AFB/PPRC.1/5
June 2, 2010

Adaptation Fund Board
Project and Programme Review Committee
First Meeting
Bonn, June 14, 2010

PROJECT/PROGRAMME PROPOSAL FOR MAURITANIA

I. Background

1. The Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, adopted by the Adaptation Fund Board, state in paragraph 41 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the approval by the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would finally require Board's approval.

2. The Templates Approved by the Adaptation Fund Board (Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, Annex 3) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

> *For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.*

3. The first four criteria mentioned above are:
   1. Country Eligibility,
   2. Project Eligibility,
   3. Resource Availability, and
   4. Eligibility of NIE/MIE.

4. Based on the Adaptation Fund Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Adaptation Fund was sent out on April 8, 2010.

5. According to the paragraph 41 of the operational policies and guidelines, a project or programme proposal needs to be received by the secretariat not less than seven weeks before a Board meeting, in order to be considered by the Board in that meeting.

6. The following project concept titled "Reinforcing Nouakchott City Adaptive Capacities to Reduce Sea Level Rise, Flooding and Sand Dune Encroachment Threats" was submitted by the World Bank, which is a Multilateral Implementing Entity of the Adaptation Fund. It was received by the secretariat before the closing date for consideration of projects in the 10th Adaptation Fund Board meeting. The secretariat has carried out a technical review of the project concept and assigned to it the diary number AFB/MIE/Urban/2010/1, and is submitting to the Project and Programme Review Committee the following documents:

1. Summary of the project, prepared by the secretariat.
2. The technical review sheet, filled in by the secretariat.
3. The original concept, as submitted (in Annex).

II. Recommendations

7. The PPRC may want to consider and recommend to the Board:

a) Not to endorse the project concept contained in the Annex in its present formulation;
b) To request that the World Bank reformulate the proposal and the suggested budget, taking into account issues suggested by the secretariat in the technical review sheet.

1. Project Summary

Mauritania – Reinforcing Nouakchott City adaptive capacities to reduce sea level rise, flooding, and sand dune encroachment threats
Implementing Entity: *World Bank*
Executing Entity: *Ministry of Environment, together with others identified during project preparation)*

Project execution cost: USD 1,400,000
Total project cost (execution included): USD 13,500,000
World Bank management fee: USD 1,500,000
Total amount of financing requested: USD 15,000,000

Project Background and Context:

Topographical maps of the different parts of the coastline off of Nouakchott city show that there are a number of low areas or areas made vulnerable by human activities which are threatened by the rise of sea level. According to recent studies, 79 per cent of Nouakchott could be under water in fewer than 10 years and in 20 years at most. Some actions have been undertaken already but the risk being overwhelmed by the scale of the problem. A coastal dune bar was erected and has receded in recent years due to both natural and manmade activities. The project will protect the city from on-going recurrent and intensifying floods and worsening sand dune encroachment from dune storms. The main objective is to develop tools for improving planning, policy and practice for monitoring and mitigating the effects of sea level rise and dune encroachment on Nouakchott.

Component 1: Diagnostics, monitoring, land use planning and information support (USD 3,700,000)

The expected outcomes for this component are the better quantification of threats and vulnerabilities to people and assets and the requisite adaptation responses options determined. Other outcomes include the improved Government capacity to monitor salt water intrusion, floods, and other maritime threats as well as the availability of inputs and tools to support a more robust climate-smart urban and coastal zone planning. The implementers will develop a Nouakchott area climate risk analysis, a modern early warning system for the coastal zone, as well as an updated coastal master plan of the Nouakchott area. Additionally, climate risks will be integrated into sector planning, policies and strategies under this component. The knowledgebase for stakeholders on climate hazards and risks will be improved and local knowledge and updated science on adaptive practices will become more widely available.

Component 2: Sand dune and land degradation control (USD 6,600,000)

The expected outcomes for this component include a stabilization of littoral and continental dunes, the expansion of vegetation cover in the Green Belt to reduce the impact of dust storms, and the biological fixing of 1000 hectares of dunes with the appropriate species. An improved participation of local stakeholders in land degradation control would also exist and specifically include the training of personnel in nursery maintenance and planting techniques as well as the holding of home visits and consultative meetings.

Component 3: Project monitoring and management (USD 1,400,000)

This component covers the establishment of project monitoring and project management systems. The use of GIS for both water resources management and land management will be utilized in this component. The World Bank's regional knowledge network and other similar vehicles will be used to disseminate lessons learned. A database of climate change related issues including adaptation activities would be established under this component.

ADAPTATION FUND

2. ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT CATEGORY: **REGULAR-SIZED PROJECT CONCEPT**

Country/Region: **Mauritania**
Project Title: **Reinforcing Nouakchott City Adaptive Capacities to Reduce Sea Level Rise, Flooding and Sand Dune Encroachment Threats**
AF Project ID: AFB/MIE/Urban/2010/1
NIE/MIE Project ID: Requested Financing from Adaptation Fund (US Dollars): **15,000,000**
Regular Project Concept Approval Date (if applicable): **n/a** Anticipated Submission of final RP document (if applicable):
AFB Secretariat Screening Manager: **Mikko Ollikainen** NIE/MIE Contact Person: **Paola Agostini**

Review Criteria	Questions	Comments
Country Eligibility	1. Is the country party to the Kyoto Protocol?	Yes.
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes.
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project?	Yes.
	2. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?	Questionable. The focus of the project seems to be in activities that are not concrete, such as developing tools for planning, policy for monitoring, awareness raising etc. These take up half of the budget.
	3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities?	Requires clarification. The project has a strong policy, research and knowledge management focus which indirectly could lead to such benefits but the way how the concrete benefits are presented is unsatisfactory.

