PART I: PROJECT/PROGRAMME INFORMATION

PROJECT/PROGRAMME CATEGORY: COASTAL EROSION
COUNTRY/IES: SENEGAL
TITLE OF PROJECT: **ADAPTATION TO COASTAL EROSION IN VULNERABLE AREAS**
TYPE OF IMPLEMENTING ENTITY: NATIONAL
IMPLEMENTING ENTITY: **CENTRE DE SUIVI ECOLOGIQUE**
EXECUTING ENTITY (IES): **DEEC (DIRECTORATE OF ENVIRONMENT OF SENEGAL), NGO, AND COMMUNITY ASSOCIATIONS**
REQUESTED FUNDING: **US$8,619,000** (Equivalent)

PROJECT / PROGRAMME BACKGROUND AND CONTEXT:

I. SITUATION ANALAYSIS

1. Senegal's growth and economic development will be hampered by climate change, unless appropriate adaptation initiatives, guided by an adaptation strategy are implemented, and Climate change (CC) incorporated into the core of the development process. It is suggested that climate change is reflected in a sea-level rise, decreasing rainfall (with a heightened intensity of exceptional events) and high temperatures in Senegal. The major problem facing Senegal is that its leading economic sectors are totally dependent on natural resources, which are being currently depleted by people's basic activities, and will be threatened by the upcoming climate change. The key activities contributing to the formation of the GDP in Senegal are agriculture (14.7 per cent), industry (22.1 per cent) and services (63.2 per cent)[1]. Agriculture, fishing, and tourism in particular, help maintain people's livelihoods by creating jobs and generating income. Senegal's heavy dependence on natural resources, which could be seriously affected by climate change, is a threat to economic growth and to Senegal's development goals.

2. The most vulnerable Senegalese citizens to the effects of future climate change include poor people in rural areas, women, the elderly, farmers, fishermen, market gardeners, and tourist operators. Women are responsible for the maintenance of their families' means of subsistance and constitute the major workforce in rural economies, especially in agriculture and fishing. Subsequently, it is likely that climate change will have serious consequences, in terms of poverty reduction, gender-related issues, and the attainment of the MDGs. Hence, relying on the needs of the most vulnerable communities is essential to match human development to the responses to climate change.

3. On the entire Senegalese coasts and for a 1-meter rise of the sea level by 2100, Dennis et al. (1995) predict that between 55 and 86 square kilometres of beach will disappear, due to an intensification of coastal erosion phenomena. Concurrently, some 6,000 square kilometres of low areas, notably the estuaries would be flooded. Likewise, with a rise of 40 to 120 cm, coastal facilities and human settlements could suffer heavy damage. Besides, traditional rice-

(i) [1] Senegal at first sight, 2008. World Bank.

growing activities carried out in valleys and estuarial areas will affected by a larger intrusion of saline waters, making the drainage of those areas even more difficult. The table below shows some of the climate change-related threats and consequences.

SECTOR	CC-RELATED THREATS	CONSEQUENCES
COASTAL AREAS	Sea-level rise Increase in swell height Warming up of ocean waters Modification of upwellings	Increasing coastal erosion Flooding of low coastal areas Water and soil salination Disappearance of farming lands Risks to lose the mangrove swamps Modification of the structure and composition of marine species (fish and seabirds) Development of toxic agents in marine animals Modification of the structure and composition of underground marine species

Coastal flooding and erosion are the main causes of the loss of physical and financial assets, especially the loss of land along the coast.

Among others, the consequences related to coastal erosion include:

- The destruction of economic infrastructures and human settlements,
- The silting-up of access channels, the formation of sand bars, and the isolation of the Djiffere and Dionewar Islands,
- The destruction of rows of beefwood (Langue de Barbarie),
- The breaking of the Sangomar 'Arrow' that led to a series of consequences, notably the destruction of the mangrove swamp, the destruction of some infrastructures and the salination of soil in some island villages facing the new mouth, and the flooding of the areas near the River.

4. Senegal is particularly vulnerable to climate change, due to the existence of a farming sector, which heavily depends on the climate, a high population density and the concentration of almost all economic on coastal areas.

5. Senegal's National Adaptation Programmes of Action (NAPA) (2006) gives the details of the country's priority adaptation responses, which include: reforestation, the restoration of the mangrove swamp, the biological stabilization of sand dunes, the physical protection against beach erosion and saline intrusion (using ditches, barriers or other protection means), irrigation projects, the restoration of soil fertility, water conservation methods, the use of alternative crops, and education on adaptation.

6. There are many small-scale projects, which address local problems related to the effects of current patterns of climate variability, with a few examples, such as reforestation (Diaw, 2006), irrigation, soil restoration and construction of dikes (Adams, 1993), irrigation and

mangrove restoration (Denkelman et al., 2008), risk and disaster managements plans in response to floods in urban areas (Mbow et al., 2009). Other ongoing adaptation projects deal with both current and upcoming climate, but many of them are limited to the short term and are being implemented on an ad hoc basis. There are other examples of integrated approaches of climate change in the sub-region, such as the project called "Adaptation to Climate Change - Responding to Climate Change and to its human dimensions in West Africa through the integrated management of the coastal area" (ACCC) and the Climate **C**hange and **D**evelopment **A**dapting by **R**educing **V**ulnerability (CC DARE) Project. There are also programmes, NGOs, and research institutes in Senegal, which are devoted to improving adaptation capacities and increasing adaptation networks (sharing and apprenticeship) such as: INFOCLIM, CONGAD, and ISRA. Other development organisations and agencies, such as the Japanese International Cooperation International Agency (JICA) and the UNDP, working in areas that could benefit from the synergy of adaptation actions, such as the agricultural and health sectors.

