>PROBLEME CENTRAL</b>	<b>PROBLEMES INTERMEDIAIRES</b>	<b>CAUSES / FACTEURS EXPLICATIFS</b>
<b>Faible pouvoir économique des femmes</b>	Cantonnement des femmes dans des activités de subsistance et dans le secteur informel	Rôles stéréotypés de la femme et de l'homme dans la société
	Multiplicité des rôles et surcharge de travail pour les femmes	Répartition inégale des fonctions dans la société  Division inégale du travail domestique
	Capacité d'investissement des femmes et des hommes limitée	Accès limité des femmes aux moyens de production à la technique et à la technologie  Accès limité aux opportunités économiques  Connaissances techniques limitées  Féminisation de la pauvreté
	Accès inégal aux opportunités d'emploi	Niveau d'éducation et de qualification différencié  Conflit d'intérêt entre obligations professionnelles, sociales et familiales
	Faible intégration du genre dans les politiques et programmes économiques	Perception neutre du milieu d'intervention et des réponses aux besoins en termes de croissance et de développement  Faible connaissance sur les questions de genre et de compétences en matière d'application de l'approche genre comme outil de développement

**ANALYSE DE SITUATION  
DOMAINE DROITS, CITOYENNETE ET PRISE DE DECISION**

PROBLEME CENTRAL	PROBLEMES INTERMEDIAIRES	CAUSES / FACTEURS EXPLICATIFS
<b>Jouissance des droits et exercice des devoirs différenciés pour l'homme et la femme au sein de la famille et de la société</b>	Subsistance de dispositions discriminatoires et de vides juridiques dans la législation nationale	<ul style="list-style-type: none"> <li>- Déficit d'harmonisation entre la législation nationale et les instruments internationaux</li> <li>- Anéantissement de certaines dispositions favorables aux femmes par des mesures spécifiques discriminatoires</li> <li>- Insuffisante protection des personnes en situation difficile notamment les femmes et les petites filles</li> </ul>
	Non effectivité de l'application des textes favorables à l'EEG	<ul style="list-style-type: none"> <li>- Défaut de publication des textes et de mesures d'application</li> <li>- Méconnaissance par les femmes de leurs droits et par les acteurs judiciaires et extrajudiciaires des droits des femmes</li> <li>- Faiblesse des recours aux services judiciaires</li> <li>- Absence d'un mécanisme de suivi de l'application des textes favorables à l'Equité et à l'Egalité de Genre</li> <li>- Insuffisance de pression des OSC pour la promotion du genre</li> </ul>
	Vulnérabilité des femmes et des filles aux violences dans les foyers, la société et les zones de conflits	<ul style="list-style-type: none"> <li>- Position de subordonnée et de dépendance de la femme dans le couple</li> <li>- Stéréotypes sexistes et machisme de certains hommes</li> <li>- Impunité des auteurs</li> </ul>
<b>Rapports inégalitaires dans l'exercice de la citoyenneté par l'homme et la femme</b>	Faible reconnaissance par la société de l'exercice des droits civiques et politiques par la femme	<ul style="list-style-type: none"> <li>- Exercice du pouvoir considéré dans la société sénégalaise comme l'apanage de l'homme</li> <li>- Difficultés d'obtention et/ou de détention des pièces d'état civil et autres actes administratifs par les femmes</li> </ul>
<b>Représentation différenciée des femmes et des hommes dans les instances de décision publique, politique, syndicale et dans le secteur privé aux niveaux local, national et international</b>	<p>Prédominance des hommes dans les instances de décision</p> <p>Insuffisante prise en compte des questions d'égalité et d'équité dans les instances de décision</p>	<ul style="list-style-type: none"> <li>- Perception sociale et idéologique défavorable à l'égalité homme/femme dans la prise de décision et l'exercice du pouvoir</li> <li>- Manque de confiance en soi, de soutien et de solidarité des femmes entre elles</li> <li>- Difficultés pour la femme de concilier carrières professionnelles et responsabilités familiales et sociales</li> <li>- Inégale capacité financière à investir dans la politique</li> <li>- Faible conscience des questions de genre chez les décideurs et leaders des instances de décision</li> <li>- Compétences insuffisantes en genre dans les instances de décision</li> </ul>

**ANALYSE DE SITUATION**  
**DOMAINE MECANISMES INSTITUTIONNELS**  
**DE PROMOTION, FINANCEMENT ET COMMUNICATION**

<b>PROBLEME CENTRAL</b>	<b>PROBLEMES INTERMEDIAIRES</b>	<b>CAUSES / FACTEURS EXPLICATIFS</b>
<b>Faible impact des interventions en faveur de l'égalité et l'équité</b>	Insuffisante capacité d'intervention et faible pouvoir de décision du mécanisme gouvernemental en charge du genre	<ul style="list-style-type: none"> <li>- Inadéquation entre les missions du cadre institutionnel genre, sa position organisationnelle et les moyens humains, matériels et financiers dont il dispose</li> <li>- Leadership du mécanisme national genre peu affirmé et reconnu</li> </ul>
	Insuffisante contribution des mécanismes d'appui à la promotion du genre	<ul style="list-style-type: none"> <li>- Non opérationnalité des points focaux genre</li> <li>- Intervention du Comité Consultatif de la Femme (CCF) concentrée sur les événements spéciaux</li> </ul>
	Insuffisante capacité d'intervention des organisations de la société civile (OSC) qui opèrent dans la promotion du genre	<ul style="list-style-type: none"> <li>- Faiblesse des ressources humaines et des moyens financiers des OSC intervenant dans le domaine du genre</li> <li>- Insuffisance des compétences en genre au sein des OSC</li> <li>- Interventions non harmonisées et dispersion des actions</li> <li>- Mobilisation circonstancielle des OSC pour l'égalité et l'équité de genre</li> </ul>
	Faible intervention du secteur privé dans la promotion du genre	<ul style="list-style-type: none"> <li>- Approche genre peu prise en compte dans les interventions du secteur privé</li> <li>- Absence d'un mécanisme de collaboration avec le Mécanisme gouvernemental</li> <li>- Faible connaissance de l'approche genre et développement dans le secteur privé</li> </ul>
	Interventions des partenaires techniques et financiers (PTF) sectorielles et géographiquement ciblées	<ul style="list-style-type: none"> <li>- Faible application de l'approche transversale en matière de genre</li> </ul>
	Insuffisante mobilisation des ressources financières au profit de l'égalité et de l'équité de genre	<ul style="list-style-type: none"> <li>- Faiblesse de la contribution financière de l'Etat et des partenaires au développement pour le genre</li> <li>- Faible maîtrise des outils et des mécanismes de mobilisation des fonds</li> </ul>
	Faible niveau de financement des besoins en faveur de la promotion de la femme et de l'égalité de genre	<ul style="list-style-type: none"> <li>- Accès inégal des hommes et des femmes aux financements des banques</li> <li>- Faiblesse du volume des financements octroyés par les systèmes de financement formels et non formels</li> </ul>
	Faible implication des médias, des acteurs de la communication de proximité, des artistes et des Réseaux dans la promotion du genre	<ul style="list-style-type: none"> <li>- Approche genre peu prise en compte au niveau des différents acteurs de la communication et de l'information</li> <li>- Compétences limitées en genre au niveau des acteurs de la communication et de l'information</li> <li>- Interventions circonstancielle des acteurs de la communication et de l'information dans la promotion du genre</li> <li>- Sous représentation des femmes dans les organes de presse et au niveau des rédactions en particulier</li> </ul>

## ANNEXE 2

# MATRICE D'INTERVENTION DE LA STRATEGIE POUR L'EGALITE ET L'EQUITE DE GENRE



**ORIENTATION STRATEGIQUE 1 : VALORISATION DE LA POSITION SOCIALE DE LA FEMME  
ET RENFORCEMENT DE SES POTENTIALITES**

**Objectif 1.1 : Amener les différentes composantes de la société à adhérer et à œuvrer pour l'égalité et l'équité de genre**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Estimatifs Millions F.CFA	PERIODE	PARTENARIAT
1.1.1. Conscientisation des hommes et des femmes sur les manifestations des disparités et des discriminations	Prise de conscience et engagement effectifs de toutes les catégories d'acteurs à la réduction des inégalités entre filles et garçons  Des images et valeurs valorisantes des deux sexes se substituent progressivement aux stéréotypes sexistes négatifs	Programme IEC/Genre élaboré et exécuté  Au moins trois enquêtes CAP réalisées  % de la population des zones ciblées ayant des comportements favorables à l'égalité et l'équité de genre  Les résultats des enquêtes et études sont diffusés et utilisés dans les programmes IEC et plaidoyer pour l'égalité et l'équité de genre	Elaborer et mettre en œuvre un programme d'IEC/Genre y compris les supports adaptés en français et en langues nationales	<b>300,00</b>	2005-2015	MNG CCF, Points focaux OSC, Réseaux Collectivités locales Syndicats PTF Consultant (e) s
			Mener des enquêtes CAP légères au niveau des familles des zones ciblées en 2006, 2010 et 2015 pour évaluer les changements dans les rapports H/F	<b>150,00</b>	2006, 2010 et 2015	MNG PTF OSC spécialisées Points focaux Consultant (e) s
1.1.2. Amélioration du niveau de connaissance de la situation des femmes dans différents contextes socioculturels	Meilleure visibilité des rapports de genre et plus grande compréhension des inégalités entre hommes et femmes	Inventaire des déterminants socioculturels et des stéréotypes, disponible par région  Existence de sources d'information et de sensibilisation sur la situation et le vécu différenciés des hommes et des femmes dans les zones ciblées	Réaliser une cartographie des déterminants socioculturels du statut de la femme vs statut de l'homme y compris les stéréotypes	<b>50,00</b>	2006-2007	MNG Points focaux REGENTIC ORGENS INEADE, IFAN DPS Centre de Suivi Ecologique Consultant (e) s

**Objectif 1.2 : Amener les garçons et les hommes à prendre une part active dans la promotion de l'égalité de genre, la gestion du foyer et le partage des responsabilités dans la communauté**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions F.CFA	PERIODE	PARTENARIAT
1.2.1. Sensibilisation pour un meilleur partage des fonctions et responsabilités dans la famille et dans la société	<p>Elimination progressive des stéréotypes sexistes au sein de la famille et de la société</p> <p>Implication effective des garçons et des hommes dans la gestion des activités domestiques et communautaires dans les zones ciblées</p> <p>Des comportements favorables à l'égalité et à l'équité entre l'homme et la femme sont davantage visibles</p>	<p>Un programme d'information et de sensibilisation est élaboré et exécuté</p> <p>Nombre et qualité des acteurs polarisés par les campagnes de sensibilisation et engagés dans la diffusion des messages</p> <p>% des CL ayant mis en place un programme pilote</p> <p>% des familles ciblées ayant adopté le paradigme de l'égalité et l'équité de genre comme code de conduite</p>	Elaborer et mettre en œuvre un programme d'information et de sensibilisation sur l'importance et les bénéfices du partage des rôles et responsabilités en direction des familles	150,00	2005-2015	MNG Personnes ressources OSC Syndicats Réseau des journalistes Réseau des Parlementaires Collectif des femmes parlementaires Réseau des Communicateurs traditionnels Relais communautaires
			Initier en partenariat avec les Collectivités locales un programme pilote pour la promotion du partage des rôles et responsabilités entre hommes et femmes au sein de la famille et de la société	500,00	2006-2015	MNG Personnes ressources CL, OSC
1.2.2. Promotion d'un leadership partagé au sein de la famille et dans la société entre les femmes et les hommes	<p>La parenté conjointe et le partage des charges et des responsabilités dans la famille et la société entre l'homme et la femme sont acceptés par tous les acteurs</p> <p>Le statut de chef de famille est reconnu indifféremment à l'homme et à la femme</p>	<p>Toutes les composantes de la société ont été consultées sur la révision du Code de la Famille</p> <p>L'argumentaire sur le Code le Code de la Famille est disponible et diffusé</p> <p>Le Code de la Famille est révisé et intègre la notion de parenté conjointe /autorité parentale</p>	Organiser des concertations sur la révision du Code de la Famille	50,00	2005-2007	MNG Min Justice Leaders d'opinion Points focaux genre Réseaux OSC, PTF
			Développer un programme de plaidoyer pour la substitution de la parenté conjointe / autorité parentale à la puissance paternelle dans le Code de la Famille	50,00	2005-2007	MNG Min Justice Leaders d'opinion Points focaux genre Réseaux OSC, syndicats, PTF