	4. Is the project / programme cost effective?	Questionable. The concept does not provide adequate information to assess effectiveness and "during project preparation, a range of alternatives will be considered and evaluated, with the most effective and least-cost approach being selected to achieve the stated outcomes and objectives". The concept fails to convince on consideration of two key aspects that influence the cost-effectiveness of the project: 1) availability of spatial information of the target areas and projections of temporal changes as a result of climate change, and 2) description of how such information would influence the chosen adaptation interventions, and how these interventions would bring about positive changes in a way that would be anchored to the spatial information. In other words, the concept proposes sizable infrastructure and system-development investments without illustrating that there is enough confidence that those are correct ones. Management costs are high.
	5. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?	Requires clarification. The concept does not belong to NAPA priorities (2004). It is said to be aligned with the Poverty Reduction Strategy Paper, though. The version of 2009 was not available but version of 2007 did not mention climate change adaptation.
	6. Does the project / programme meet the relevant national technical standards, where applicable?	Requires clarification. The project concept did not provide clarification on this.
	7. Is there duplication of project / programme with other funding sources?	Requires clarification. There is another coastal adaptation related project taking place in Mauritania, the GEF/UNDP/UNESCO Project on Adaptation to Climate Change in Coastal Areas of West Africa (ACCCA, http://ioc3.unesco.org/accc/index.php) but it is not mentioned whether these take place in locations near each other, and it does not specify which "success stories" it would replicate and how. Also, complementarity with the TerrAfrica SLM project needs to be spelled out more clearly.
	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	Yes, the sub-component "Information Support for Policy, Planning and Practice" includes knowledge management aspects. However, the goals and mechanisms would need to be spelled out more specifically.
	9. Is the requested financing justified on the basis of full cost of adaptation reasoning?	This requires further clarification and more specific budget break-down. The costs planned for awareness-raising and capacity building are somewhat exorbitant. The connection of the proposed activities to adaptation will need to be made in a more detailed way.

Resource Availability	1. Is the requested project / programme funding within the cap of the country?	n/a (No cap decided yet)
Eligibility of NIE/MIE	2. Is the project submitted through an eligible NIE/MIE that has been accredited by the Board?	Yes.
Implementation Arrangement	1. Is there adequate arrangement for project / programme management?	n/a (Not required in Project Concept phase) "Implementation of identified activities will be carried out by the respective agencies, to be determined based on the activities selected."
	2. Are there measures for financial and project risk management?	n/a (Not required in Project Concept phase) No. There seems to be some unclarity about the implementation arrangements and responsibilities, particularly between the roles of the MIE and the national EEs (cf. paragraph 55).
	3. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans?	n/a (Not required in Project Concept phase) No. "The Ministry of Environment through its relevant department or agency will have overall responsibility for M&E": the relationship with MIE oversight role needs to be clarified. "Project M&E will be conducted in accordance with established WB and GEF procedures. The project results framework will be developed during preparation and will be the basis on which the project's M&E system will be built. The project's M&E Plan will be finalized in the project document."
	4. Is a results framework included?	n/a (Not required in Project Concept phase) No. "The project results framework and monitoring arrangements will be developed as per World Bank procedures during the preparation phase to include milestones, indicators and targets."

Technical Summary	"The main objective is to develop tools for improving planning, policy and practice for monitoring and mitigating the effects of sea level rise and dune encroachment on the city of Nouakchott." The project would have the following components and sub-components: 1. Diagnostics, Monitoring, Land Use Planning, and Information Support, US$ 4,700,000. a. Diagnostics, Monitoring and Planning, US$ 3,700,000 b. Information Support for Policy, Planning and Practice, US$ 1,000,000 2. Sand Dune and Land Degradation Control, US$ 6,600,000 a. Mechanical Stabilization, US$ 1,800,000

	b. Biological Fixation, US$ 3,800,000 c. Stakeholders' Training on Dunes Stabilization and Fixation, US$ 1,000,000 3. Project Monitoring and Management, US$ 1,400,000 Concerns: 1. The concept relies heavily on measures that can be classified as Stage I and II activities, and therefore "non-concrete". 2. The concept fails to illustrate how spatial and analytical information of current situation of land use and risks, and projections of future changes is available and how such information has been used to decide on and develop the sizeable investment components in the project. 3. Share of costs outside of components, i.e. to management is calculated as US$ 3,300,000, or 22% of the total cost, which is high. 4. The concept does not address meeting national technical standards, and does not provide satisfactory answers to a number of eligibility criteria, above.
Date:	June 2, 2010

ADAPTATION FUND

DATE OF **R**ECEIPT: April 26, 2010
ADAPTATION **F**UND PROJECT **I**D:
(FOR ADAPTATION FUND BOARD SECRETARIAT USE ONLY)

PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT / PROGRAMME INFORMATION

PROJECT / PROGRAMME CATEGORY: REGULAR SIZE PROJECT
COUNTRY (IES): MAURITANIA
TITLE OF PROJECT / PROGRAMME: REINFORCING NOUAKCHOTT CITY ADAPTIVE CAPACITIES TO REDUCE SEA LEVEL RISE, FLOODING AND SAND DUNE ENCROACHMENT THREATS
TYPE OF IMPLEMENTING ENTITY: MULTILATERAL IMPLEMENTING AGENCY (MIE)
IMPLEMENTING ENTITY: THE WORLD BANK
EXECUTING ENTITY (IES): THE MINISTRY OF ENVIRONMENT, TOGETHER WITH OTHERS TO BE IDENTIFIED DURING PROJECT PREPARATION
AMOUNT OF FINANCING REQUESTED: 15.0 million (in US dollars equivalent)

PROJECT / PROGRAMME BACKGROUND AND CONTEXT:

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.