7. The response proposed through this project will focus on the effective implementation of adaptation measures to climate change in some vulnerable coastal areas previously identified, such as Rufisque, Saly, and Joal (Figure 1).

PROJECT / PROGRAMME OBJECTIVES:

The Overall Objective of the Project:

The project's overall objective is to contribute to the implementation of Senegal's National Adaptation Programmes of Action on Climate Change (NAPA).

Specific Objectives (SO):

- **SO1:** Implement the actions to protect the coastal areas of Rufisque, Saly, and Joal against erosion, with the aim to protect houses and the economic infrastructures threatened by the erosion including fish processing areas, fishing docks, tourism or cultural infrastructures, and restore lost or threatened activities;

- **SO2:** Implement the actions to fight the salinization of agricultural lands used to grow rice in Joal, with the construction of anti-salt dikes;

- **SO3 :** Assist local communities of the coastal area of Joal, especially women, in handling solid wastes and fish processing areas of the districts located along the littoral;

- **SO4:** Communicate on the adaptation, sensitize and train local people on climate change adaptation techniques in coastal areas and on good practices, to avoid an aggravation of the various situations encountered;

- **SO5:** Develop and implement the appropriate regulations for the management of coastal areas.

Expected Results:

- **Result 1:** The populations, houses, economic and cultural infrastructures in the coastal areas in Rufisque, Saly, and Joal are protected against erosion;

- **Result 2:** The lands of the rice-growing areas in Joal are protected against salinization and agricultural activities are restored;

- **Result 3:** The population in the coastal area of Joal, through the Town Council, have set up a rational and effective waste management system ; the fish processing areas are renovated, with a strong involvement of women ;

- **Result 4:** The people are aware of the climatic risks ; they need to be sensitized and informed on the adaptation techniques to climate change in coastal areas;

- **Result 5:** The appropriate regulation is developed, adapted, and implemented for rational management of coastal areas.

The Project's Intervention Areas:

The Project encompasses the areas of Rufisque, Saly, and Joal.

PROJECT / PROGRAMME COMPONENTS AND FINANCING:

PROJECT COMPONENTS	EXPECTED CONCRETE RESULTS	EXPECTED RESULTS	AMOUNT (US$)
1. ***Rufisque :*** a. Validation of the feasibility studies of Thiawlene and Diokoul b. Achievement of the infrastructure of protection c. Cleaning up of the canals and connection with the sea (with a strong involvement of local populations)	***Action 1:*** *Update the detailed technical feasibility studies for the design of coastal protection facilities in the areas of Rufisque, Saly, and Joal and the achievements of those tasks. The target areas host houses, economic and cultural infrastructures (fish processing areas, fishing dock, cement factories, cemeteries, etc.)*	**Result 1:** People, houses, economic and cultural infrastructures in the areas of Rufisque are protected against coastal erosion. The populations are involved	2,700,000

2. Saly: a. Achievement of the infrastructure of protection in Saly (hotels and village) b. Support for the fitting-out of the fishing dock and the fish processing area	***Actions 2 :*** *Start the setting up of the protection facilities in the vulnerable areas covering the hotels, people, and poor villages, as well as the fishing docks*	**Result 2:** People, houses, economic and cultural infrastructures in the area of Saly are protected against coastal erosion. Local people are involved	2,800,000

3. Joal : a. Validation of the feasibility studies and achievement of the anti-salt barrier b. Strengthening of the protection and development of the littoral: beach, fish smoke kilns, ***c.*** Strengthening of waste collection and management system, including plastic bags, with the setting up of a technical landfill centre: environmental assessment.	***Action 3****: Study and build anti-salt dikes in the rice-growing areas of Joal.* *Protect and layout beaches and fish processing areas.* *Restore beaches cleanliness by recycling and increasing the value of all waste, with adequate respecting the due procedures*	**Result 3:** Rice-growing areas in Joal are protected against salination**.** The coastal infrastructure is built for the processing activities People in the coastal areas of Joal have set up a rational and effective waste management system. Impact studies are conducted and the implementation of the Environmental and Social Management Plan is monitored	2,000,000
4. Regulations : a. Development, strengthening, and implementation of the regulation on coastal protection and the adaptation to climate change: Environmental Code, law on the littoral and other regulations … b. Communication on those regulations	***Action 4 :*** Design, fine tune, and strengthen the regulations on the management of the littoral : Environmental Code, the law on the littoral, and other codes and regulations, with a strong communication component	**Result 4:** Regulations exist and cover all areas. The environment code is revised; the law on the littoral is adopted. These two documents take into account the Climate Change (CC) dimension. A good communication effort is made to explain those texts.	200,000