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions F.CFA	PERIODE	PARTENARIAT
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1.2.3. Instauration d'un dialogue social autour des avantages de l'égalité et de l'équité de genre	Plus grande adhésion des hommes, des décideurs et des leaders d'opinion à l'égalité de genre  Réduction des inégalités de sexe voire égalité de traitement entre l'homme et la femme dans tous les secteurs et à tous les niveaux	Au moins 10 argumentaires sur l'égalité et l'équité de genre sont élaborés et sont utilisés dans les programmes de sensibilisation et de plaidoyer	Elaborer des argumentaires sur les avantages de l'égalité et l'équité de genre pour l'épanouissement de la société et le développement	<b>100,00</b>	2005-2015	MNG OSC spécialisées Syndicats Réseaux Collectif des femmes parlementaires Réseau des journalistes Points focaux genre Personnes ressources
		Des supports d'information et de sensibilisation sur l'égalité de genre sont élaborés et vulgarisés	Créer des outils et supports d'éducation de base intégrant des stéréotypes et des images sur le statut de l'homme et de la femme dans la société	<b>250,00</b>	2005-2015	MNG INEADE REGENTIC ORGENS, IFAN Consultant(e)s
		Les stéréotypes sexistes défavorables à la femme et à la petite fille sont progressivement supprimés dans les manuels et les supports de communication	Mener un plaidoyer pour la révision des manuels, des textes et autres supports publicitaires comportant des images négatives sur les relations garçons/filles, hommes/femmes	<b>50,00</b>	2006-2015	MNG Points focaux genre OSC spécialisées Collectif des femmes parlementaires Réseau des femmes ministres et parlementaires Réseau des journalistes
			Soutenir la révision des manuels et des textes et autres supports publicitaires	<b>100,00</b>	2006-2015	MNG Min. Education Min. Communication INEADE Points focaux PTF

**Objectif 3 : Contribuer à l'égalité d'accès, de chance de réussite et d'achèvement à tous les niveaux du système éducatif**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions F.CFA	PERIODE	PARTENARIAT
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1.3.1. Sensibilisation et mobilisation sociale en faveur de l'amélioration de la carte scolaire, de la scolarisation et de la formation équitable des filles et des garçons	La majeure partie des familles, des décideurs et des leaders d'opinion pratiquent une éducation non discriminatoire entre filles et garçons	Au moins 10 campagnes de sensibilisation et de mobilisation sociale sont réalisées	Mener un plaidoyer auprès des autorités de l'éducation pour l'augmentation et la distribution adéquate des infrastructures scolaires et de l'offre de formation	<b>50,00</b>	2005-2015	MNG Points focaux genre OSC Réseaux Collectif des femmes parlementaires
	La parité fille/garçon est réalisée dans l'enseignement primaire en 2015	Un programme IEC/Education/Genre est disponible et exécuté	Concevoir et mettre en œuvre un programme IEC/Education sur les avantages économiques et sociaux de la scolarisation et pour l'accès des filles dans les filières scientifiques, techniques et professionnelles	<b>150,00</b>	2006-2015	MNG Min Education PTF OSC spécialisées CL Consultant (e)s
	Réduction des écarts entre garçons/filles dans les enseignements secondaire, supérieur et technique	Des supports d'information et de sensibilisation sur Education /Genre et SCOFI sont conçus et utilisés pour la promotion de l'égalité dans le système éducatif	Taux de scolarisation des garçons et des filles à tous les niveaux du système d'enseignement	Vulgariser les avancées et l'impact des actions et programmes SCOFI	<b>50,00</b>	2005-2015
Accroissement de la présence des filles dans les filières scientifiques et techniques						

<b>STRATEGIES</b>	<b>RESULTATS ATTENDUS EFFET/IMPACT</b>	<b>INDICATEURS EXTRANT/ACTIVITE</b>	<b>ACTIONS</b>	<b>COÛTS Estimatifs Millions F.CFA</b>	<b>PERIODE</b>	<b>PARTENARIAT</b>
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1.3.2. Renforcement du partenariat entre autorités de l'éducation, Collectivités locales, secteur privé, OSC et acteurs de la communication et de l'information en faveur du maintien des filles à l'école	Implication des parents, des collectivités locales, de la société civile et du secteur privé dans la promotion de la scolarisation des filles et la gestion des écoles  Les filles sont motivées à fréquenter l'école et à achever les cycles d'enseignement	Une coalition des parties prenantes est mise en place aux niveaux national et régional	Mettre en place une coalition pour la scolarisation et la formation des filles à tous les niveaux d'enseignement et la parité filles/garçons	50,00	2005-2006	MNG Min Education Points focaux OSC, CL, PTF Secteur privé Syndicats Réseau des journalistes Communicateurs traditionnels Relais, Artistes Syndicats
		En 2015, 80% des villages sont dotés d'équipements d'allègement opérationnels				
		Nombre et nature des initiatives prises en faveur du maintien des filles à l'école	Soutenir le développement des programmes d'Education à la Vie Familiale dans les écoles et institutions informelles et appuyer la création de clubs pour la scolarisation et le maintien des filles à l'école.	200,00	2005-2015	MNG Min Education Points focaux OSC spécialisées CL, PTF Secteur privé
		% des écoles appuyées par le PAM				
		% des écoles ayant un programme d'éducation à la vie familiale et un club pour la promotion de la scolarisation des filles	Développer un programme de plaidoyer en direction des décideurs, CL, PTF et OSC pour l'extension des programmes d'allègement des tâches domestiques sur l'ensemble du territoire, le retour des filles mères à l'école et pour le maintien des filles en scolarité par des mesures incitatives : subventions, bourses, dérogations et parrainages.	50,00	2005-2015	MNG Points focaux genre Réseaux Collectif des femmes parlementaires Réseau des journalistes
		Taux de rétention des garçons et des filles				

#### Objectif 4 : Contribuer à l'éradication de l'analphabétisme

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions F.CFA	PERIODE	PARTENARIAT
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1.3.3. Renforcement de l'adéquation des programmes d'alphabétisation avec les besoins et spécificités des femmes et des hommes	Adhésion et implication des communautés ciblées pour l'alphabétisation des femmes et des hommes	Nombre de programmes d'alphabétisation fonctionnelle développés en milieu urbain et en milieu rural	Etablir une nomenclature des forces et faiblesses des stratégies d'alphabétisation pour les femmes	<b>25,00</b>	2005-2006	MNG Min Education Min. Alphabétisation OSC spécialisées PTF, CL
	La synergie d'intervention et l'harmonisation des démarches entre les parties prenantes à l'alphabétisation des communautés ciblées sont accrues	Nombre de projets et programmes ayant un volet alphabétisation	Soutenir la révision des contenus des programmes d'alphabétisation existants et développer des modules basés sur les besoins différenciés des femmes et des hommes	<b>25,00</b>	2005-2006	MNG Min Education Min. Alphabétisation Points focaux Opérateurs privés Personnes ressources
	Ecarts de taux d'alphabétisation entre les femmes et les hommes en milieux rural et urbain réduits	Une stratégie IEC et de mobilisation sociale pour la promotion de l'alphabétisation des femmes et des jeunes filles est définie et exécutée	Définir et mettre en œuvre une stratégie d'IEC et de mobilisation sociale en faveur de l'alphabétisation des femmes	<b>150,00</b>	2006-2015	MNG Min Education Min. Alphabétisation OSC spécialisées PTF, CL Points focaux Réseaux
		Les TIC sont utilisées dans les programmes d'alphabétisation	Soutenir l'utilisation des TIC pour l'alphabétisation en milieux rural et urbain	<b>100,00</b>	2006-2015	MNG Min Education Min. Alphabétisation. REGENTIC OSC spécialisées PTF, CL
	Taux de participation des femmes et des hommes aux classes d'alphabétisation					
	Taux d'alphabétisation des femmes et des hommes					

**Objectif 1.5 : Assurer la prise en compte des besoins différenciés, des filles, des garçons des femmes et des hommes dans le secteur de l'éducation**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions F.CFA	PERIODE	PARTENARIAT
1.5.1. Développement d'un système d'information sur la situation des filles et des garçons dans le système éducatif	Des informations sur l'éducation et la formation des filles, des garçons, des femmes et hommes sont régulièrement disponibles	Existence d'une base de données désagrégées par sexe dans le secteur de l'éducation  Un système d'information sur genre et éducation est mis en place et accessible	Mettre en place une base de données désagrégée par sexe dans le domaine de l'éducation	50,00	2005-2015	MNG Min Education Min alphabétisation Points focaux DPS, PTF , CL OSC spécialisées Personnes ressources
			Mener, en relation avec les chercheurs, des études sur genre et éducation aux niveaux national et régional	100,00	2006-2015	MNG Min Education Min alphabétisation. OSC spécialisées Points focaux IFAN, Universités DPS, PTF , CL Consultant (e) s
1.5.2. Renforcement des capacités en genre du personnel et des planificateurs du secteur éducatif	Les compétences en genre sont disponibles et opérationnelles à tous les niveaux du système éducatif  Le genre est intégré dans les curricula à l'élémentaire, au secondaire et au supérieur	Un module de formation est disponible et exécuté  Nombre de sessions organisées  Nombre et fonction des bénéficiaires  Existence de programmes d'enseignement sur le genre dans le système éducatif	Elaborer et valider un module de formation genre et éducation	50,00	2005-2006	MNG Min Education Min alphabétisation. Points focaux IFAN, Universités OSC spécialisées Consultant (e)
			Organiser des sessions de formation en genre pour le personnel et les planificateurs de l'éducation au niveau national et régional	100,00	2006-2015	MNG Min Education Min alphabétisation. Points focaux PTF, CL Consultant (e)s
			Soutenir l'intégration du genre dans les curricula des universités et des institutions d'enseignement supérieur	50,00	2007-2015	MNG Min Education Min alphabétisation. Points focaux, IFAN, ORGENS

**Objectif 1.6 : Contribuer à la réduction de la mortalité et de la morbidité maternelles**

<b>STRATEGIES</b>	<b>RESULTATS ATTENDUS EFFET/IMPACT</b>	<b>INDICATEURS EXTRANT/ACTIVITE</b>	<b>ACTIONS</b>	<b>COÛTS Estimatifs Millions F.CFA</b>	<b>PERIODE</b>	<b>PARTENARIAT</b>
1.6.1. Renforcement du partenariat pour une amélioration de la couverture sanitaire et de la qualité des services obstétricaux	Couverture sanitaire et qualité de services obstétricaux améliorées  Accroissement des ressources pour une meilleure prise en charge de la SR	Existence d'une coalition des parties prenantes de la SNEEG pour la maternité sans risque	Développer un programme de plaidoyer auprès du gouvernement et des partenaires techniques et financiers pour une meilleure prise en charge des besoins en couverture et amélioration des services de santé	<b>50,00</b>	2005-2015	MNG Points focaux genre Réseaux Collectif des femmes parlementaires Réseau des journalistes PTF Syndicats
		% des structures de santé qui offrent des services obstétricaux essentiels de qualité (SOUB et SOU)  % d'accouchements assistés par du personnel qualifié  Taux de mortalité maternelle	Mettre en place une coalition pour une maternité sans risque	<b>50,00</b>	2005-2006	MNG Min Santé OSC Points focaux CL, PTF Syndicats Secteur privé Réseau des journalistes Communicateurs traditionnels Relais communautaires Artistes