A. THE ISSUE

1. Mauritania's recent progress in reducing poverty threatens to be unraveled by climate variability and change. Natural and built environments, livelihoods, economic growth, and the three million people dependent upon these are at risk from sea level rise, increased severity of flooding, drought, desertification, and other manifestations of climate variability and change.

2. *Livelihoods, desertification, and migration.* Livestock are vulnerable to heat stress and drought and compete with other land users for fodder and water, leading to vegetation loss. Vegetation loss, wind erosion, and other forms of land degradation are thought to be accelerating as Mauritania's Saharan agro-ecological zone expands into the country's smaller Sahelian system (which makes up only a fourth of the country's land area). By 2015, milk and meat demand will not be able to be met. This has happened before. According to the NAPA, Mauritania experienced severe drought during the 1970s and the 1980s. The decrease in rainfall resulted in several adverse ecological, economic, social, and even cultural consequences. The large-scale vegetation loss increased desertification and led to a livestock die-off, lowered agricultural production, and triggered a process of pauperization in rural communities. These formerly nomadic communities then settled either in the areas they considered most favorable

(wetlands), or took part in a massive rural exodus to urban centers, especially Nouakchott. If climate projections for Mauritania coincide with the scale of change implied by global climate models, then the experiences of the 1970s and 1980s could be magnified.

3. *Nouakchott and the coast.* Nearly a third of Mauritania's rapidly expanding population of nearly three million lives in the coastal district of Nouakchott, which accounts for just 1% of the country's total land area. This city was never designed to accommodate large numbers of people, nor for current climate variability or future change. Even without climate change, Nouakchott is at risk of recurrent flooding, given that a large part of the city was built in a depression zone known as Aftout. People continue to build in exposed areas without the benefit of robust land use planning. This puts assets and people at greater risk. Rainfall in August and September 2009 confirmed the fears of serious flood risk from rising sea levels, increased erosion of coastal zones, destruction of the mangroves, and devastating floods. Topographical maps of the different parts of the coastline reveal the existence of a number of low areas or areas made vulnerable by human activities, which are threatened by the rise in sea level. Simulations carried out during the Initial National Communication on Climate Change in 2001 estimated that the potential damage of marine transgression or flooding, as a result of climate change, could generate losses amounting to nearly US$4 billion by 2020 and over US$6.3 billion by 2050. According to recent studies commissioned by Mauritanian authorities, 79% of the overall surface area of Nouakchott could be under water in fewer than 10 years and in 20 years at most. The worst-case scenario projects the disappearance of the city around 2050.

4. *Motivation to act*. A perfect storm is brewing: the rapidly increasing population, accelerated growth, and less than optimal planning have together resulted in a high degree of sensitivity of Mauritania to climate change. The Government of Mauritania is increasingly aware of the fact that the Mauritania's development must be made climate-smart, and that the adaptation deficit facing the country is considerable. Some actions have been undertaken already but risk being overwhelmed by the scale of the problem. For example, in the city of the city of Nouakchott, a coastal dune bar was erected between the fish market, the Wharf, and a green belt established. This coastal dune bar has steadily receded in recent years, as a result of both natural and man-made activities. A walk close to Cité Plage reveals the effects—the collapse of the coastal dune bar which can no longer keep out water even when it rains lightly and during high tide. The situation can no longer be left unattended and it is being taken very seriously by Mauritanian authorities who are developing a national program to protect Nouakchott city and seeking to mobilize international assistance. The program will be presented during the donors round table scheduled for 22-23 June 2010 in Brussels.

5. *Climate characteristics.* The country has two main climatic zones: the Sahara and the Sahel. Each has a coastal element and a mainland element. The coastline in each climatic zone is characterized by relatively high humidity, and small daily and annual variations in temperature, while the mainland area shows much greater variations in temperatures, both daily and annual, and an extreme dryness in the atmosphere, particularly in the Saharan region, which experiences a very low annual rainfall with high evaporation.

6. Looking forward, Global Climate Models do not agree on how these characteristics will change

in Mauritania. Although data is weak in Mauritania, there are no-regret actions that can be taken to make development more resilient to increased floods, drought, land degradation and more unpredictable rainfall. The remainder of this concept note outlines such actions to be taken by the Government with the support of the Adaptation Fund.

B. HOW THE PROJECT SEEKS TO ADDRESS THE ISSUE, AND THE EXPECTED ADAPTATION BENEFITS TO BE DELIVERED

7. Based on the NAPA, the project will address the issues outlined above by helping close Mauritania's adaptation deficit in the Nouakchott area. Specifically, the project will assist the Government in its efforts to protect the city of Nouakchott from on-going recurrent and intensifying floods and worsening sand dune encroachment from dust storms; these problems are expected to intensify.

8. The project will contribute to these goals by supporting Government efforts to develop and implement actions to: (i) carry out and apply diagnostics on the impact of climate change and variability on human welfare and infrastructure; (ii) establish and apply an early warning system; (iii) raise awareness among key stakeholders; (iv) provide information support tools and training to improve urban planning; and (v) identify and carry out sand dune fixation measures outside Nouakchott. The proposed project would look at investments in the city area, including the highly industrialized quarters and other economic activities settled along the coast and on the littoral dune, but being mindful not to finance actions that are clearly of a significant private good nature. Proposals that are developed will aim to address, 1) flooding from sea level rise; and 2) the significant sand dune encroachment induced by wind storms resulting from recurrent drought. The project approach is described in more detail in section II below (components).

9. The adaptation benefits directly generated by the end of the proposed Project include:

- A better understanding among stakeholders of the specific maritime and terrestrial threats and risks facing Nouakchott and its specific assets
- Improved institutional capacities to carry out, monitor and enforce more robust urban planning
- Improved preparedness of the city of Nouakchott to floods, drought, and dune encroachment
- Strengthened awareness among key stakeholders of their vulnerabilities, risks, and response options.