5. Information/Sensitization/ Training /Communication: a. Information and sensitization on the project, b. Training of the various target groups on the new regulations and adaptation, c. Development of communication tools, distributions and exchanges		***Action 5:*** Design and implement a sensitization and training programme for local people on new adaptation to climate change in coastal areas and develop the adequate tools.	**Result 5:** Local people are sensitized and informed about the adaptation techniques to climate change in coastal areas and about the respect of the regulations on the management of the littoral.	500,000
7. Total Project/Programme Cost				8,200,00
8. Project Cycle Management Fee charged by the Implementing Entity	Project Document Formulation (4 consultants, travels, workshops...) to be reimbursed			90,000
	Traduction French - English			4,000
	Management fee of the NIE			325,000
Amount of Financing Requested				8,619,000

PROJECTED CALENDAR:
Indicate the dates of the following milestones for the proposed project/programme

MILESTONES	EXPECTED DATES
Start of Project/Programme Implementation	July 2010
Mid-term Review (if planned)	July 2011
Project/Programme Closing	July 2012
Terminal Evaluation	August 2012

SECTORS

PART II: PROJECT/PROGRAMME JUSTIFICATION

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

The development of Senegal's National Adaptation Programmes of Action (NAPA, 2006) originates from the vulnerability studies conducted in three sectors, namely water resources, agriculture, and coastal areas. The NAPA has identified a few adaptation options in these sectors, including:

- fight against soil salinity (anti-salt dikes and small dams) for the farming sector;

- construction of infrastructures of protection against coastal erosion, as well as the legal and institutional measures and capacity building for all stakeholders in the coastal area sector.

From these selected priority adaptation options, a series of projects has been initiated, taking into account their strong incidence on poverty alleviation efforts, their low costs and their link with the Regional Integrated Development Plans, the national sectoral policy, as well as the strategies defined at the international level.

The activities proposed as part of the present project perfectly match the adaptation options and would therefore help communities, who are settled in coastal areas, better fight the impact of climate change.

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

The coastal areas are some of the main potentialities of Senegal, with high stakes in terms of the importance of the number of people involved (over 75 per cent the people live less than 60 km from the shore) and the economic weight of those populations. The heavy human concentration in this coastal portion is explained by the importance of tourism, farming, fishing, and industrial activities.

Generally in these communities, the fishing activities are mainly carried out by men. Women do not play a major role in the production; however, they buy the means of production and have a leading role in the processing of fishery products. Another sector cornered by women is the distribution of fresh fish. Most of the time, they are gathered in associations called 'Groupements d'Intérêt Economique' (Economic Interest Groups, GIE) or in federations and receive assistance from development support institutions.

However, for some communities, especially among the fishermen, the access to the basic social services is still limited. In fact, apparent poverty prevails in most of the fishing people's towns. The houses are built in a heap, the streets very narrow, and unhealthiness seems to pervade the streets of those towns, where very few children are sent to school.

Some areas are known for their lack basic infrastructure: poor sewage and waste management systems, lack of power facilities, lack of materials and equipment in health facilities, and in certain cases, these communities have no public rest rooms; therefore the beach is used a lavatory. This situation is exacerbated by the excessive population increase in these communities.

Currently, the macroeconomic situation, the destruction of the farming production systems, and the dwindling of fish resources, reflected by low-yielding fishing activities, due to the excessive pressure on high-quality fish products have disrupted the economy of the coastal area and exacerbated poverty within those communities. Subsequently, a large portion of the population lives in dire conditions.

This situation is exacerbated by the impact of the sea-level rise on fishing and farming activities in coastal areas, as a result of climate change (destruction of fishing docks and fish processing areas, salination of lands).

The Project is about ensuring adaptation to climate change in the areas vulnerable to coastal erosion and fighting the salination of lands, especially through the construction of coastal protection facilities and anti-salt dikes as adaptation measures. The Project also intends to initiate actions against poverty in coastal areas, notably through assistance to the most vulnerable people, for the improvement of their income generating activities (fish processing, rice growing, increasing the value of all waste). Finally, by improving the existing regulatory framework and sensitization, the training of the population living in target coastal areas, the Project will help boost people's resilience to coastal erosion and salination of the lands.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project/programme.

The Project operates in Senegal's coastal area, which is a very important area in the country's economy. Actually, Senegal's tourist supply consists exclusively of beach tourism. Since 1991, tourism is the country's second foreign exchange earner, far ahead of the phosphates or groundnuts: it contributes to the improvement of the balance of payments. A breakdown of the receipts from international tourism, collected in Senegal reveals that on average, the hotels (71.8 per cent) and craftsmen (about 12.1 per cent) benefit the most from tourism. The tourism industry has created 8.000 directs jobs and about 15,000 indirect jobs.

Besides, Senegal makes a significant amount of its hard currencies from the fishing sector, which ranks first in the economy of the nation, with gross receipts estimated at US$350 million. The jobs in the production, processing, and marketing of fish and other related activities are estimated at 600,000 in Senegal[2]. Traditional fish processing is an important source of income for women and "helpers". These earnings change depending on the production costs, the processors' business acumen and techniques (DIOP, 1990).

As explained earlier, coastal erosion is a real threat to these two sectors, which are the lungs of Senegal's economy. Consequently, the Project intends to reduce those threats, which could compromise income-generating activities, by implementing adaptation measures; hence its profitability.