<b>STRATEGIES</b>	<b>RESULTATS ATTENDUS EFFET/IMPACT</b>	<b>INDICATEURS EXTRANT/ACTIVITE</b>	<b>ACTIONS</b>	<b>COÛTS Millions F.CFA</b>	<b>PERIODE</b>	<b>PARTENARIAT</b>
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1.6.2. Mobilisation sociale et sensibilisation en direction des adolescent (e)s, des femmes et des hommes sur la maternité sans risque	Baisse sensible du taux de mortalité et de morbidité maternelle	Nombre de campagnes de sensibilisation	Réaliser des enquêtes monographiques ponctuelles sur les comportements et pratiques à risque en SR	<b>150,00</b>	2006-2015	MNG Min. Santé PTF OSC spécialisées Points focaux Consultant (e)s
	Prise de conscience des communautés	Nombre de sessions de formation pour les relais	Elaborer et mettre en œuvre un programme d'information et de sensibilisation entre pair (e)s (adolescent (e)s, femmes, hommes) sur les risques liés à la SR.	<b>100,00</b>	2006-2015	MNG Min. santé Points focaux OSC spécialisées PTF CL Réseaux
	Eradication de l'excision	Taux de CPN		<b>50,00</b>	2005-2015	MNG Min. santé Points focaux OSC, Réseaux COSEPRAT TOSTAN
1.6.3. Renforcement de l'utilisation par les femmes enceintes et allaitantes des méthodes de prévention et de traitement du paludisme	Augmentation de l'accès et de l'accessibilité des méthodes de prévention et de traitement du paludisme par les femmes enceintes et allaitantes	% de femmes enceintes et allaitantes qui ont accès aux méthodes de prévention et de traitement du paludisme (traitement intermittent)	Soutenir l'accès des femmes enceintes et allaitantes à la chimioprophylaxie palustre	<b>100,00</b>	2005-2015	MNG Min Santé OSC CL PTF Secteur privé
	Incidence du paludisme dans la mortalité maternelle réduite	Taux de couverture de moustiquaires imprégnées dans les zones ciblées	Appuyer la diffusion des moustiquaires imprégnées en milieu rural et urbain	<b>100,00</b>	2005-2015	MNG Min Santé OSC, CL, PTF Secteur privé Réseau des journalistes Communicateurs traditionnels Relais, Artistes

**Objectif 1.7 : Contribuer à l'accroissement du taux d'utilisation de la PF tant en milieu rural qu'en milieu urbain**

<b>STRATEGIES</b>	<b>RESULTATS ATTENDUS EFFET/IMPACT</b>	<b>INDICATEURS EXTRANT/ACTIVITE</b>	<b>ACTIONS</b>	<b>COÛTS Millions F.CFA</b>	<b>PERIODE</b>	<b>PARTENARIAT</b>
1.7.1. Mobilisation sociale des différentes catégories de la société pour une meilleure santé de la femme et de la famille	Les autorités politiques, religieuses et communautaires sont engagées pour l'amélioration de la santé de la femme et de la famille	Nombre de déclarations des différentes catégories de la société, favorables à la santé de la femme et de la famille	Développer un programme de sensibilisation en direction des hommes, des leaders d'opinion et des autorités sanitaires sur la santé de la femme et de la famille	<b>150,00</b>	2005-2015	MNG Min. Santé Personnes ressources OSC Réseau des journalistes Réseau des Parlementaires Collectif des femmes parlementaires Réseau des Communicateurs traditionnels Relais, Artistes
1.7.2. Renforcement de l'implication des hommes dans la gestion de la SR du couple	Les hommes sont davantage impliqués dans la gestion de la SR du couple	% des hommes qui participent à la gestion de la SR du couple	Organiser des séances d'animation en EVF regroupant les hommes, les jeunes et les femmes	<b>150,00</b>	2005-2015	MNG Min Santé Points focaux OSC, CL, PTF
1.7.3. Renforcement de l'accessibilité du contraceptif en milieux rural et urbain	Les services de contraception accrus et accessibles en milieu rural et urbain	% de la population rurale et urbaine ayant accès aux services de contraception  Taux de prévalence de la PF	Soutenir les programmes de marketing social des contraceptifs	<b>50,00</b>	2005-2015	MNG Min Santé Points focaux OSC, CL, PTF

**Objectif 1.8 : Contribuer à accroître le niveau d'information et de protection des femmes et des adolescentes contre l'IST/SIDA**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions F.CFA	PERIODE	PARTENARIAT
1.8.1. Renforcement du niveau d'information des femmes, des adolescent (e) s et des hommes sur les comportements à risques en matière sexuelle	La vulnérabilité des femmes, des adolescent (e) s aux IST et au VIH/SIDA est réduite  Les connaissances des femmes, hommes et adolescent(e)s sur les IST et le VIH/SIDA sont accrues	% de femmes, hommes et adolescent(e)s qui utilisent les préservatifs au cours de leurs relations occasionnelles  % de femmes, hommes et adolescent(e)s qui ont des connaissances sur les IST et le VIH/SIDA et leur modes de transmission  Taux de prévalence des femmes, des jeunes et des hommes au VIH/SIDA	Intensifier les programmes d'IEC/Genre et IST et SIDA	<b>200,00</b>	2005-2015	MNG Min. Santé OSC, PTF, CL Points focaux Réseaux
			Soutenir la création de structures d'information, d'orientation et de conseil sur la SR et les IST et VIH/SIDA	<b>150,00</b>	2005-2015	MNG Min. Santé OSC, PTF, CL Points focaux Réseaux
			Plaidoyer pour l'adjonction d'activités génératrices de revenus aux programmes de sensibilisation sur la SR, les IST et le SIDA	<b>100,00</b>	2005-2015	MNG Min. Santé OSC, PTF, CL Points focaux Réseaux

**Objectif 1.9 : Assurer la prise en compte des besoins différenciés de santé et de SR des femmes, des adolescent (e) s et des hommes dans le secteur santé**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions F.CFA	PERIODE	PARTENARIAT
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1.9.1. Information/Sensibilisation des décideurs et de l'ensemble des acteurs du secteur de la santé sur les questions de genre.	Intégration effective de l'approche genre dans la conception, la planification, la budgétisation des interventions en santé et SR	Des mesures opérationnelles sont adoptées pour soutenir l'intégration du genre dans le secteur  % des interventions intégrant le genre dans le secteur santé  % du budget général pour la santé et la SR	Elaborer et mettre en œuvre un programme d'information et de sensibilisation des acteurs du secteur santé aux questions de genre et à ses manifestations sur la santé et la SR des femmes, des hommes et des adolescent(e) s	<b>200,00</b>	2005-2015	MNG, OSC Personnes ressources Réseau des journalistes Réseau des Parlementaires Collectif des femmes parlementaires Réseau des Communicateurs traditionnels Relais, Artistes
1.9.2. Renforcement des capacités en genre du personnel de santé et des planificateurs du secteur	Les capacités en genre du personnel de santé et des planificateurs du secteur sont renforcées	% des agents et planificateurs du secteur formés à l'approche genre	Elaborer un module Genre et SR	<b>50,00</b>	2005-2007	MNG Min Santé Points focaux IFAN, Universités Consultant (e)
	Des compétences en genre sont disponibles dans le secteur santé à tous les niveaux	% des structures de santé qui offrent des prestations de services SR en direction des hommes	Organiser des sessions de formation en genre pour les techniciens et les planificateurs du secteur santé	<b>150,00</b>	2005-2015	MNG, Min Santé Points focaux IFAN, Universités PTF, CL OSC spécialisées Consultant (e)s
	Des informations sur la situation sanitaire des femmes, adolescent(e)s et hommes sont régulièrement disponibles	Une base de données désagrégée par sexe est disponible et accessible  Existence d'un système d'information sur genre, santé et SR	Mener des recherches sur les besoins spécifiques en SR, les comportements et pratiques socioculturelles influençant la santé des femmes	<b>200,00</b>	2005-2015	MNG, Min Santé Points focaux IFAN, Universités
			Mettre en place une base de données désagrégées par sexe dans le secteur santé	<b>250,00</b>	2005-2015	MNG, Min Santé Points focaux DPS
<b>SOUS TOTAL ORIENTATION STRATEGIQUE 1 = 5.200.000.000 FCFA</b>						

## ORIENTATION STRATEGIQUE 2 : PROMOTION ECONOMIQUE DES FEMMES EN MILIEUX RURAL ET URBAIN

### Objectif 2.1 : Elargir le champ d'intervention économique des femmes

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Estimatifs Millions FCFA	PERIODE	PARTENAIRES
2.1.1. Renforcement de la participation des femmes dans tous les secteurs d'activité	Participation accrue des femmes dans tous les secteurs d'activité	<p>Au moins 10 activités de plaidoyer et de sensibilisation sont organisées par an</p> <p>Des mesures administratives, législatives et dispositions pratiques et incitatives sont prises</p> <p>Les hommes et les femmes des zones ciblées sont conscients des paradigmes GED et acceptent les principes d'égalité et d'équité qui les sous-tendent</p> <p>Taux d'activité (H/F) dans les différents secteurs</p>	Plaidoyer en direction des décideurs, du législateur et des parlementaires pour la création d'un environnement favorable à la participation équitable des hommes et des femmes dans le développement	<b>200,00</b>	2005-2015	MNG Points focaux OSC Syndicats Réseau des Parlementaires pour la population Collectif des femmes parlementaires Réseau des femmes ministres et parlementaires
			Sensibiliser les hommes et les femmes sur leur participation équitable au développement	<b>100,00</b>	2005-2015	MNG CCF OSC Points focaux Réseaux Syndicats
2.1.2. Renforcement du niveau de connaissance technique et professionnel des jeunes filles	Les connaissances techniques et professionnelles des jeunes filles sont renforcées	<p>Le fonds leadership féminin est accru de 20% chaque année</p> <p>Nature et nombre d'initiatives de soutien à la formation des jeunes filles</p> <p>Taux d'accès H/F dans les filières scientifiques et techniques et dans les écoles professionnelles</p>	Relever le plafond du fonds leadership féminin existant au MFDSSN et y favoriser l'accès des jeunes filles	<b>206,00</b>	2005-2015	MNG MEF
			Soutenir l'accès des jeunes filles aux programmes de formation professionnelle et technique par des initiatives complémentaires	<b>250,00</b>	2005-2015	MNG Min. Formation professionnelle Ecoles de formation professionnelles Points focaux OSC, CL, PTF