10. The adaptation benefits generated by the Project above will in turn *contribute to* reducing the impact of climate change in Nouakchott below, depending on the actual severity of climate change, and the post-Project timeframe:

- Reduced vulnerability of key urban and peri-urban assets from recurrent floods
- Improved dune fixation in the Nouakchott area leads to reduced urban and peri-urban vulnerability to dust storms that intensify during associated drought periods.

Project/Programme Objective

11. The main objective is to develop tools for improving planning, policy and practice for monitoring and mitigating the effects of sea level rise and dune encroachment on the city of Nouakchott.

PROJECT / PROGRAMME COMPONENTS AND FINANCING:

PROJECT COMPONENTS		EXPECTED OUTCOMES	EXPECTED CONCRETE OUTPUTS	AMOUNT ($US million)
1. DIAGNOSTICS, MONITORING, LAND USE PLANNING, AND INFORMATION SUPPORT	1.1 Diagnostics, Monitoring, and Planning	Threats and vulnerabilities to people and assets better quantified, and adaptation response options determined	Nouakchott climate risk analysis including: • Climate model downscaling • Asset and vulnerability mapping • Climate vulnerability index developed • Adaptive response options identified	0.4
		Improved Government capacity to monitor salt water intrusion, floods, and other maritime threats	Two coastal monitoring stations established (met and IT equipment, etc)	2.0
			Nine observers trained; Training program established	0.5
			Early warning system developed; Contingency plans prepared	0.4
		Inputs and tools availed to support more robust and climate-smart urban and coastal zone planning	Coastal master plan of Nouakchott area updated including maps	0.4
	1.2. Information Support for Policy, Planning and Practice	Climate risks integrated in sector planning, policies and strategies	Policy and technical notes prepared and disseminated at policy and planning workshops	0.3
			15 awareness raising sessions	0.3

		Stakeholders' knowledge and awareness on climate hazards and risks are improved Local knowledge and updated science on adaptive practices is more widely available and put into greater use across sectors and among stakeholders	Inventory developed of case studies on adaptive local knowledge and practices	0.4
			Information dissemination mechanisms (communication strategy, products, and campaign)	
2. SAND DUNE AND LAND DEGRADATION CONTROL	2.1 Mechanical stabilization	Littoral and continental dunes are stabilized	1000 hectares mechanically fixed in suburban and coastal Nouakchott	1.8
	2.2. Biological fixation	Vegetation cover expanded in the Green Belt to reduce impact of dust storms	New nurseries established 250,000 seedlings produced Extensive planting undertaken in Green Belt	1.8
		1000 hectares of dunes are biologically fixed with appropriate species	Seedlings planted on 2000 hectares of dunes in suburban and coastal Nouakchott	2.0
	2.3. Stakeholders' training on dunes stabilization and fixation	Improved participation of local stakeholders in land degradation control	Personnel trained in nursery maintenance and planting techniques Stakeholders sensitized through home visits and consultative meetings	1.0
3. PROJECT MONITORING AND MANAGEMENT				1.4
PROJECT/PROGRAMME EXECUTION COST				0.4
TOTAL PROJECT/PROGRAMME				**13.5**
PROJECT CYCLE MANAGEMENT FEE CHARGED BY THE IMPLEMENTING ENTITY				1.5
AMOUNT OF FINANCING REQUESTED				15.0

PROJECTED CALENDAR (Indicating the dates of the following milestones for the proposed project/programme)

MILESTONES	EXPECTED DATES
START OF PROJECT/PROGRAMME IMPLEMENTATION	June 2011
MID-TERM REVIEW (IF PLANNED)	-
PROJECT/PROGRAMME CLOSING	June 2015
TERMINAL EVALUATION (World Bank Implementation Completion Report)	December 2015

PART II PROJECT / PROGRAMME JUSTIFICATION

DESCRIPTION OF PROJECT/PROGRAMME COMPONENTS AND HOW THESE PROVIDE ECONOMIC, SOCIAL, AND ENVIRONMENTAL BENEFITS

13. The proposed project will support the implementation of the *Programme special pour la protection de la ville de Nouakchott* (PSPVN) and will focus its activities on two technical components that build upon Mauritania's NAPA plus Project Management:

    Component 1. Diagnostics, monitoring, land use planning, and information support
    Component 2. Sand dune and land degradation control
    Component 3. Project management and monitoring

Component 1. DIAGNOSTICS, MONITORING, LAND USE PLANNING, AND INFORMATION SUPPORT

14. **Summary**. Early surveys in the late 1990s and other more recent work underlined the need for preventive action to rehabilitate the littoral dune while protecting areas exposed to flooding risk (see Component 2 which supports this work on the ground). Carrying this out effectively requires diagnostic tools and information support that can mobilize stakeholders and sectors to act and contribute to improved land use planning. The component objective, outcomes, and activities for this project component follow.

15. **Component objective:** To improve quality and availability of diagnostics, and disseminate information that will contribute to reducing climate vulnerabilities to assets and people in the Nouakchott area.

16. **Component outcomes:** Diagnostics, monitoring, information support mechanisms are improved and reinforcing planning, policy, and practice. Detailed outcomes of this component are listed in the table above.