D. Describe how the project/programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

Senegal is party to the United Convention Framework Convention on Climate Change, which it ratified in 1994. In 1997, Senegal made a first National Communication on Climate Change; the second is in the process of being finalized. The proposed project is therefore

(ii) [2] SY A. B., SECK I. (2006) Profile of the Post Capture sector of traditional fishing in Senegal. P 10

consistent with the priorities defined in the National Plan of Action for Adaptation (PANA) and the National Adaptation Strategy to Climate Change in Senegal. The present project will be linked to larger programmes, such as the PANA in Senegal, the ACCC Project, the CC DARE, the UNDP/Japan Project: "Support for the Implementation of Integrated and Holistic Adaptation Approaches against Climate Change: Integration of the Adaptation to Climate Change in the Sustainable Development of Senegal (PAA/INTAC)." This will help avoid the duplication of the efforts and will bring about synergies between the different projects. The present project will support the adoption of adaptation measures to curb the vulnerability of Senegal's coastal areas to coastal erosion and salination.

E. Describe how the project/programme meets relevant national technical standards, where applicable.

The proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (including Senegalese National Adaptation Programmes of Action on Climate Change; Senegalese National Climate Change Adaptation Strategy; Senegalese Poverty Reduction Strategy Paper; Adaption to Climate and Coastal Change in West Africa (ACCC); Climate Change and Development – Adapting by Reducing Vulnerability (CC- DARE); and Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation : Integration of Climate Change Adaptation in Sustainable Development in Senegal (PAA/INTAC))

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

Table of available or pledged funds

Designation of the Fund	**Amount in US $**	**Observations**
European Union	5,400,000	Studies and Implementation
Adaptation Fund	8,200,000	Multisectoral achievements
UNDP / Japan	3,000,000	Institutional strengthening, studies and investments
National Budget	750,000	Investments
UEMOA	4,000,000	Studies and investments
GEF	473,000	Reforestation
AfDB(African Development Bank)	Expected	Studies and investments
World Bank	500,000	Studies

The table below reviews the situation of the projects underway or to be launched in the field of adaptation of the vulnerability of Senegal's coastal areas to coastal erosion and salination.

Actions	**Selected Sites**	**Funding**	**Amount (FCFA)**	**Duration**

Sudies and building of coastal protection facilities in Thiawlene and Diokoul	Thiawlene and Diokoul (Rufisque)	European Union	**1,180,720,000**	7 months. To start construction works in 2010
		UNDP/Japan Project	**249,523,000**	
		BCI	**250,000,000**	
		Remainder of Requested fund	**1,559,757,000**	
Studies and construction of protection facilities in Saly	Saly (Mbour)	UNDP Japan Project	**195,704,000**	To start in 2010
		Requested funding (UEMOA, AfDB)	**5,000,000,000**	
Reforestation of cordons of dunes and mangroves through the Sub-regional Adaptation Project to Climate Change in the Coastal Areas (ACCC)	Palmarin (Fatick)	FEM	**228,537,000**	3 years Sill underway
Studies and construction of coastal protection facilities in the Langue de Barbarie (St Louis), Goree/ Dakar Corniche roads, the Petite Cote, and Diogue Island in Ziguinchor	Langue Barbarie (St Louis) Goree/Dakar Corniche roads Petite Cote, Diogue Island in Ziguinchor	Requested Funding for Studies from the European Union		
		Requested funding from the AfDB		
Studies and fight against coastale erosion in Rufisque, Saly and Joal	Rufisque, Bargny, Joal	Requested funding from the Adaption Fund		
Economic assessment of the	To be defined	World Bank	**241,495,000**	To start in late 2010

adaptation to climate change in coastal areas				
Follow-up studies of the coastline in the member countries of UEMOA, Ghana, and the Gambia	The entire littoral	UEMOA	**1,960,000,000**	Still underway

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

The project will identify, analyze, and share lessons learned that could help design and implement future similar projects, as part of the efforts to ensure sustainable management of vulnerable coasts to climate change in Senegal.

A synergy of actions will also be brought about between the different programmes working in the area. For that purpose, the achievements of the "Adaptation Project to Climate and Coastal Changes in Africa: ACCC" will be capitalised, in a bid to develop in Senegal an integrated approach for the design and the implementation of effective adaptation strategies. The link will also be made with the initiative of the European Union, which, through its programme called "Initiative Global Climate Change Alliance", will help in the implementation of an Integrated Management Project of Senegal's coastal areas, along with the implementation of concrete actions to fight coastal erosion.

The results of the project will be disseminated within and beyond the project's intervention area, with the use of the existing information sharing networks and forums. To reach that goal, the adaptation activities of the project will bring about knowlege, such as:

- the integration of the best adaptation practices in the development of local and national policies and the design of projects and implementation mechanisms,
- the lessons on the lifting of the most common barriers to the adaptation, with a special attention to the roles of local and international partners in project the design and implementation,
- the conditions required to succeed (or fail), including the replication and the graduation.

ii. The project will identify and participate on a permanent and adequate basis, in the scientific networks based on policy and/or any other means for sound implementation, through the lessons learned.
iii. The project will identify, analyze, and share the lessons, which could be useful in designing and implementing future similar projects.

H. Describe the consultative process, including the list of stakeholders consulted, during project preparation.

All stakeholders have been consulted and their inputs introduced in the various projects. Those stakeholders include NGOs, women's associations, youth associations, University, State, and private institutions, the different houses of representatives (MPs, Senator, Members of the Social and Economic Council, and researchers). Most of bilateral and multilateral cooperation agencies have been contacted: Japan, the Netherlands, the EU, Spain, the AfDB, the World Bank, UEMOA, GEF, UNDP, UNEP; UNIDO, FAO, DANONE, IUCN, Wetlands, WWF, ENDA...