**Objectif 2.2 : Amener les hommes et autres membres de la famille à prendre une part active  
dans la gestion du foyer et à partager les responsabilités**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions FCFA	PERIODE	PARTENAIRES
2.2.1. Mobilisation sociale et sensibilisation pour un meilleur partage des tâches et responsabilités dans le foyer et dans la société	La situation sur la division du travail au sein des foyers et de la société est mieux connue selon les contextes socioculturels  Les populations sont informées et sensibilisées sur les avantages d'un partage équitable des tâches et des responsabilités	Au moins trois enquêtes sur la division du travail au sein du foyer et de la société sont réalisées  Au moins trois fora par an sont organisés au niveau de chaque région  % du temps consacré aux activités de reproduction, de production et aux activités communautaires par l'homme et la femme	Réaliser des enquêtes ponctuelles sur la division du travail et des responsabilités au niveau du foyer et de la société	250,00	2005, 2010 et 2015	MNG Statistiques PTF, CL, OSC
			Organiser des séances d'information et de sensibilisation sur le partage équitable des tâches dans la famille et la société	150,00	2005-2015	MNG CCF OSC Points focaux Réseaux Syndicats
2.2.2. Allègement des travaux domestiques	Les équipements d'allègement et infrastructures socio-économiques sont accrus et opérationnels sur l'ensemble du territoire  Les femmes disposent désormais d'un gain de temps qu'elles investissent dans des activités économiques	Type, nombre et localisation des équipements et infrastructures mis en place  90% des femmes des zones ciblées ont accès aux équipements et infrastructures socio-économiques  Rapports de suivi sur les équipements et infrastructures socio-économiques sont régulièrement produits	Recenser les besoins des femmes et les technologies correspondantes	200,00	2005-2015	MNG Services décentralisés du MFDSSN Projets et programmes
			Organiser des séances d'information et de vulgarisation sur les équipements d'allègement et les technologies disponibles	200,00	2005-2015	MNG Services décentralisés du MFDSSN Projets et programmes Entreprises privées Artisans locaux
			Soutenir l'intensification des programmes d'équipements d'allègement, hydrauliques et infrastructures socio-économiques dans leurs zones d'intervention et en assurer le suivi	3.000,00	2005-2015	MNG MEF CL PTF OSC
			Soutenir le renforcement des infrastructures socio-économiques et le fonctionnement des structures de prise en charge de la petite enfance	300,00	2006-2015	MFDSSN, OSC Points focaux de ministères techniques

**Objectif 2.3 : Contribuer à l'accroissement de la capacité d'investissement femmes**

<b>STRATEGIES</b>	<b>RESULTATS ATTENDUS EFFET/IMPACT</b>	<b>INDICATEURS EXTRANT/ACTIVITE</b>	<b>ACTIONS</b>	<b>COÛTS Estimatifs FCFA</b>	<b>PERIODE</b>	<b>PARTENAIRES</b>
2.3.1. Renforcement de l'accès et de l'accessibilité des femmes et des hommes aux facteurs de production, à la technique et à la technologie	L'accès des femmes à la terre, aux intrants, aux technologies et au crédit a doublé à la fin de la période  La capacité de production et la productivité des femmes sont renforcées	Des mesures complémentaires sont prises pour l'amélioration de l'accès et l'accessibilité aux moyens de production  Les textes sur l'accès à la terre, à la propriété foncière et au crédit sont diffusés dans les différentes langues et sont accessibles aux femmes  Taux d'accès aux moyens de production H/F  Taux d'accès au crédit H/F dans les banques classiques et au niveau des SFD	Mener une étude sur l'accès des hommes et des femmes aux facteurs de production et les effets de la loi d'orientation agricole et celle agro-sylvo-pastorale sur leur situation respective	<b>120,00</b>	2005-2006	MNG Min. Agriculture Min. Economie maritime Min. Elevage Services décentralisés DPS Consultant (e)s
			Vulgariser auprès des femmes les textes sur l'accès à la terre, à la propriété foncière et au crédit	<b>100,00</b>	2006-2015	MNG OSC Points focaux
			Plaidoyer auprès des PTF pour la création de lignes de crédit, la constitution de fonds de crédit et autres produits financiers accessibles aux femmes	<b>50,00</b>	2005-2015	MNG Points focaux OSC Réseaux
2.3.2. Renforcement des capacités techniques d'intervention des femmes dans tous les secteurs d'activités économiques	Les opportunités, atouts et contraintes des femmes dans les secteurs porteurs, le DSRP, les OMD et dans le NEPAD sont connus  Les interventions des femmes dans les secteurs d'activités économiques sont accrues et rentables	Nombre d'études réalisées et diffusées  Un module de formation est élaboré par secteur d'activité  Au moins une session de formation est organisée par an aux niveaux national ou régional dans les principaux domaines d'intervention des femmes	Mener des études sur les créneaux porteurs aux niveaux national et régional, le secteur informel et les opportunités pour les femmes	<b>250,00</b>	2005-2006	MNG, Min. techniques Structures du NEPAD Services décentralisés DPS, Consultant (e)s
			Diffuser les résultats des études auprès des différents acteurs et des femmes en particulier	<b>100,00</b>	2006-2007	MNG OSC Points focaux
			Elaborer des modules de formation techniques et technologiques dans les différents secteurs d'activités	<b>150,00</b>	2006-2007	MNG Consultante(e)s
			Organiser des sessions de formation à l'attention des femmes et des jeunes filles au niveau central et décentralisé	<b>200,00</b>	2007-2015	OSC CL PTF

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Estimatifs FCFA	PERIODE	PARTENAIRES
	Le niveau de connaissance technique des femmes et leurs capacités de production et de gestion est amélioré	% de femmes et de jeunes filles ayant bénéficié de formation  La productivité des femmes entrepreneurs est accrue  Taux de rentabilité des activités développées  Taux d'activité des femmes dans les secteurs économiques	Soutenir la promotion des femmes entrepreneurs dans les filières agricole, pêche, élevage, tourisme, artisanat, commerce ...	<b>500,00</b>	2006-2015	MNG Min. techniques OSC CL PTF
2.3.3. Amélioration des conditions de vie et du niveau de revenu des femmes	Réduction de la pauvreté en particulier celle des femmes dans les zones ciblées par les programmes et projets	Incidence de la pauvreté sur les femmes  % de femmes bénéficiant d'un appui des programmes de lutte contre la pauvreté	Mener une étude spécifique sur la féminisation de la pauvreté	<b>150,00</b>	2005-2006	MNG Min. techniques AFDS PLCP DSP Consultant(e)s
			Plaidoyer pour un meilleur accès des femmes aux programmes de lutte contre la pauvreté	<b>150,00</b>	2005-2015	MNG Min. techniques PLCP AFDS OSC Réseaux CL PTF
			Soutenir les femmes dans la transformation de leurs initiatives économiques en projets	<b>500,00</b>	2005-2015	MNG Min. techniques AFDS PLCP OSC CL PTF

**Objectif 2.4 : Contribuer à l'égalité d'accès au marché du travail**



STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Estimatifs Millions FCFA	PERIODE	PARTENAIRES
2.4.1. Application égale des lois sur le droit du travail à tous les acteurs économiques	Les femmes et les jeunes filles ont davantage accès à un emploi stable et rémunérateur	% des femmes et jeunes filles sur le marché de l'emploi formel	Plaidoyer auprès des autorités publiques et du patronat pour une application équitable des lois du travail à tous les acteurs économiques	150,00	2005-2015	MNG Min. Fonction Publique Points focaux OSC Réseaux Syndicats Partis politiques
			Plaidoyer auprès des CL et du secteur privé pour l'insertion économique des jeunes filles déscolarisées	150,00	2005-2015	MNG Min. Fonction Publique Points focaux OSC Réseaux
2.4.2. Renforcement de l'accès et du pouvoir de négociation des femmes dans le marché de l'emploi	Les stéréotypes sexistes ne constituent plus un frein à l'emploi des femmes  Le niveau de connaissance et les aptitudes des femmes et des jeunes filles répondent au marché de l'emploi  L'accès des jeunes filles à l'emploi est facilité	Les jeunes filles recherchant un premier emploi dans la période 2006-2015 connaissent leurs droits et les lois du marché du travail  Taux d'emploi dans le secteur formel H/F	Informier les femmes sur les divers aspects du marché du travail : programmes, lois, ressources, droits, etc.	150,00	2005-2015	MNG Min. Fonction Publique Points focaux OSC, Syndicats BIT
			Soutenir la mise en place des structures de proximité de conseils et d'orientation à l'emploi	100,00	2006-2015	MNG CL PTF
			Organiser des consultations régulières employeurs – jeunes à la quête d'un emploi	150,00	2006-2015	MNG Min. Fonction Publique Points focaux OSC, PTF
2.4.3. Sensibilisation des employeurs à la conciliation travail-famille	Conditions de travail améliorées dans les lieux de travail pour tenir compte des situations spécifiques	% des entreprises et sociétés ayant pris des mesures pour faciliter la conciliation obligations familiales et professionnelles	Plaidoyer auprès des employeurs pour la création de structures d'accueil pour les enfants des travailleurs	125,00	2007-2015	MNG, CNP Min. Fonction Publique Points focaux OSC, Réseaux Patronat, syndicats Secteur privé, PTF

**Objectif 2.5 : Assurer la prise en compte des besoins différenciés des femmes et des hommes aux niveaux macro, méso et micro économiques**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Estimatifs Millions FCFA	PERIODE	PARTENAIRES
2.5.1. Intégration de l'approche genre dans la conception, planification et la budgétisation des actions de développement	Prise en compte du genre dans les politiques, programmes et projets nationaux et sectoriels	% des interventions intégrant le genre dans les budgets d'investissement et de fonctionnement de l'Etat, des secteurs et dans les programmes de coopération des bailleurs de fonds	Plaidoyer en direction des ministères sectoriels, du ministère chargé de la planification et du budget et des partenaires techniques et financiers pour une plus grande attention aux interrelations du genre et du développement	<b>150,00</b>	2005-2015	MNG MEF Réseaux Points focaux PTF
2.5.2. Amélioration de la connaissance des caractéristiques genre et de leurs effets sur le développement dans les zones d'intervention	Les questions de genre sont prises en compte dans les statistiques économiques et sociales	Système d'information désagrégé par sexe élaboré et utilisé  Existence d'indicateurs pour mesurer la situation des femmes et des hommes dans l'économie	Mettre en place un système d'information sur les conditions de vie, les besoins et atouts des femmes et des hommes	<b>150,00</b>	2005-2015	MNG Points focaux DSP Personnes ressources
2.5.3. Renforcement des compétences en genre des agents techniques du développement	Compétences en genre disponibles dans les différents secteurs de développement économique  Niveau de prise en compte du genre dans les cadres de référence sectoriels, nationaux et régionaux	% d'agents formés et qui utilisent l'approche genre  Degré de participation des agents formés dans les processus de formulation des interventions et des budgets	Elaborer et mettre en œuvre un programme de formation à l'attention des planificateurs et techniciens des ministères techniques en planification et à l'élaboration des budgets selon le genre	<b>100,00</b>	2005-2015	MNG Points focaux Consultant(e)s Pool de formateurs

**SOUS TOTAL ORIENTATION STRATEGIQUE 2 = 8.401.000.000 FCFA**

**ORIENTATION STRATEGIQUE 3 : PROMOTION DE L'EXERCICE EQUITABLE DES DROITS ET DEVOIRS DES FEMMES ET DES HOMMES ET RENFORCEMENT DE L'ACCES ET DE LA POSITION DES FEMMES AU NIVEAU DES SPHERES DE DECISION**

### Objectif 3.1 : Supprimer les dispositions discriminatoires et suppléer les vides juridiques dans la législation nationale