Sub-component 1.1. Diagnostics, Monitoring, and Planning

17. This sub-component aims to:

    - Quantify threats and vulnerabilities to people and assets in the Nouakchott area;

- Identify adaptation response options;
- Improve Government capacity to monitor salt water intrusion, floods, and other maritime threats;
- Avail inputs, information and tools to support more robust and climate-smart urban and coastal zone planning

18. Activities to be financed to contribute to the outcomes above include:

- **Preparation of a Nouakchott area climate risk analysis**. This analysis will be prepared in a participatory and consultative manner, leveraging the communications activities described below. The analysis will include: (i) downscaling global and regional climate models, using the methodology developed in the World Bank's Morocco Climate Adaptation review being delivered in 2010; (ii) Asset and vulnerability mapping; (iii) Development of a climate vulnerability index possibly using the expert-based survey tool piloted by the Bank in Tajikistan in 2010; and (iv) Recommending specific adaptation options for the coastal zone, focusing on flood response and dune control (see component 2).
- **Development of an early warning system** for the coastal zone, that relies on modern meteorological equipment and data. The contingency plan to be formulated would provide guidance on the type of system to be developed and implemented. The contingency plan would identify sources of threats and their adaptive responses. These responses will be based on the climate risk analysis above, and updated with continued earth systems surveillance. Two coastal monitoring stations will be established along with a team of nine observers would fund IT, data services, meteorological and other monitoring equipment, and carry out strategic communications services. The activity will equip and maintain an observation network to ensure the collection, analysis, and timely dissemination of data on atmospheric and oceanographic phenomena that might disturb the environmental equilibrium of the coastal zone. Acquiring this new material will, first, widen the scope of the meteorological observation within the littoral system, and second, will improve data quality to make projections more reliable.
- **An updated coastal master plan** of the Nouakchott area, including maps. Current land use plans are out of date and do not adequately include key natural assets (water tables, subsidence zones, dune locations, etc); location of business, residential areas and key infrastructure; or future climate impacts such as saltwater incursion and littoral dune encroachment. This activity will update this data and incorporate climate projections to the extent possible. All work will align with the land planning principles of Mauritania's New Steering Act of January 2010[1].

Sub-component 1.2. Information Support for Policy, Planning and Practice

19. This sub-component aims to:

1.

[1] The following principles enacting land planning underpin the New Steering Act of January 2010 : (i) the landscape ought to be preserved and improved; (ii) territories reserved for natural habitat, habitation, and economic activities will be managed based on population needs and their area restricted while taking into consideration their security imperatives; (iii) establishments of constructions and public or of public interest infrastructures are determined based on rational criteria. These criteria, applied to the littoral ecosystem, would show that many distortions now exist to natural balances as well as to safety of private and public investments.

- Integrate climate risks and adaptive responses into sector planning, policies and strategies;
- Improve stakeholders' knowledge and awareness on climate hazards and risks; and
- Make local knowledge and the updated science on adaptive practices more widely available and put into greater use across sectors and among stakeholders.

20. Activities to be financed to contribute to the outcomes above include:

- **Preparation of policy and technical notes**, and other evidence-based dissemination material to be disseminated at policy and planning workshops throughout Project implementation.
- **15 awareness raising sessions** for various stakeholders who supply and demand information including meteorological agents, forecasters, planners, community organizations, and fishermen.
- **Develop inventory of case studies** on adaptive local knowledge and practices. This will cover a number of activities in the littoral system that aim to ameliorate impacts on human health, habitats, livelihoods, and food supply from dune encroachment, floods, etc.
- **Develop information dissemination mechanisms**, including articulation of a communication strategy, products, and campaign deploying a variety of outreach media and approaches. This will help consolidate a network of stakeholders involved in the various aspects of the Project who can then sustain the effort after the Project closes.

Component 2. SAND DUNE AND LAND DEGRADATION CONTROL

21. **Summary**. Recent literature on Nouakchott's vulnerability to climate change and land degradation induced by the desertification phenomenon underlines the need for preventive action and preparedness plans to manage dune encroachment and saltwater incursions in tandem. The Government intends to expand its Green Belt program. This renewed interest comes from Mauritania's new head of state who attended the Copenhagen climate summit. An inter-ministerial committee has been assigned to develop proposals for the Nouakchott area. The Minister of Environment has assigned a group of forest and land use experts (two engineers and three specialists in nursery maintenance) to work on this high priority operation, which requires budget for two administrative assistants and logistics.

22. **Component objective:** To reduce dune encroachment and sandstorm impacts on Nouakchott 's natural and capital assets and people through control of dunes and land degradation in the coastal zone.

23. **Component outcomes:** Coastal dunes stabilized and biologically fixed through participatory interventions.

Sub-component 2.1. Mechanical stabilization

24. This sub-component aims to:

- Stabilize littoral and continental dunes in the Nouakchott area

25. Activities to be financed to contribute to the outcomes above include:

- **Mechanically fix dunes.** The preliminary target is 1000 hectares in the coastal and suburban Nouakchott. This target will be adjusted pending further work to identify priority areas and motivated communities and other stakeholders.

Sub-component 2.2. Biological fixation

26. This sub-component aims to:

- Expand vegetation cover in the Green Belt to reduce impact of dust storms
- Biologically fix 2000 hectares of dunes with appropriate species

27. Activities to be financed to contribute to the outcomes above include:

- **Extensive planting undertaken in the Green Belt**, facilitated by establishment of new nurseries and production and distribution of 350,000 seedlings.
- **Tree seedlings planted on 2000 hectares of dunes** in suburban and coastal Nouakchott. The preliminary target is 2000 hectares in the coastal and suburban Nouakchott. This target will be adjusted pending further work to identify priority areas and motivated communities and other stakeholders.

Sub-component 2.3. Stakeholders' training on dunes stabilization and fixation

28. This sub-component aims to:

- Improve participation of local stakeholders in land degradation control

29. Activities to be financed to contribute to the outcomes above include:

- **Personnel trained in** nursery maintenance and planting techniques.
- **Stakeholders sensitized** through home visits and consultative meetings.