The consultations have been conducted on the basis of forums and visits, on the sidelines of project, strategy and consultation development.

The Ministry of Environment has received most of these groups, due to the urgent construction work to be in the field (dikes and different developments) as coastal erosion does not wait.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Senegal's status as a less developed country (LCD), located on the coast of the African continent makes its various ecosystems highly vulnerable to climate change. In addition, the country's poor mining and energy resources are subjected to the vagaries of the weather, characterized by a consistent deficit of rainfall.

The national budget alone is not enough to address climatic scourges and extreme events, in addition to the promises of funding, which are difficult to mobilize, when they exist.

The Adaptation Fund brings hope, due to its accessibility and equity.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project/programme implementation.

There are three implementing entities: The DEEC, an NGO, and an Association of women and youths

For the setting up of the infrastructures (coastal protection and anti-salt dikes), the DEEC will sign a convention with the Public Works and Employment Agency (AGETIP), as the contracting authority for the project.

Under the responsibility of C.S.E., a national executing entity, the implementing entities sign contracts, as shown in the table below:

PROJECT COMPONENTS AND ACTIVITY		ENTITY IN CHARGE	CONTRACTED ENTITY
Rufisque	Setting up of the infrastructure of protection	***DEEC***	*Research Department*
			Specializing firm
	Cleaning up of channels and connection to the sea with a strong involvement of local populations	***NGO***	*Populations*
Saly	Validation of the feasibility studies of Saly	*DEEC*	
	Setting up of infrastructure of protection in Saly (hotels and village)		Company
	Assistance in the setting up of the fishing dock	*NGO*	*Associations*
Joal	Validation of the feasibility studies and building of the anti-salt dike	DEEC Associations	Company
	Strengthening of the protection and development of the littoral: beach, fish smokehouses,		*Association/Population*
	Strengthening of the waste collection and management system, including plastic bags, with the setting up of a Technical Landfill Centre (CET): Environmental assessment.	*NGO* *DEEC*	*Populations*
			Company
Regulations	Development, strengthening, and enforcement of the regulation on the protection of the littoral and adaptation to climate change: code of the environment, law on the littoral and the rules, orders and regulations …	*Research Department*	*All public*

	Communication on the regulation	*Communication firm*	*All public*
Information/Sensitization /Training/ Communication	Information and sensitization on the project	***NGO*** ***D.E.E.C***	***NGO*** ***DEEC***
	Training of the different target groups on the new regulations related to the adaptation		
	Development of communication, distribution, and exchange items		***Communication firm***

The decision-making, orientation, and follow-up bodies are the following: (i) the COMNAC, the Project Steering Committee (CNP) is led by the Environment Ministry; (ii) The Scientific and Technical Committee (CST) presided on an ad hoc basis by the representative of the most competent entity, based on the theme on the agenda. The Coordination Unit of the project (UCP) is in charge of the secretariat of these bodies.

The UCP is led by a National Coordinator, assisted by an administrative and financial officer (RAF), a secretary, a duty officer, and experts, under the responsibility of CSE.

The Steering Committee (CP)

The implementation of the project is supervised by the *COMNAC,* which is the Steering Committee. The COMNAC will have to:

- Define the political and strategic orientations of the project;
- Validate the annual work plan and the related budget;
- Approve the progress reports;
- Ensure the overall supervision of the project through planning, programming and follow-up of the achievements;
- Validate the progress reports and any other reports pertaining to the project implementation;
- Ensure the continued and annual assessment of the project implementation;
- Stimulate the dialogue and consultations between the various partners in the project.

The Committee can if the need arises, take on the competences of any resource person and/or institution deemed useful for the smooth fulfillment of its missions.

The Committee holds meetings at least twice a year.

The ‘Centre de Suivi Ecologique’, CSE, the National Implementing Entity, works with a selected Scientific and Technical Committee (CST) composed of the different executing entities: DEEC, NGOs, Associations, companies, and communication firms.

Following are the tasks CSE will ensure:

- Answer directly for the project to the Adaptation Fund Board,
- As such, regularly submits technical and financial progress reports on the project with regard to stated objectives and expected results ;
- As necessary, CSE will also provide some technical expertise and advise to the executing entities

The CST will:

- Support the coordination team of the project in the field of planning;
- Ensure the coherence of the project interventions with the conventions, plans and programmes defined at both international and national levels;
- Support the development of strategies for the harmonious implementation of the project;
- Give scientific and technical opinions on the choices made for the smooth sound implementation of the activities of the project;
- Give a technical opinion on the documents and study reports submitted by the experts, the hired consultants, and any other resource person, as part of the implementation of the project;
- Participate in the follow-up of the project implementation (through participation in support missions in the field or planned meetings for the implementation of the project).

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

The CSE will ensure that all implementing entities have proven and reliable accountancy, with a bank account. The transfer of the resources handled by the CSE will be made in the form of regular cash advances, in line with the Annual Work Plan and Procurement rhythm defined by the Board of the Adaptation Fund.

The CSE accepts to submit frequent reports to the Board of the Adaptation Fund, which in return, will transfer the resources needed for the next activity, until the end of the project.