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Estimatifs Millions FCFA	PERIODE	PARTENAIRES
3.1.1. Harmonisation de la législation nationale avec les engagements internationaux et régionaux ratifiés	Textes juridiques nationaux conformes aux engagements régionaux et internationaux	Dispositions discriminatoires et vides juridiques identifiés	Mener une étude pour actualiser l'identification des discriminations contenues dans la législation nationale et en diffuser les résultats	<b>50,00</b>	2005-2006	MNG Min. Justice AJS, PTF Consultant (e)
		Résultats de l'étude diffusés auprès des autorités  Corrections et projets de lois élaborés  Nouveaux textes juridiques adoptés	Corriger les textes discriminatoires et élaborer, en relation avec les mécanismes nationaux impliqués, les projets de lois correspondants	<b>50,00</b>	2005-2006	MNG Min. Justice Points focaux AJS, Réseau des Parlementaires Collectif des Femmes Parlementaires PTF
3.1.2. Révision des mesures spécifiques pour les rendre conformes aux dispositions juridiques nationales favorables à l'EEG et aux instruments internationaux ratifiés	Volonté politique de l'Etat affirmée en faveur de l'égalité et de l'équité de droit	Déclarations politiques et textes juridiques pris en faveur de l'égalité de droit et de la promotion des droits des femmes  CEDAW et autres instruments sur les droits des femmes mis en œuvre  Loi sur la parenté conjointe votée  Le Code de la Famille révisé	Plaidoyer auprès des autorités et leaders d'opinion pour la révision effective des textes concernés et le vote des lois et mesures d'accompagnement .proposées	<b>100,00</b>	2006-2010	MNG Min. Justice Collectif des femmes parlementaires Réseaux OSC spécialisées Syndicats Partis politiques
STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Millions FCFA	PERIODE	PARTENAIRES

3.1.3. Renforcement de la protection des droits des personnes en situation difficile	Protection juridique et sociale des personnes en situation difficile renforcée	Mesures de protection prises	Plaidoyer pour une carte d'invalidité en faveur des personnes handicapées hommes et femmes	<b>50,00</b>	2005-2008	MNG, Min. Santé Min. Justice FSAPH, IAR Réseaux Points focaux
			Elaborer et mettre en œuvre un programme d'information et de sensibilisation en faveur d'une meilleure prise en charge des handicapé(e)s dans les espaces publics	<b>100,00</b>	2006-2015	MNG FSAPH, IAR OSC Réseaux Points focaux
			Soutenir l'amélioration des conditions de détention des femmes et en particulier celles enceintes et allaitantes	<b>150,00</b>	2006-2015	MNG Administration pénitentiaire OSC spécialisées
			Vulgariser les textes qui régissent le travail domestique auprès du personnel et des employeurs	<b>120,00</b>	2005-2015	MNG Min. Fonction Publique ENDA, JOC/F, OSC
			Plaidoyer pour le renforcement de la protection des mineurs prostitué (e) s et l'obligation d'appliquer la loi	<b>150,00</b>	2005-2015	MNG, Min. Justice ENDA, JOC/F OSC, Réseaux

**Objectif 3.2 : Garantir l'application effective des droits des femmes**

<b>STRATEGIES</b>	<b>RESULTATS ATTENDUS EFFET/IMPACT</b>	<b>INDICATEURS EXTRANT/ACTIVITE</b>	<b>ACTIONS</b>	<b>COÛTS Estimatifs Millions F.CFA</b>	<b>PERIODE</b>	<b>PARTENARIAT</b>
3.2.1. Opérationnalisation des textes adoptés	Les conditions d'application des textes juridiques favorables aux droits des femmes sont réunies	Des mesures adoptées pour favoriser l'application des textes  Les textes relatifs à l'EEG sont publiés dans le Journal Officiel	Plaidoyer pour la prise des mesures, lois et règlements relatifs à l'application des textes et leur publication dans le Journal officiel	<b>150,00</b>	2005-2015	MNG Min. Justice Collectif des femmes parlementaires Réseaux CONGAD, AJS, RSJ, COSEF Syndicats Partis politiques
3.2.2. Sensibilisation des justiciables et des acteurs judiciaires sur les droits des femmes et leur application	Les recours aux services juridiques par les femmes pour réclamer leurs droits sont accrus	% des plaintes auprès du mécanisme de suivi de l'application des droits des femmes	Elaborer un programme d'IEC/genre pour les femmes, les hommes et les jeunes (filles et garçons) sur l'égalité des droits et devoirs	<b>100,00</b>	2006-2015	MNG Min. Justice AJS, PTF Consultant (e) s
		% de dossiers relatifs aux droits des femmes traités au niveau du tribunal	Organiser des formations relatives à l'équité et à l'égalité en matière de statut juridique ciblant les personnels administratifs, judiciaires, du corps médical, des OSC et les leaders d'opinion	<b>150,00</b>	2006 - 2015	MNG OSC Min Justice, Min. Santé Consultant (e) s
		Nombre et localisation des services d'information et conseil juridiques mis en place	Mettre en place des services d'information et conseil juridiques dans les régions et consolider les structures existantes destinés aux femmes et aux jeunes filles en partenariat avec les acteurs judiciaires	<b>325,00</b>	2010 - 2015	MNG, Min. Justice Min. Santé Police, CLVF APROFES RADI, AJS Réseaux Keur Yakaaru Jigeen yi
		Type et nombre de supports élaborés et utilisés	Produire des supports simples et accessibles pour vulgariser les textes et les procédures judiciaires	<b>100,00</b>	2006 - 2015	MNG OSC Personnes ressources
Nombre de centres d'accueil créés ou renforcés						

**Objectif 3.3 : Contribuer à l'élimination des violences faites aux femmes et aux enfants**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COÛTS Estimatifs Millions F.CFA	PERIODE	PARTENARIAT
3.3.1. Lutte contre les violences faites aux femmes et aux enfants	Amplitude et formes de violence à l'égard des femmes mieux connues	Existence d'une étude approfondie sur le phénomène de la violence à l'égard des femmes  % de cas présentés aux autorités judiciaires  % de cas jugés par les tribunaux  Degré de réduction des violences	Appuyer la constitution de groupes de pression pour la protection des droits des femmes et l'égalité de genre	<b>150,00</b>	2005-2015	MNG PTF, OSC Réseaux
			Mener une étude sur l'ampleur et les formes du phénomène de violence	<b>50,00</b>	2006-2007	Réseaux PTF Consultant(e) s
			Mettre en place un programme IEC pour un changement de comportement favorable à la non violence dans le couple et à l'éradication de toutes les formes de violences faites aux femmes et aux enfants	<b>200,00</b>	2007-2015	MNG, Réseaux Presse PTF
			Mettre en place un mécanisme de partenariat avec les services de santé, la police et la justice pour une meilleure prise en charge des cas de violence	-----	2007-2006	MNG Min Santé, Intérieur, Justice, OSC
3.3.2. Renforcement de la protection et de la prise en charge des femmes et des enfants dans les zones de conflits	Les femmes participent effectivement dans les missions de maintien de la paix  La prise en charge des femmes et des enfants dans les zones de conflits est assurée	Nombre de femmes dans les missions de maintien de la paix  Nombre d'engagements et mesures pris	Plaidoyer auprès des autorités aux niveaux national, régional et international pour une plus grande implication des femmes dans les missions de résolution des conflits et de maintien de la paix et une prise en charge rapide des femmes et des enfants dans les zones de conflit	<b>150,00</b>	2005-2015	MFSSN Réseaux Ass. Tamankadjior ANAFI, MFDC, PTF
3.3.3. Application effective de la loi sur les violences faites aux femmes	Application systématique de la loi de 1999	Nombre de cas référés et jugés par les tribunaux selon la loi par an  Nombre d'interventions faites par les centres de counselling	Concevoir et mettre en œuvre une stratégie IEC/plaidoyer à l'attention des acteurs de la justice pour une application de la loi sur les violences faites aux femmes de janvier 1999	<b>100,00</b>	2007-2015	Min Justice Collectivités locales Réseaux OSC spécialisées

**Objectif 3.4 : Assurer aux femmes le plein exercice de leurs droits civiques et politiques**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Millions FCFA	PERIODE	PARTENAIRES
3.4.1. Sensibilisation des différents acteurs de la société à l'exercice égal de la citoyenneté par l'homme et la femme	L'égalité au niveau de l'exercice de la citoyenneté est reconnue et appliquée	Type et nombre d'activités organisées pour soutenir l'exercice égal et responsable de la citoyenneté par tous  La citoyenneté est intégrée dans les curricula au primaire et au secondaire	Organiser des campagnes d'information sur l'importance de ces pièces ou sur la citoyenneté	<b>150,00</b>	2006-2015	MNG Collectivités locales Min.Intérieur OSC spécialisées Partis politiques
			Plaidoyer pour l'instauration d'un cours sur la citoyenneté au primaire et au secondaire jusqu'en terminale	<b>150,00</b>	2006-2008	MNG Min. Education Points focaux Réseau des parlementaires pour la population Collectif des femmes parlementaires Réseau des femmes ministres et parlementaires Réseau des Journalistes
3.4.2. Facilitation de l'obtention et de l'utilisation des pièces d'état civil et autres actes administratifs par les femmes	Les femmes disposent des pièces indispensables à l'exercice de leurs droits civiques et politiques	Nombre de campagnes organisées par an  Nombre d'audiences foraines organisées	Multiplier les audiences foraines en partenariat avec les services concernés	<b>150,00</b>	2006-2015	MNG Collectivités locales Min Intérieur OSC spécialisées

**Objectif 3.5 : Assurer l'égalité et l'équité de participation des femmes et des hommes dans toutes les instances de décision et à tous les niveaux**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Millions FCFA	PERIODE	PARTENAIRES
3.5.1. Sensibilisation des différentes composantes de la société sur l'égalité des femmes et des hommes à occuper les mêmes fonctions et à exercer le pouvoir	Participation accrue des femmes dans les instances politiques d'exécution et de décision	% de femmes dans les instances de décision aux niveaux international, régional, national et local	Créer des alliances avec la société civile, des décideurs et leaders d'opinion pour l'instauration de l'égalité et l'équité de genre dans tous les domaines de la vie économique et sociale	-----	2005-2007	MNG Réseaux OSC Parlementaires Presse Religieux Partis politiques Syndicats
	Présence accrue et participation effective des femmes dans les instances de gestion et de décision dans tous les secteurs d'activités économiques  Les femmes représentent au moins 35 % des instances du Gvt et de l'Assemblée Nationale en 2015	Loi sur les quotas votée et appliquée  Taux de présence et niveau de participation effective des femmes dans les différents secteurs d'activité	Plaidoyer pour un projet de loi sur les quotas en faveur de la réduction des écarts dans les postes électifs et nominatifs	<b>150,00</b>	2005-2010	MNG Assemblée nationale réseaux COSEF, APAC, RSJ, AJS Partis politiques
3.5.2. Renforcement des capacités des femmes et des jeunes filles en leadership (savoir, savoir-faire et savoir être)	La capacité d'intervention et le pouvoir de négociation et de décision des femmes sont renforcés	% des femmes dans les postes électifs et les postes de direction	Elaborer et mettre en œuvre un programme genre et leadership en direction des hommes et des femmes	<b>100,00</b>	2006-2015	MNG OSC Consultant(e) s
		Nombre de candidatures féminines dans les prochaines échéances électorales locales et nationales	Organiser des formations en politique, techniques de négociation, éducation à la citoyenneté, plaidoyer et lobbying	<b>250,00</b>	2006-2015	MNG NDI CAEL Partis politiques Syndicats Consultant (e) s



STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Millions FCFA	PERIODE	PARTENAIRES
			Sensibiliser les femmes à s'engager à se soutenir dans les différents mouvements politique, syndical et social	150,00	2005-2015	MNG Partis politiques Syndicats Réseaux COSEF Réseau SIGGIL JIGEEN
			Soutenir les jeunes filles pour leur meilleure présence dans les sphères de décision	150.000	2006-2015	MNG CNJS Min Jeunesse
3.5.3. Renforcement de la capacité financière des femmes exerçant en politique	L'accès aux ressources financières n'est plus une contrainte à la participation des femmes à la politique	Des mesures sont prises pour soutenir l'accès des femmes aux financements disponibles  Un programme de communication est élaboré et mis en œuvre pour faire la promotion des modèles de réussite féminins	Appuyer la diversification des sources de revenus des femmes au sein des partis politiques	250,00	2005-2015	MNG Partis Politiques Structures financières PTF
			Soutenir l'accès des femmes aux opportunités de financement des partis politiques	100,00	2006-2015	MNG Partis politiques Mouvement des femmes Structures financières PTF
			Elaborer un programme de communication pour valoriser les modèles de réussite féminins dans tous secteurs d'activités et dans la société	100,00	2006-2015	UNIFEM PTF Réseaux COSEF

### Objectif 3.6 : Assurer la prise en compte des besoins différenciés dans les instances de décision

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Millions FCFA	PERIODE	PARTENAIRES
3.6.1. Intégration du genre dans les instances de décision	La promotion du genre et la représentation égale des H/F sont inscrites dans les orientations des partis politiques, des syndicats et de toutes les structures aux niveaux local et national	Type et nombre d'activités initiées en direction des dirigeants des instances de décision  Intégration du genre dans les orientations, politiques et programmes des instances de décision	Plaidoyer en direction des décideurs et leaders politiques pour une meilleure intégration du genre dans les orientations politiques et mesures stratégiques et programmes des instances de décision	<b>100,00</b>	2005-2015	MNG Présidence Primature Partis politiques, Réseau SIGGIL JIGEEN COSEF Collectivités locales Projets spécifiques PTF
3.6.2. Renforcement des capacités en genre des membres des instances de décision	Les capacités des leaders et membres des partis politiques et syndicales, des OSC, des structures publiques et privées sont renforcées en genre	Nombre de leaders et membres formés en genre au niveau de chaque instance  Niveau de prise en compte du genre dans les textes, orientations et mesures	Organiser des sessions de formation pour les membres des instances de décision	<b>500,00</b>	2005-2015	MNG Ministres, Parlementaires Chefs de Partis politiques, Directeurs du secteur privé, Chefs d'Entreprise Consultant(e) s
			Plaidoyer pour la nomination de conseillers en genre dans les différentes instances de décision	<b>100,00</b>	2005-2015	MNG Présidence, Primature, CNP Directions Générales des sociétés Collectif des femmes parlementaires Réseau des femmes ministres et parlementaires Réseau des Journalistes

**SOUS TOTAL ORIENTATION STRATEGIQUE 3 = 4.645.000.000 FCFA**

**ORIENTATION STRATEGIQUE 4 : AMELIORATION DE L'IMPACT DES INTERVENTIONS EN FAVEUR DE L'EGALITE ET DE L'EQUITE DE GENRE**

**Objectif 4.1 : Assurer au mécanisme gouvernemental en charge du genre une réelle capacité d'intervention et de décision**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Estimatifs Millions F CFA	PERIODE	PARTENAIRE
4.1.1. Renforcement de la position organisationnelle et de la capacité institutionnelle du mécanisme gouvernemental genre (MNG)	La capacité du mécanisme gouvernemental genre à répondre à ses missions est effectivement renforcée et son leadership est assuré	Au moins trois activités de plaidoyer sont organisées en direction des décideurs	Plaidoyer auprès des décideurs pour une meilleure visibilité du genre dans les attributions du MNG et le relèvement en conséquence de sa position institutionnelle	<b>50,00</b>	2005-2006	MNG Collectif des femmes parlementaires Réseau des femmes ministres et parlementaires CONGAD, RSJ, COSEF
		Dès 2006, existence d'un statut institutionnel approprié pour le MNG				
		Compétences et moyens financiers et matériels suffisants disponibles au sein du MNG aux niveaux central et décentralisé	Consolider les capacités techniques du MNG avec le recrutement de spécialistes en genre, planification, économie, statistique et communication	<b>500,00</b>	2005-2015	MNG, MEF Min. Fonction Publique PTF
		Au moins 06 spécialistes sont recrutés pour le MNG	Consacrer chaque année au moins 15% du budget global du mécanisme gouvernemental en charge du genre aux activités de la SNEEG	<b>3.000,00</b>	2006-2015	MNG MEF
		% du budget de l'Etat affecté au MNG				
4.1.2. Clarification des rôles et des responsabilités du MNG et des parties prenantes à la promotion de l'égalité de genre	Le schéma institutionnel de la SNEEG est accepté et mis en œuvre par toutes les parties prenantes de 2006 à 2015	Existence d'une charte de responsabilités des parties prenantes à la promotion de l'EEG	Définir concrètement et diffuser le contenu du schéma institutionnel de la SNEEG : Rôles et responsabilités du MNG et des parties prenantes à la promotion de l'égalité de genre	<b>100,00</b>	2005-2006	MNG Toutes les parties prenantes
		Existence de cadres et mécanismes d'orientation, de coordination, de concertation et de suivi-évaluation				

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Millions F CFA	PERIODE	PARTENAIRES
4.1.3. Développement des compétences en genre, suivi et évaluation du mécanisme gouvernemental	Les compétences en genre, suivi et évaluation sont disponibles et opérationnelles au sein du mécanisme gouvernemental	Nombre d'agents du mécanisme gouvernemental formés en genre, suivi et évaluation  % des agents formés et utilisant le genre dans leur travail	Former/recycler en genre, suivi et évaluation les agents du mécanisme gouvernemental aux niveaux central et décentralisé	<b>250,00</b>	2005-2015	MNG PTF Consultant (e) s
4.1.4. Développement d'une stratégie de coordination et de suivi-évaluation du genre	Synergie des interventions en genre et développement renforcée  Suivi-évaluation des activités de la SNEEG régulièrement assuré  Résultats du suivi et de l'évaluation à mi-parcours utilisés pour garantir l'atteinte des objectifs de la SNEEG	Existence d'un cadre opérationnel de concertation des questions de genre aux niveaux central et décentralisé	Mettre en place un cadre de concertation entre le mécanisme gouvernemental et les parties prenantes intervenant dans le domaine du genre aux niveaux central et décentralisé	-----	2005-2006	MNG
		Disponibilité d'outils de suivi – évaluation	Organiser périodiquement des réunions de concertation aux niveaux central et décentralisé	<b>100,00</b>	Tous les 6 mois à partir de 2005	MNG Toutes les parties prenantes à la SNEEG
		Plans de travail et rapports d'activités des services déconcentrés prennent en compte la SNEEG	Concevoir un système de suivi régulier de la mise en œuvre de la SNEEG aux niveaux central et décentralisé	-----		MNG
		Rapports de suivi sur l'EEG régulièrement produits par les parties prenantes de la SNEEG	Assurer le suivi régulier de la mise en œuvre de la SNEEG	<b>200,00</b>	Tous les 3 mois à partir de 2006	MNG
		Rapports d'évaluation disponibles dans les délais prévus	Appuyer les services déconcentrés pour la coordination, le suivi et l'évaluation de la SNEEG	<b>250,00</b>	Tous les 3 mois à partir de 2006	MNG
		Rapport annuel sur la situation de l'égalité et de l'équité de genre au Sénégal régulièrement produit et remis officiellement au Président de la République	Réaliser les évaluations périodiques de la mise en œuvre de la SNEEG	<b>120,00</b>	2010-2015	MNG Toutes les parties prenantes à la SNEEG

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Millions F CFA	PERIODE	PARTENAIRES
4.1.5. Développement d'un système d'information et de recherche sur les questions de genre et de la promotion de la femme	Situation des femmes et des hommes dans tous les domaines de la vie économique et sociale mieux connue  Recueil des indicateurs enrichi de nouveaux indicateurs quantitatifs et qualitatifs tenant compte du genre disponible	Existence d'un système opérationnel de collecte et de diffusion régulièrement mis à jour  Un système d'information et une base de donnée désagrégée par sexe sur le GED sont disponibles et opérationnels  Les résultats des études et recherches sont utilisés pour mettre à jour le système d'information sur le GED	Etablir un protocole d'accord avec la Direction de la Statistique, les Universités et l'IFAN	-----	2005-2006	MNG, DSP, IFAN Universités
			Mettre en place un système permanent de collecte, de traitement et de diffusion sur le genre	100,00	2005-2006	MNG, DSP, IFAN
			Mener des études et recherches sur le genre et le développement	250,00	2006-2015	MNG, IFAN, Universités Consultant (e) s
			Organiser régulièrement des échanges thématiques et y associer les chercheurs	100,00	2006-2015	MNG DSP, IFAN Universités
			Mettre en place dans le cadre du protocole avec la statistique une base de données désagrégée par sexe aux niveaux national et régional	-----	2005-2015	MNG DSP, Ministères techniques OSC, secteur privé
4.1.6. Développement d'une stratégie de communication et de plaidoyer pour soutenir l'égalité et l'équité de genre	Les interventions en genre et développement sont visibles et leurs résultats largement diffusés et partagés	Existence d'une pertinente stratégie de communication et de plaidoyer  Nombre de protocoles de collaboration signés avec les partenaires  Type et nombre de supports réalisés  Au moins trois activités d'information et de partage sont organisées par an  Existence d'un bulletin d'information sur genre et développement	Elaborer des argumentaires sur le genre et les enjeux de développement nationaux et sectoriels	150,00	2005-2010	MNG Ministères techniques OSC, secteur privé, PTF Personnes ressources
			Produire en partenariat avec les acteurs de la communication et de l'information des supports audiovisuels (théâtres, sketches et films) sur les disparités et les bonnes pratiques en genre	150,00	2005-2015	MNG Acteurs de la communication Personnes ressources
			Organiser des journées portes ouvertes, des visites de terrain et des tables rondes sur les actions GED initiées par les partenaires	150,00	2005-2015	MNG Médias Toutes les parties prenantes à la SNEEG
			Concevoir et diffuser régulièrement un support d'information semestriel sur le GED	100,00	2005-2015	MNG CENAF, Projets OSC, PTF, secteur privé

**Objectif 4.2 : Accroître la capacité d'intervention des mécanismes d'appui à la promotion du genre**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Estimatifs (Millions F CFA)	PERIODE	PARTENAIRES
4.2.1. Renforcement de la capacité d'intervention des cellules et points focaux genre	Cadre institutionnel favorable à l'intégration du genre dans le développement  Le genre est davantage intégré dans les politiques et programmes sectoriels  Le Sénégal dispose d'une masse critique de personnes ressources en GED	Nombre de ministères ayant mis en place une cellule genre fonctionnelle  Les Cellules mises en place disposent d'un plan d'action approuvé et budgétisé par les autorités  Participation des points focaux à toutes les étapes de planification, de programmation et de budgétisation  Nombre de points focaux recyclés en genre et planification  Les politiques, programmes et projets nouvellement formulés ont reçu le label genre  Existence d'un annuaire des compétences en genre  Disponibilité d'un pool de formateurs opérationnels en genre	Mettre en place autour du point focal genre une Cellule genre au sein de chaque département ministériel	-----	2005-2006	MNG Départements ministériels Points focaux existants
			Elaborer un plan d'action annuel au niveau de chaque Cellule genre	-----	2005-2015	MNG Points focaux genre
			Doter chaque Cellule genre de moyens pour la mise en œuvre de son plan d'action	500,00	2006-2015	MNG Départements ministériels MEF, PTF
			Organiser à l'attention des Cellules genre, des points focaux genre (OSC, des PTF et secteur privé), des services décentralisés des sessions de formation à l'utilisation du guide méthodologique d'intégration du genre dans le développement	300,00	2005-2006	MNG Projet genre/UNFPA Départements ministériels OSC, PTF Secteur privé
			Organiser des sessions de formation/recyclage en genre et planification des points focaux des Cellules genre et des services décentralisés	250,00	2006-2008	MNG Départements ministériels Points focaux, OSC, PTF, secteur privé, Services décentralisés du MNG
			Instituer un label genre pour les politiques, programmes et projets	-----	2005-2006	MNG, Ministères OSC, PTF, Secteur privé
			Elaborer un annuaire des compétences en genre aux niveaux central et décentralisé	100,00	2006-2007	MNG Personne-ressource
			Constituer un pool de formateurs genre et définir un protocole de collaboration avec eux	-----	2006-2007	MNG Points focaux genre Consultant(e)s