Component 3. PROJECT MONITORING AND MANAGEMENT

30. This component will cover both the establishment of a project M&E system and project management. This will include the use of geographic information systems (GIS) for both water resources management and land management. Lessons learned will be disseminated through The World Bank's regional knowledge network and other similar knowledge vehicles such as the TerrAfrica partnership platform. Also a database for all climate change related issues including adaptation activities could be established. This would contribute to up-scaling and replicating successful experiences in other regions.

PROJECT/PROGRAMME BENEFITS

31. The project will result in reduced climate change vulnerability and significantly increased adaptive capacity of the districts and communities in the project area, resulting in increased long-term socioeconomic and environmental benefits. Specifically the expected impacts in the Nouakchott area from the implementation of the project include:

- More robust infrastructure designs and long-term investments that are more resilient to climate change and variability
- Increased flexibility and resilience of managed ecosystems
- Enhanced adaptive capacity of the vulnerable communities and groups addressed
- Improved societal awareness and preparedness to short term climate vulnerability (including extreme weather events) and future climate change
- Integrated adaptation in national and sectoral planning, policy and legal framework and other regulatory enabling conditions.

ANALYSIS OF THE EXPECTED COST-EFFECTIVENESS OF THE PROPOSED PROJECT / PROGRAMME

32. During Project preparation, a range of alternatives will be considered and evaluated, with the most effective and least-cost approach being selected to achieve the stated outcomes and objectives. This will require knowledge of lessons learned through past programming experience in infrastructure, urban development, land degradation control, and urban and human development in particular in northern and Sahelian Africa, as well as select experiences in other parts of the world where similar issues are being felt, such as Lagos and Bangkok.

33. Having said that, the proposed Project approach of integrating new scientific knowledge, local knowledge, planning, and awareness raising has the potential to deliver profound cost savings. The Project's investment component to control sand dunes has a strong participatory element which will also reduce costs while adding to the knowledge base.

CONSISTENCY OF THE PROJECT WITH NATIONAL/REGIONAL PRIORITIES/PLANS

34. National Adaptation Plan of Action The proposed project responds to the urgent and immediate adaptation needs identified by the Government of Mauritania in its NAPA. The NAPA identifies livestock farming, water and agriculture as key priority sectors for adaptation, followed by forestry and semi-arid ecosystems. As Mauritania has submitted already to the GEF in 2009 a project on livestock farming, water and agriculture sectors in its IFAD/GEF project titled *Support to the Adaptation of Vulnerable Agricultural Production Systems in Mauritania*; now the country is turning to the remaining prioritized sectors of forest and semi-arid ecosystems. In NAPA as well as in later GEF enabling activities (Second National Communication) and current post Copenhagen Government assessments, it has been stated that there is significant vulnerability of Nouakchott city to climate risks arising from both maritime and continental sides: (i) its maritime front due to threat of flooding from sea level rise; (ii) its continental side from sand

dune encroachment induced by sand storms.

35. While this proposed NAPA option was not a NAPA priority in 2004, it represents today, under the current ecological conditions, the number one priority according to the Government. Indeed, the new PRSP (CSLP II), set climate change in priorities while identifying in 2009 a substantial amount to protect Nouakchott city.

36. **Poverty reduction strategy programme (CSLP).** Also, the proposed project activities are aligned with the Government's development strategy as defined in the second Mauritanian poverty reduction strategy programme[2] for the horizon 2001-2015 (CSLP II) and particularly its revised second phase 2006-2010 version of plan of action aiming namely to (i) promote environmental information as means to facilitate decision ; (ii) to protect and valorize biodiversity and natural ecosystems notably around wet lands; (iii) to promote and to valorize marine and coastal environment ; (iv) to combat land degradation and sand dune encroachment; (v) to improve urban and rural living conditions; (vi) to sustainably manage environmental wastes; (vii) to systemize environmental impact assessments and to reinforce administrational capacities in charge of their implementation.

37. **Synergy with other national environment strategies and action plans, and with other MEAs.** The proposed project promotes synergies with national strategies to implement other Rio Conventions, namely the country's UNCCD and UNCBD action plans. The proposed project is also consistent with both the National Environment Action Plan (NEAP) and the National Strategy for Sustainable Development (SNDD). Its objectives, based on Agenda 21 recommendations, are to establish an overall framework for the management and protection of the global environment.

CONSISTENCY OF THE PROJECT WITH ADAPTATION FUND CRITERIA

38. This proposal aligns with the Adaptation Fund Board Operational Policies and Guidelines and project review criteria as follows.

39. *Country eligibility.* Mauritania has ratified the Kyoto Protocol, and is a developing economy that is particularly vulnerable to adverse effects of climate change. The proposed project constitutes a response to urgent and immediate adaptation needs (program conformity) and is in line with the priority sectors identified in AF strategic priorities, policies and Guidelines; It is designed to address the additional costs of priority adaptation measures identified, and it will also create the necessary capacity to continue to do so after project completion (sustainability).

40. *Project eligibility.* Mauritania endorses the project as it supports concrete actions to assist the country in addressing the adverse effects of climate change; it provides economic, social and environmental benefits to the most vulnerable communities and precarious districts of the capital city; it is cost-effective; it is consistent with national sustainable development strategies, national development plans, poverty reduction strategy (CSLP) national adaptation plan of

1.

[2] Adopted by the Steering Act on Fighting Poverty n° 050/2001 of July 25th, 2001.

action, and other relevant instruments; it has avoided duplication with other funding sources; it is promoting a learning and knowledge management process to capture and feedback lessons; and finally, it has provided justification for its funding on the basis of the full cost of adaptation.