Any abnormality and/or event that could jeopardize the financial management of the project should immediately be reported to the Board of the Adaptation Fund. The CSE should report any risks and propose solutions or is assessment of the situation to the Board of the Fund.

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

The follow-up of the Joint Project’s results will be made through formal events (assessments), but also through M&E participatory methods, conducted on a regular basis. The Coordination Unit of the Project will submit quarterly technical and financial reports assessing the range of achievements in terms of the attainment of the products, based on specific indicators. The

sensitization and popularization of the project achievement are important tools for the large dissemination of the experience gained across Senegal. The mechanism consists of:

C.1 A daily follow-up of the progress in the implementation will be under the responsibility of the Project Coordinator, based on the Annual Work Plan (PTA) and specific indicators.

C.2 The regular follow-up of the evolution of the implementation will be conducted through quarterly meetings;

C.3 A semi-annual follow-up will carried out through a series of meetings of the Steering Committee based on a semi-annual report of the project (RSAP) drawn by the project's team. The format of the RSAP should include among others, the following aspects: a performance analysis in the period covered by the report, containing the results of the implementation of the activities, wherever possible, information on the state of the products, les constraints encountered in the life of the programme and their causes, the PTA, and the other financial reports, the lessons learned, clear recommendations for the future orientation in tackling the major issues when o progress is made.

In addition to the semi-annual report of the project (RSAP), the follow-up will be reported as follows: short reports insisting o the main aspects of the quarterly update of the progress made: technical reports or Specific thematic reports, covering specific analysis themes or specialization themes to be submitted on an ad hoc basis by the stakeholders. The publications of the project represent a key crystallization and dissemination method of the results made. These publications can be scientific or texts informing on the activities, in the form of contributions, multimedia publications, etc.

C.4 The project will be subjected to two external and independent evaluations at least:

- A mid-term independent evaluation.
- A final independent evaluation will be carried out three months ahead of the end of the project. The final evaluation will take into account the durability and potential impact of the project's results.

D. Include a result framework for the project proposal, including milestones, targets and indicators.

Expected Results	Targets	Actions	Indicators	Means of Verification
Result 1: People, houses, economic and cultural infrastructures of the areas of Rufisque are protected against coastal erosion. People are	**Target 1.1 (Year 1):** The detailed technical feasibility studies for the protection of the coastal areas of Rufisque are	**Action 1.1:** Update the detailed technical feasibility studies for the design of the protection works of the coastal areas of	1. The update of the detailed technical feasibility studies for the design of the protection works of the coastal areas of Rufisque is completed 2. The construction	1. Study Reports 2. Length of protected coast

involved	updated **Target 1.2 (Years 1 and 2):** The protection works of the coastal areas of Rufisque are built **Target 1.3. (Year 2):** The waste ways of rainwater are cleaned up and connected to the sea	Rufisque **Action 1.2:** Completion of the protection works of the coastal areas of Rufisque. The target areas host houses, economic and cultural infrastructures (fish processing areas, fishing docks, cemeteries, etc.) **Action 1.3:** Cleaning up of the channels and connection to the sea, with a strong involvement of local people	of the protection works of the coastal areas of Rufisque is completed 3. The cleaning up of the channels and connection to the sea is completed	(in linear metre) 3. Linear number of cleaned up channels
Result 2: Populations, houses, economic and cultural infrastructures of the areas of Saly are protected against coastal erosion. Local people are involved	**Target 2.1. (Year 1):** The detailed technical feasibility studies for the protection of the coastal areas of Saly are completed and validated **Target 2.2 (Years 1 and 2):** The protection works of the coastal areas of Rufisque are completed	**Action 2.1:** Complete and validate the detailed technical feasibility studies for the design of the protection works of the coastal areas of Saly **Action 2.2:** Set up the protection works of the vulnerable areas covering the hotels,	1. The detailed technical feasibility studies for the design of the protection works of the coastal areas of Saly is completed 2. The protection works of the coastal areas of Saly are completed 3. The development of the fishing dock and the fish processing area is	1. Study Reports 2.Length of the coast protected (in linear metre) 3. Existence of a sound fishing dock and a good fish processing

	Target 2.3. (Year 2): The development of the fishing dock and the fish processing area is done	people and poor villages, as well as the fishing docks **Action 2.3:** Assistance in the development of the fishing dock and the fish processing area	completed	area
Result 3: The lands for rice-growing activities in Joal are protected against salination**.** Coastal infrastructure is built for fish processing activities. The people living in the coastal areas of Joal have a rational and effective waste management system. An impact assessment is made and the execution of the environmental and social management plan is monitored	**Target 3.1 (Years 1 and 2):** The technical studies and the dikes to prevent salt intrusion into the rice-growing areas of Joal are done. **Target 3.2 (Years 1 and 2):** The protection and development of beaches and fish processing areas are completed **Target 3.3 (Years 1 and 2) :** A rational and effective waste management system is set up	**Action 3.1**: Study and build the dikes to prevent saline water from invading the rice-growing areas of Joal. **Action 3.2**: Protect and develop beaches and fish processing areas. **Action 3.3**: Restore the cleanness of the beaches by recycling and increasing the value of all waste, with adequate systems that respect due procedures	1. The technical studies and the dikes to prevent salt intrusion into the rice-growing areas of Joal are completed 2. The protection and development of beaches and fish processing areas are completed 3. The setting up of a rational and effective waste management system is completed	1.Study reports, number of curbs and dikes built 2. The curbs for protected beaches and the fish processing areas are developed 3. Existence of a rational and effective waste management system
Result 4:	**Target 4.1**	**Action 4.1:**	1. The development	1. Number and