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS Estimatifs (Millions F CFA)	PERIODE	PARTENAIRES
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4.2.2. Renforcement de la capacité d'intervention du Comité Consultatif de la Femme (CCF)	Les interventions du CCF en faveur du genre sont diversifiées et planifiées toute l'année	Adoption d'une nouvelle stratégie d'intervention par le CCF	Organiser une concertation autour des attentes et des apports du CCF dans la promotion de l'égalité et de l'équité de genre	100,00	2005-2006	MNG CCF
		Existence d'un plan d'action annuel du CCF				
		Type et nombre d'activités menées	Elaborer le plan d'action annuel du CCF	-----	2005-2006	MNG CCF
		Nature des thématiques abordées	Soutenir la mise en œuvre du plan d'action du CCF	250,00	2006-2015	MNG MEF PTF
4.2.3. Renforcement de la capacité institutionnelle et organisationnelle des OSC intervenant dans le domaine du genre	Les organisations de la société civile intervenant dans le genre et la promotion de la femme disposent des moyens techniques et financiers appropriés	Ressources humaines, financières et matérielles disponibles au sein des organisations	Etablir un fichier des OSC partenaires dans chaque région	----	2005-2006	MNG Direction du Développement Communautaire Services décentralisés OSC PTF
		Nombre d'OSC ayant bénéficié d'un appui institutionnel	Evaluer les capacités d'intervention des OSC dans le domaine genre	100,00	2006-2007	MNG Consultant (e) s
		Proportion d'OSC ayant bénéficié d'un financement pour exécuter leur plan d'action en faveur du genre	Mettre en place un fonds d'appui institutionnel pour les OSC partenaires	300,00	2007-2015	MNG MEF PTF
		Rapport annuel sur la contribution des OSC à la mise en œuvre de la SNEEG				

**Objectif 4.3 : Accroître la capacité d'intervention des organisations de la société civile (OSC) intervenant dans le domaine du genre**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRES
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4.3.1. Renforcement des capacités en genre des OSC partenaires	Compétences techniques en genre disponibles au sein de ces organisations  Les OSC ont une meilleure connaissance des droits humains et de ceux des femmes en particulier	% de membres des organisations et associations de la société civile formés en genre et droits  Les connaissances des OSC en genre et droits sont renforcées	Assurer la formation / recyclage en genre et droits des femmes des OSC partenaires	250,00	2007-2010	MNG Points focaux Formateurs genre PTF
4.3.2. Renforcement de la synergie des structures impliquées dans la promotion du genre	Capacité de concertation et de coordination des OSC sur l'égalité de genre accrue	Nombre de cadres de concertation mis en place aux niveaux national et régional  Au moins quatre rencontres d'information par an sont organisées par la société civile	Mettre en place des cadres de concertation des OSC intervenant dans le genre aux niveaux national et régional	----	2005-2006	MNG Services décentralisés OSC PTF
			Organiser des rencontres périodiques d'information et d'échanges entre OSC	150,00	2006-2015	MNG Services décentralisés OSC PTF
4.3.3. Intensification de la mobilisation des OSC pour l'égalité et l'équité de genre	Capacité d'alerte et de mobilisation des OSC en faveur de l'égalité de genre accrue	Au moins dix activités par an sont réalisées au sein de la société civile  Nombre de protocoles de collaboration signés entre OSC et avec le mécanisme gouvernemental  Les expériences des OSC sont capitalisées dans les initiatives développées	Soutenir la mobilisation des OSC pour le genre par la signature de protocoles de collaboration avec le mécanisme gouvernemental et les PTF	500,00	2007-2015	MNG MEF CL Syndicats PTF

**Objectif 4.4 : Assurer l'implication effective du privé dans la promotion du genre à tous les niveaux**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRES
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4.4.1. Sensibilisation du secteur privé sur l'approche genre et développement	Adhésion du secteur privé à la promotion de l'égalité et de l'équité de genre	Au moins une séance d'information et d'échanges sur l'EEG est organisée par an  Introduction du genre dans la vision, les missions, le schéma organisationnel des entreprises	Organiser avec le secteur privé des séances d'information et d'échanges sur l'égalité et l'équité de genre et le développement	150,00	2006-2015	MNG Secteur privé Points focaux CL PTF
4.4.2. Renforcement du partenariat avec le secteur privé pour la promotion du genre	Interventions du secteur privé pour la promotion du genre accrues	Nombre de protocoles de collaboration signés	Consolider le partenariat entre le mécanisme gouvernemental et le secteur privé par la signature de protocoles de collaboration	-----	2006-2015	MNG Secteur privé OSC CL PTF
4.4.3. Renforcement des capacités des partenaires du secteur privé en genre	Prise en compte effective du genre dans les politiques, programmes et projets du secteur privé	Au moins une session de sensibilisation /formation est organisée par an  Nombre d'organisations du secteur privé sensibilisées/formées en genre	Organiser des sessions de sensibilisation/formation en genre et développement pour le secteur privé	250,00	2007-2015	MNG Points focaux Formateurs genre

**Objectif 4.5 : Assurer la prise en compte des besoins différenciés des femmes et des hommes dans les interventions des partenaires techniques et financiers (PTF)**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRES
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4.5.1. Renforcement de l'articulation des interventions des PTF avec la SNEEG	Interventions des PTF en adéquation avec les priorités de développement en matière de genre	Existence d'une matrice de cohérence entre les interventions en genre et la SNEEG	Elaborer une matrice de cohérence pour faciliter la prise en compte des objectifs et stratégies de la SNEEG dans les interventions des PTF	50,00	2005-2006	MNG, MEF, PTF Départements ministériels CL
		Existence d'une carte des interventions en genre par région	Elaborer et mettre à jour régulièrement une carte des interventions en (GED) au niveau de chaque région	100,00	2006-2015	MNG Services décentralisés Points focaux OSC, PTF
		Le Réseau informel des bailleurs de fonds pour le genre est converti en un groupe thématique genre (GTG)	Plaidoyer pour transformer le réseau informel des bailleurs de fonds pour le genre en un groupe thématique genre à l'instar de ce qui est fait dans les autres secteurs	----	2005-2006	MNG PTF Points focaux
		Le plan d'action du GTG tient compte de la SNEEG				
		Au moins une rencontre trimestrielle est organisée entre le GTG et le MNG	Systématiser les interventions du GTG dans un plan d'action annuel en relation avec la mise en œuvre de la SNEEG	----	2005-2006	MNG, PTF, OSC Points focaux
			Organiser des concertations périodiques entre le GTG et le mécanisme gouvernemental en charge du genre	----	2005-2015	MNG, PTF

**Objectif 4.6 : Accroître les contributions de l'Etat, des Collectivités locales (CL) et des PTF à la promotion de l'égalité et de l'équité de genre**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRES
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4.6.1. Intégration de l'approche genre dans la conception, la planification et la budgétisation des actions de développement	Les besoins et potentialités différenciés des hommes et des femmes sont pris en compte dans les politiques, programmes et projets	Au moins cinq activités de plaidoyer par an sont organisées  Nombre de politiques, programmes et projets ayant reçu le label genre	Plaidoyer en direction des ministères sectoriels, du ministère chargé de la planification et celui du budget pour une meilleure prise en charge du genre dans les interventions de développement	<b>150,00</b>	2005-2015	MNG, MEF Min. Plan Points focaux PTF Réseaux
4.6.2. Facilitation de l'éligibilité des dossiers de projets liés au genre dans le PTIP, les budgets des CL et des PTF	Proportion des interventions en faveur de l'EEG accrue dans les budgets de l'Etat, des PTF et des CL	Au moins un atelier par an est organisé à l'attention de tous les acteurs  % des financements de l'Etat consacré à l'EEG  % des financements des CL consacré à l'EEG  % des financements de la coopération internationale, consacré à l'EEG  Un programme de formation genre et budget disponible  Nombre de planificateurs des ministères techniques et des agences régionales de développement (ARD) formés  % des ministères et ARD ayant intégré le genre dans leurs cadres de planification et de programmation	Organiser des ateliers d'information sur les cadres de programmation et les mécanismes de mobilisation de fonds (Etat, CL, PTF)  Elaborer et mettre en œuvre un programme de formation en genre et budget pour les planificateurs des ministères techniques et des ARD	<b>150,00</b>	2005-2015	MNG MEF, Min. Plan Points focaux OSC, CL, PTF
				<b>500,00</b>	2006-2015	MNG, MEF Départements ministériels ARD, CL, PTF

**Objectif 4.7 : Augmenter le volume de financement accessible pour la satisfaction des besoins des femmes et de l'égalité de genre**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRES
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4.7.1. Sensibilisation des institutions de financement pour le financement des initiatives des femmes et de l'égalité de genre	Les interventions en faveur de l'EEG sont davantage financées par les banques classiques et les services financiers décentralisés (SFD)	Au moins cinq activités par an sont organisées à l'attention des institutions de financement	Elaborer et mettre en œuvre un programme d'information et de plaidoyer sur le genre en direction des institutions de financement	<b>150,00</b>	2006-2015	MNG Institutions de financement
		Un guide sur les mécanismes et instruments de financement est élaboré et diffusé	Elaborer et diffuser un guide portant sur les mécanismes et instruments de financement	<b>100,00</b>	2006-2008	MNG Institutions de financement Pers. -ressources
		Volume de crédits accordés aux hommes et aux femmes dans les banques et dans les SFD	Plaidoyer auprès des partenaires pour la mise en place de lignes de crédit et de fonds de garantie dans les banques classiques	<b>150,00</b>	2005-2015	MNG Points focaux Banques Réseaux
4.7.2. Renforcement des aptitudes entrepreneuriales chez les femmes	La productivité des femmes entrepreneurs et la rentabilité de leurs initiatives sont assurées	Existence d'un programme de formation en entrepreneuriat	Elaborer un programme d'information et de formation sur l'entrepreneuriat, ses exigences culturelles et techniques	<b>50,00</b>	2006-2007	MNG Min. Entrepreneuriat féminin Consultant(e) s
		Nombre de femmes ayant bénéficié de la formation en entrepreneuriat	Mettre en œuvre un programme de formation sur l'entrepreneuriat à l'intention des femmes opératrices	<b>250,00</b>	2006-2015	MNG Min Entrepreneuriat féminin Consultant(e) s
	Les capacités en gestion et techniques financières des femmes sont renforcées	Taux de rentabilité des projets initiés par les femmes	Au moins cinq activités sont organisées par an en direction des femmes	Plaidoyer pour la mise en place de structures-conseils au sein des organisations et associations de femmes pour lutter contre le papillonnage des bénéficiaires de financements et appuyer l'éligibilité des dossiers de projet	<b>150,00</b>	2005-2015
La capacité d'autofinancement des femmes est renforcée		Nombre d'organisations bénéficiant d'une structure appui-conseil				

**Objectif 4.8 : Assurer une meilleure implication et participation des acteurs de la communication et de l'information, hommes et femmes, dans la production et la diffusion de l'information sur le genre**