41. *Resource availability and Financing.* The proposal has been developed in accordance with the funding allocation decision of the Adaptation Fund Board per country/project ; that is also with the aim of ensuring cost-effectiveness in choosing adaptation measures and options, even after the project completion (sustainability); The project design have also taken into consideration the added value of the AF-supported intervention (additionality);

42. *Eligibility of MIE.* The project is submitted through the World Bank, which is an MIE accredited by the Board.

43. *Implementation arrangement.* The Ministry of Environment would take the lead role during preparation to coordinate sectors to cooperate to establish the multi-sector implementation arrangements that will be needed to ensure project success. See part III for implementation arrangements. On M&E, the project will be monitored in line with the standard WB/AF monitoring and evaluation procedures and therefore adequate arrangement for project management are adequately addressed; there are also measures for financial and project risk management, arrangements for monitoring and evaluation clearly defined, including a budgeted M&E plan, and a project results framework included.

COORDINATION WITH OTHER RELATED PROJECTS/INITIATIVES AS TO AVOID DUPLICATION

44. *GEF/IFAD Project: Support to the Adaptation of Vulnerable Agricultural Production Systems in Mauritania.* Aiming at increasing the resilience of rural communities to increased water stress and reducing productivity of agricultural and livestock sector as related to climate change impacts, this project is the first prioritized NAPA option that is currently at a formulation stage. The project is taking place in nine Wilayas in rural and arid ecosystems (Adrar, Assaba, Brakna, Gorgol, Guidimaka, Hodh Ech Chargui, Hodh El Gharbi, Tagant et Trarza); It is estimated that 9,500 households will benefit from this programme, and 32, 000 will also share its collateral benefits. The funding amounts to US$ 8 million with co-financing from LDCF, IFAD, Spanish Cooperation, and the Government of Mauritania.

45. *GEF/UNDP/UNESCO Project on Adaptation to Climate Change in Coastal Areas of West Africa (ACCCA).* This is a regional project whose objective in Mauritania is to realize a pilot action limited to an area that has been hit twice by maritime incursions in the late 1990s and 2000. This pilot action consists of (i) closing this opened part of the littoral dune up to the normal 4.0 meters height; and (ii) “fattening” the dune structure over a length of four kilometers and a surface of 50 Hectares: at the upper level by a combination of dune mechanical stabilization and biological fixation whereas in its sloping side counter-dune and lower basis by blocking blowing sand. The proposed project will replicate success stories of this pilot project in the remaining vulnerable area of the littoral dune.

46. *WB/CDCF*PLUS *Project on Support to Climate Change Development Capacity.* Through CDCF*Plus* the World Bank agreed to support climate change capacity development in Mauritania to mainstream and develop national capacities aimed at assisting main national institutions to develop Carbon projects and speed-up their financial closure. The CDCF*Plus* has granted funds to support the agreed Workshop action plan.

47. *TerrAfrica.* The TerrAfrica process in Mauritania has led to the preparation and implementation of a country strategic investment framework for sustainable land management (SLM). A multi-sector SLM committee was established by law and is coordinating all SLM investment in the country, including terrestrial activities that aim at mitigating GHG and fostering adaptation to climate change through SLM. Therefore, coordination of the proposed project with any TerrAfrica initiative will be ensured whenever possible.

CONSULTATIVE PROCESS DESCRIPTION AND RISK MITIGATING MEASURES

48. Consultation process has implicated all types of stakeholders: the administration authorities that are responsible of land occupation and ownership, the construction enterprises managers, the technical structures administrators and controllers, the population at risk, the civil society in its diversity, etc. It consisted in sharing views within focus groups informal discussion and organized workshops, but also within the parliamentary hemicycles and informal discussion as population elected and opinion leaders.

49. Risks will be mitigated through the project approach itself, based on participatory approaches and empowerment of local activities (women and marginal groups in particular) coupled with a strong effort on awareness raising that would help in initiating and sustaining stakeholder's interest in the adaptation activities proposed under this adaptation project. Some forms of incentives could be developed by the project to encourage highly performing stakeholder or successful implementation of innovations in relation to dune fixation management, sustainable land management or pertinent local knowledge.

JUSTIFICATION OF FULL COST FUNDING OF ADAPTATION

50. **Baseline scenario.** Under business as usual, Nouakchott city will be further affected by continued recurrent sand dune movement, and low lands will be flooded more intensely and frequently, leading to heavy economic loss, relocation of climate refugees, and an increase in the city's vulnerability. Current development efforts have not successfully integrated climate change into sectoral planning or policy. In this baseline situation, climate change could lead to a reduction of real estate value, increased costs to build and maintain infrastructure and housing, greater obstacles to constructions obstacles, an increase in water-table problems involving sanitation and health, and lastly, continued vegetation loss from intensified drought and desertification and an accompanied opportunity cost in not rehabilitating degraded lands.

51. **Alternative scenario**. The proposed project will cover some of the additional costs associated with maritime incursions and sand dune encroachments in the city of Nouakchott. These largely costs cover in-situ complementary investments but also aim to reinforce stakeholders'

capacities at both government and civil society levels. More specifically, the project, under the adaptation scenario, will combat dune encroachment and contribute to prevent the flooding expected under business as usual. This will be done through a series of investments that deliver adaptation benefits for the local population in the short and medium term, while also contributing to better understanding and mitigation of the long-term impacts of climate change on natural and built assets and the people dependent on them.