Regulations exist and cover all areas. The code of the environment is revised; the law on the littoral is adopted. These two documents take into account the CC dimension. Good communication is launched to explain these documents.	**(Year 1):** The legal materials dealing with the management of the littoral and taking into account the CC dimension are drawn up. **Target 4.2. (Year 2) :** The texts drawn up are popularized	Design, develop, strengthen the regulations on the management of the littoral, taking into account the CC dimension: Code of the environment, law on the littoral, other codes and rules, orders, etc. **Action 4.2:** Popularize the texts drawn up	of legal documents pertaining to the management of the littoral and taking into account the CC dimension is completed 2. Popularization sessions of the legal materials drawn up are held	nature of the legal materials drawn up and in force 2. Number of popularization sessions and participants
Result 5: People are sensitized and informed on the adaptation techniques to climate change in coastal areas and enforcement of the regulations on the management of coastal areas.	**Target 5.1 (Years 1 & 2) :** A training and sensitization programme is designed and carried out **Target 5.2 (Years 1 & 2):** Adequate communication tools are developed and shared. **Action 5.3 : (Years 1 & 2) :** People are informed, sensitized and trained on the adaptation techniques to climate change en coastal	**Action 5.1:** Design and conduct a training and sensitization programme **Action 5.2:** Develop and share adequate communication tools. **Action 5.3:** Inform, sensitize, and train people on the adaptation techniques to the climate change in coastal areas **Action 5.4:** Train the different target	1. A training and sensitization programme is conducted 2. The development of adequate communication tools is completed and the tools shared 3. Information, sensitization and training sessions /workshops are held 4. Training sessions/workshops are held	1. Study Report 2. Number and nature of the communication tools developed 3. Number of sessions/workshops held or participants 4. Number of sessions/workshops or participants

	areas **Action 5.4: (Years 1 & 2):** The different target groups are trained in the new regulations on the adaptation.	groups in the new regulations on the adaptation		

Calendar of activities:

Activities	Calendar																								Budget ($ US)
	Year 1												Year 2												
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Action 1.1 : Update the technical and detailed feasibility studies for the design of the coastal protection facilities in the areas of Rufisque																									20,000
Action 1.2: Building up of the coastal protection facilities in the areas of Rufisque. The target areas host houses, economic and cultural infrastructure (Fish processing areas, fishing docks, cemeteries, etc.)																									2,580,000
Action 1.3 : Cleaning up of the channels and connection with the sea (strong involvement of local populations)																									100,000
Action 2.1: Carry out and validate the detailed technical feasibility studies for the design of the protection facilities of the coastal areas of Saly																									100,000
Action 2.2 : Set up the protection facilities of the vulnerable areas covering hotels, people, poor villages, as well as the fishing docks																									2,300,000
Action 2.3: Assistance in the development of the fishing dock and the fish processing area																									400,000
Action 3.1: Study and achieve the anti-salt barriers in the rice-growing areas of Joal.																									800,000
Action 3.2: Protect and develop beaches and fish processing areas.																									900,000
Action 3.3: Restore the cleanliness of the beaches by recycling and increasing the value of all waste, with adequate systems respecting the procedures																									300,000
Action 4.1: Design, fine tune, and strengthen the regulation pertaining to the management of the littoral, by taking into account the CC dimension: Environment Code, other codes and regulations																									60,000
Action 4.2: Disseminate the elaborated texts																									140,000
Action 5.1: Design and implement the awareness and training programme																									290,000
Action 5.2: Fine tune and share the suitable communication tools																									100,000
Action 5.3: Inform, sensitize, and train people on the adaptation techniques to climate change in coastal areas																									60,000
Action 5.4: Train the different target groups on the new regulations on adaptation																									50,000
																								Total :	**8,200,000**

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

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT[3] *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 of 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:*

(Enter Name, Position, Ministry) Ndiaye Cheikh Sylla *Director of Environment and Classified Establishments* *Ministry of Environment* *Designated National Authority of Senegal*	Date*: (Month, day, year)* *April 26, 2010*

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

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 (*including Senegalese National Adaptation Programmes of Action on Climate Change; Senegalese National Climate Change Adaptation Strategy; Senegalese Poverty Reduction Strategy Paper; Adaption to Climate and Coastal Change in West Africa (ACCC); Climate Change and Development – Adapting by Reducing Vulnerability (CC-DARE); and Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation : Integration of Climate Change Adaptation in Sustainable Development in Senegal (PAA/INTAC)*) and subject to the approval by the Adaptation Fund Board, understands that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.
Name & Signature *Dr. Assize Touré* *Director of Centre de Suivi Ecologique* Implementing Entity Coordinator Centre de Suivi Ecologique pour la Gestion des Ressources Naturelles ★ BP: 15532 Dakar - Fann Tél.: 33 825 80 66 Fax: 33 825 81 68
Date: *05/05/2010* — Tel. and email: *+221 33 8258066* *assize@cse.sn*
Project Contact Person: Ndiaye Cheikh Sylla
Tel. And Email: *+221 33821 07 25 ; denv@sentoo.sn*

MINISTERE DE L'ENVIRONNEMENT
DE LA PROTECTION DE LA NATURE
DES BASSINS DE RETENTION ET
DES LACS ARTIFICIELS

Direction de l'Environnement
Et des Etablissements Classés

Dakar, May 05, 2010

LE DIRECTEUR

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

Subject: Endorsement for the Project "ADAPTATION TO COASTAL EROSION IN VULNERABLE AREAS IN SENEGAL"

In my capacity as focal point 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 the country.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the proposal will be coordinated and implemented by the National Executing Entity.