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRES
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4.8.1. Sensibilisation des acteurs de la communication et de l'information sur le genre	L'adhésion et l'engagement des acteurs de l'information et de la communication pour la promotion de l'égalité et de l'équité de genre sont renforcés	Existence d'une étude sur les stéréotypes dans les différents vecteurs de communication	Mener une étude sur les contenus des articles de presse, insertions publicitaires, des proverbes, chansons et autres expressions artistiques sur le genre et les stéréotypes sexistes	<b>50,00</b>	2007-2008	MNG Min. Com. Min. Culture APAC Réseau Journalistes Réseau des Communicateurs traditionnels Consultant(e)s
		Existence d'outils et de messages sur l' EEG				
		Les contenus des différents supports de communication tiennent compte du genre dans leurs messages	Concevoir, sur la base des résultats de l'étude, des outils, messages publicitaires et socio-éducatifs tenant compte de l'EEG	<b>250,00</b>	2007-2008	MNG, Min. Com. Min. Culture Réseaux Consultant(e)s
		Au moins trois activités sont organisées par an en direction des médias	Plaidoyer pour la mise en place dans les rédactions d'un système de suivi et d'alerte sur l'information relative au genre	<b>150,00</b>	2007-2015	MNG Points focaux Organes de presse Réseau des Journalistes
	% des rédactions ayant mis en place un système suivi et d'alerte opérationnel					
	Nombre d'articles publiés sur le genre par la presse		Instaurer un prix spécial annuel genre et développement pour les acteurs de la communication et de l'information	<b>100,00</b>	2007 - 2015	MNG PTF CL Points focaux APAC
	Un prix spécial sur le genre est institué					

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS EXTRANT/ACTIVITE	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRES
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4.8.2. Renforcement des capacités des acteurs de la communication et de l'information en genre	Les compétences en genre des acteurs de la communication et de l'information sont renforcées	Au moins deux ateliers par an sont organisés sur le genre à l'intention des acteurs de la communication  % de participation par catégorie d'acteurs ciblés  % des organes de presse disposant d'au moins une compétence en genre	Elaborer et mettre en œuvre un programme de formation en genre pour les acteurs de la communication et de l'information	<b>300,00</b>	2006- 2015	MNG Min. Com. Min. Culture Réseau Journalistes Réseau Communicateurs traditionnels Consultant(e)s
	Meilleure visibilité des actions des différentes parties prenantes à l'EEG	Existence d'un site portail actif sur le genre au Sénégal  Proportion des ministères, projets, organisations et associations disposant d'internet  Nombre et localisation des points d'accès communautaires créés	Créer et animer en partenariat avec toutes les parties prenantes un site portail sur le genre au Sénégal	-----	2006-2015	MNG Points focaux Réseaux REGENTIC OSC PTF CL ARD
		Taux de fréquentation du site par catégorie d'acteurs	Appuyer la mise en place d'internet au sein des organisations et associations et la création de points d'accès communautaires fonctionnant avec des sources d'énergie renouvelable	<b>150,00</b>	2006-2015	MNG Points focaux OSC CL PTF

STRATEGIES	RESULTATS ATTENDUS EFFET/IMPACT	INDICATEURS D'EXTRANT	ACTIONS	COUTS (Millions F CFA)	PERIODE	PARTENAIRE
4.8.3. Renforcement de la mobilisation des acteurs de la communication et de l'information en faveur de la promotion du genre	Capacité d'alerte et de mobilisation des acteurs de la communication et de l'information en faveur de l'égalité de genre accrue	Existence d'un plan de communication  Au moins dix activités sont organisées par an  Nombre de protocoles de collaboration signés entre le MNG, les PTF et les acteurs de la communication et de l'information	Elaborer et mettre en œuvre un plan de communication aux niveaux national et régional en partenariat avec acteurs de la communication et de l'information	<b>500,00</b>	2006- 2015	MNG Min. Com. Min. Culture Réseau Journalistes Réseau Communicateurs traditionnels Artistes Points focaux APAC OSC CL PTF
4.8.4. Responsabilisation des femmes dans les organes de presse et au niveau des rédactions en particulier	La position et le pouvoir de décision des femmes dans les organes de presse et les rédactions sont renforcés	Au moins deux activités de plaidoyer sont menées par an en direction des organes de presse et des rédactions  Nombre et position des femmes dans les organes de presse et au niveau des rédactions	Plaidoyer pour le renforcement de la position et du pouvoir de décision des femmes dans les organes de presse et les rédactions	<b>150,00</b>	2006-2015	MNG Points focaux Réseau Journalistes Réseau des femmes ministres et parlementaires Collectif des femmes parlementaires APAC OSC

**SOUS TOTAL ORIENTATION STRATEGIQUE 4 = 12.220.000.000 FCFA**

**COUT TOTAL ESTIME DE LA SNEEG = 30.466.000.000 FCFA**

### **Annexe 3 : EQUIPE MULTIDISCIPLINAIRE**

#### **I/ COMPOSITION DES GROUPES DE TRAVAIL**

<b>GROUPE 1 : DOMAINE ECONOMIE ET PAUVRETE</b>	
1	Ministère de l'Agriculture, de l'Elevage et de l'Hydraulique
2	Ministère des PME, de l'Entreprenariat Féminin et de la Micro Finance
3	Ministère de l'Industrie et de l'Artisanat
4	Ministère du Commerce
5	Ministère de l'Environnement et de la Protection de la Nature
6	Ministère de l'Economie Maritime
7	Ministère de la Fonction Publique, de l'Emploi et des Organisations Professionnelles
8	Ministère du Plan et du Développement Durable/ DP
9	Ministère du Tourisme
10	Ministère de la Femme, de la Famille et du Développement Social / DF **
11	Service Départemental du MFFDS de Guédiawaye
12	Agence du Fonds de Développement Social (AFDS/ MFFDS)
13	Projet de lutte contre la pauvreté (PLCP/ MFFDS)
14	Projet d'Appui à la Réduction de la Pauvreté (PAREP/ MFFDS)
15	Conseil National du patronat
16	Fédération Nationale des Groupements de Promotion Féminine (FNGPF)
17	CNCR
18	ASELFAE
19	RASEF
20	FDEA
21	Association pour la Promotion de la Femme (APF)
22	UNACOIS
23	UNACOIS/DEF
24	AFEPES
25	COCOGES
26	ANPF
27	Association des Femmes Entrepreneurs
28	PNUD
29	Banque Mondiale
30	FAO
31	BIT
32	ENDA Tiers Monde

<b>GROUPE 2 : DOMAINE SOCIAL ET CULTUREL</b>	
1	Ministère de l'Education / DPREE
2	Ministère de l'Enseignement Technique et de la Formation Professionnelle
3	Ministère de l'Alphabétisation et des Langues Nationales
4	Ministère de la Santé
5	Ministère l'Economie et des Finances/ DCEF
6	Ministère de la Prévention, de l'Hygiène publique et de l'Assainissement
7	Ministère du Patrimoine Bâti, de l'Habitat et de la Construction
8	Ministère de la Culture et du Patrimoine historique classé
9	Ministère des Sports
10	PDIS / Min. Santé
11	PDEF/ Min. Education
12	Ministère de la Femme, de la Famille et du Développement Social / DF**
13	Ministère de la Femme, de la Famille et du Développement Social / DSDS
14	Projet Pires Formes de Travail des Enfants (PPFTE)
15	Ministère de la Femme, de la Famille et du Développement Social / DASSN
16	Service Départemental du MFFDS de Dakar
17	INEADE
18	Fédération des Associations Féminines du Sénégal (FAFS)
19	Forum des Educatrices Africaines (FAWE)
20	Association pour l'Education à la Vie Familiale (AEVF)
21	ORGENS



22	ANAFSA
23	Association des Femmes Diplômées de l'Université (AFDU)
24	Réseau Islam, Education, SIDA
25	AFMEN
26	TOSTAN
27	SWAA
28	COSEPRAT
29	UDEN (Syndicat)
30	CADEF !Sénégal
31	UNFPA
32	UNICEF
33	OMS
34	Population Council

**GROUPE 3 : DOMAINE DROITS, CITOYENNETE ET PRISE DE DECISION**

1	Ministère de la Justice
2	Ministère des Collectivités locales et de la Décentralisation
3	Ministère de l'Environnement et de la Protection de la Nature
	Ministère des Forces Armées
4	Ministère des Affaires Etrangères
5	Ministère de la Femme, de la Famille et du Développement Social /DF**
6	Ministère de la Femme, de la Famille et du Développement Social /DPEDE
7	Projet Genre / MFFDS
8	Service Départemental du MFFDS de Pikine
9	Collectif des Femmes Parlementaires
10	Association des maires du Sénégal
11	Tribunal départemental de Dakar
12	IFAN Cheikh Anta Diop
13	Réseau Siggil Jigeeen
14	COSEF
15	Association des Femmes Juristes
16	Association des Femmes Handicapées
17	CLVF
18	CIJ/RADI
19	RADDHO
20	Réseau Islam et Population
21	RAFET
22	CAEDHU
23	RIFAD
24	WILDAF
25	UNSAS(Syndicat)
26	UDTS (Syndicat)
27	CSA (Syndicat)
28	UNIFEM
29	Fondation Friedrich Ebert (FFE)

**GROUPE 4 : DOMAINE MECANISMES INSTITUTIONNEL ET COMMUNICATION**

1	Ministère de l'Information, de l'intégration économique africaine et de la Promotion des Technologies de l'Information et de la Communication
2	Ministère de la Coopération décentralisé et de la Planification régionale
3	Ministère de la recherche Scientifique
4	Ministère du Plan et du Développement Durable/ DPRH
5	Ministère de la Femme, de la Famille et du Développement Social / DF**
6	Service Régional du MFDSSN de Dakar
7	Service Départemental du MFDSSN de Rufisque
8	CENAF/ MFFDS
9	Projet Crédit/ MFFDS
10	Cellule AT/CEPEC/ MEF
11	Direction de la prévision et de la Statistique/ MEF
12	CNCAS
13	PAMECAS
14	CONGAD
15	AFARD
16	Nénuphar
17	Collectif des Femmes Parlementaires
18	AFDS
19	Réseau des Parlementaires pour la Population
20	Réseau des Journalistes pour la Population
21	Réseau des Communicateurs Traditionnels
22	Association des Professionnels de la Communication du Sénégal (APAC/Sénégal)
23	Parti politique (PS)
24	Parti politique (PIT)
25	Parti politique (LDMPT)
26	Parti politique (PDS)
27	Parti politique (AJ/PADS)
28	Parti politique (RND)
29	ACDI
30	GTZ

**II/ COMITE TECHNIQUE AD HOC**

1. Mme Ndèye Soukèye Guèye, Directrice de la Famille/ MFFDS
2. M. Atoumane Faye / Cellule de Suivi de la Pauvreté / MFFDS
3. Mme Aminata Diouf Ndiaye, Conseiller Technique Genre/ MFFDS
4. Mme Absa Wade Ngom, Coordonnatrice du Projet Genre / UNFPA/ MFFDS
5. M. Mamadou Guèye, Conseiller Technique / MFFDS

**III/ PERSONNES RESSOURCES**

1. M. Valdiodio Ndiaye / Domaine économie et pauvreté
2. Mme Oumou Khaïry Niang / Domaine social et culturel
3. Mme Nafissatou Faye Ndiaye / Domaine droits, citoyenneté et prise de décision
4. Mme Oumy Diagne Ndiaye / Domaine institutionnel et communication

**IV/ CONSULTANTE**

Astou Diop-Diagne, Economiste-Planificateur, Expert en Genre et Développement

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