Sincerely,

Ndiaye Cheikh SYLLA,
Directeur Environnement et des Etablissements Classés

Focal Point Adaptation Fund (DNA)

List of Acronyms

GDP: Gross Domestic Product
CC: Climate Change
CONGAD: Conseil des ONG d'Appui au Développement
DEEC: Direction de l'Environnement et des Etablissements Classés
CSE: Centre de Suivi Ecologique
MDG: Millenium Development Goals
NAPA: National Adaptation Programmes of Action
ACCC : Adaptation aux changements climatiques. Répondre aux changements affectant le littoral et ses dimensions humaines en Afrique de l'Ouest, par une gestion intégrée de la zone côtière
CC DARE: Climate Change and Development – Adapting by REducing Vulnerability
NGO: Non Governmental Organization
INFOCLIM: Plateforme participative d'information pour l'adaptation des communautés vulnérables aux changements climatiques
ISRA: Institut Sénégalais de Recherches Agricoles
JICA: Japan International Cooperation Agency
UNDP: United Nations Development Program
SO: Strategic Objective
GIE: Groupement d'intérêt économique
CCNUCC: Convention Cadre des Nations-Unies sur les Changements Climatiques
UEMOA: Union Economique et Monétaire Ouest Africaine
GEF: Global Environmental Facility
BAD: African Development Bank
WB: World Bank
BCI: Budget Consolidé D'investissement
UNEP: United Nations Environment Programme
UNIDO: United Nations Industrial Development Organization
FAO: Food and Agricultural Organization
IUCN: International Union for Nature Conservation
Wetlands: Wetlands International
WWF: World Wildlife Fund
Enda: Environnement et développement du tiers monde
AGETIP : Agence d'Exécution des Travaux d'Intérêt Public contre le sous-emploi.
COMNAC: Comité National Changement Climatique
CNP: Comité de pilotage du projet
UCP: Unité de Coordination du Projet
RAF : Responsable administratif et financier
CST : Comité Scientifique et Technique
S&E : Suivi/ Evaluation
PTA : Plan de Travail Annuel
RSAP : Rapport Semi-Annuel du Projet

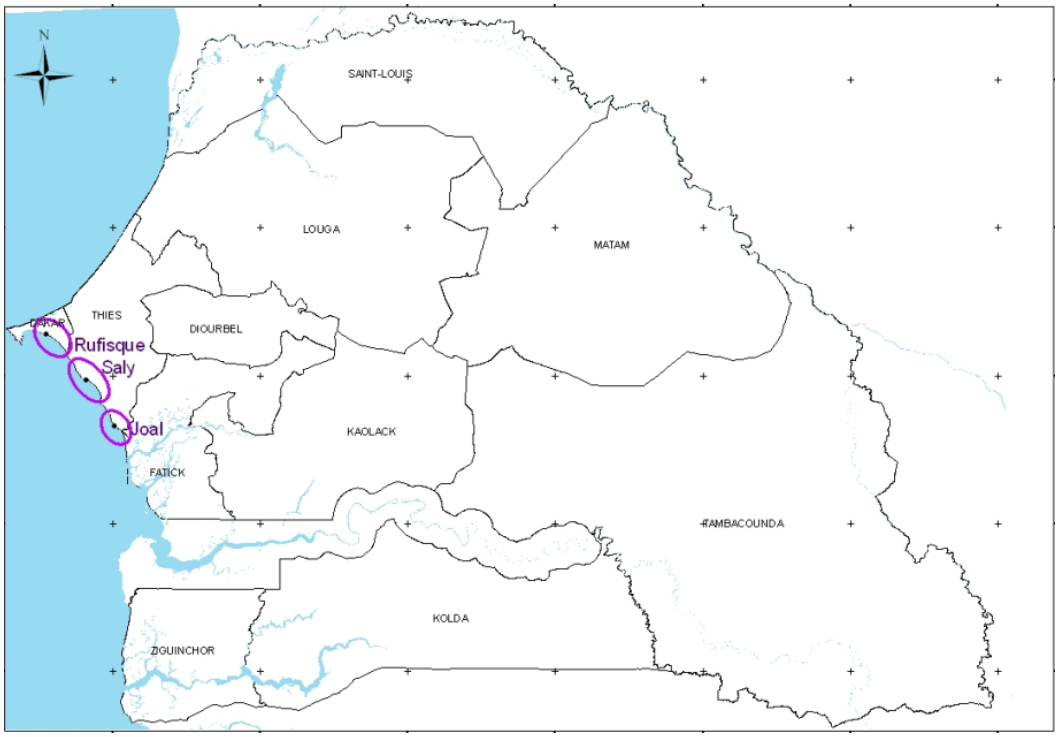

Figure 1 : Localisation the 3 study sites : Rufisque, Saly and Joal