52. The alternative scenario will be more fully articulated through a coastal plan updated at the beginning of the project implementation. This plan would identify known sources of threats and appropriate adaptation responses. Importantly, during project implementation, the coastal plan would be updated by the information from the climate risk analysis undertaken by this project. At the same time, early remediation efforts would begin on the ground for those areas experiencing current or impending outlined throughout this project proposal. This includes refilling 40 hectares of opened segments of the littoral dune, and mechanical stabilization of 2,000 hectares of live dunes and their biological fixation by planting trees. In this way, the proposed intervention will ultimately produce a long-term sustainable and climate-proofed development benefit. Lastly, diagnostic, IT, and monitoring equipment, training and institutional development will be supported to improve observation of maritime and terrestrial threats during and beyond project implementation.

53. The project would also develop a communication strategy aimed at facilitating diverse stakeholders at to be aware of the functioning of the organizational mechanism and to be able to respond to extreme weather events and phenomenon. This will require high-quality equipment and sound human resources for information management and dissemination that can mobilize stakeholders during and past the project implementation period. A sound public awareness campaign about climate risks and changes will be directed to the populations living in the littoral area or whose livelihoods are tied to it. These stakeholders' local knowledge and practices regarding climate adaptation will be recorded, valorized, and promoted. Personnel capacity building will focus on climate risk analysis (such as observation techniques and analysis), and on integrating this analysis in policies, planning and strategies.

PART III: PROJECT / PROGRAMME IMPLEMENTATION ARRANGEMENTS

DESCRIPTION OF IMPLEMENTATION ARRANGEMENTS

54. A formal ministerial decision (arrêté) has identified the administrative and technical structures for implementing this Project. Of importance, is an inter-ministerial committee with the lead and steering role, directly appointed by the Head of State. An inter-ministerial committee bringing together all the sectors involved in the implementation of the project will be established that will be responsible for oversight and guidance. Specifically, the committee shall be responsible for developing project policy, approving workplans, approving project outputs; receiving and approving progress reports, and; disseminating information. Day-to-day Project

management, however, would be under the leadership of the Ministry of Environment (MoE), while implementation of identified activities will be carried out by the respective agencies, to be determined based on the activities selected. Depending on the capacity within the Ministry of Environment and participating agencies, a Project Coordination Unit (PCU) could be established that will have management, coordination and technical functions. The population and the civil society are involved at the ground level for executing activities in a participatory way.

DESCRIPTION OF MEASURES FOR FINANCIAL RISK MANAGEMENT

55. Financial risk could be due to late or slow disbursement by the Government of needed funds for project implementation and management. A Financial management assessment will be carried out during preparation which will determine (i) if the coordinating and implementing agencies have adequate financial management arrangements to ensure project funds will be used for purposes intended in an efficient and economic way and, (b) capacity to prepare and monitor project finances, including financial reports in an accurate, reliable and timely manner.

56. A designated account would be opened to receive grants and government allocations so as to facilitate the project management team to operate freely.

DESCRIPTION OF MONITORING AND EVALUATION ARRANGEMENTS AND BUDGETED M&E PLAN

57. The Ministry of Environment through its relevant department or agency will have overall responsibility for M&E, collating outputs and data towards a consolidated M&E report as part of the annual progress report. The project will be reviewed regularly through field visits and data fed into quarterly reports, relating especially to activities and outputs. Progress on each component will be measured against selected measurable and cost-effective indicators. Data collection and regular monitoring would be the responsibility of the M&E Officer, who will prepare quarterly reports on implementation progress. Project M&E will be conducted in accordance with established WB and GEF procedures. The project results framework will be developed during preparation and will be the basis on which the project's M&E system will be built. The project's M&E Plan will be finalized in the project document.

RESULTS FRAMEWORK FOR THE PROJECT PROPOSAL, MILESTONES, AND TARGETS, AND INDICATORS

58. The project results framework and monitoring arrangements will be developed as per World Bank procedures during the preparation phase to include milestones, indicators and targets. In the meantime, the Project Components and Financing table in Part I provides outputs and outcomes that contribute to deliver on the stated Project objective and the near-term and long-term benefits described in paras 9 and 10.

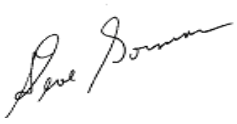
PART IV : ENDORSEMENT BY THE GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT (S):

NAME / POSITION	MINISTRY	DATE
Sidi Mohamed Ould El Wavi Chargé de Mission (1èr Conseiller du Ministre). Coordonnateur de la Cellule Nationale Changement Climatique. (Point Focal National UNFCCC)	Ministère Délégué auprès du Premier Ministre chargé de l'Environnement et du Developpement Durable	**APRIL 26, 2010**

B. IMPLEMENTING ENTITY CERTIFICATION

I certify that this proposal has been prepared in accordance with guidelines by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, understands that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.



- Steve Gorman
- Executive Coordinator
- The World Bank

Date: April 26, 2010	Tel and Email: 202-473-5865
Project Contact Person: Paola Agostini, AFR Regional GEF Coordinator	
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Annex 1. Sustainability of the proposed Green Belt investment

1. Sustainability of the investment in the Green Belt cannot be maintained only from the technical side; no tree planting and other vegetative structures to fix dunes and degraded land can be sustained without population participation, particularly when its utility is not sufficiently demonstrated and visualized.

2. A vital partnership of all stakeholders is crucial to the ownership of this programme of Nouakchott Green Belt where the Urban Community Authority, the Ministry of Environment and the ministry in charge of land management (aménagement du territoire) should take the lead to implement and coordinate other stakeholders.

3. The project aims to work in two different ecosystems: littoral and terrestrial.
   - For the terrestrial ecosystem: The key activities are: (i) Production of drought resilient seedlings in the Ten-Soueilim nursery; (ii) Mechanical stabilization and biological fixation of at least 110 hectares per year of new blocks of continental dunes, and consolidating via replacement in the first years (2010 and 2011) due to rainfall deficit patterns of the last decade; (iii) Transplanting larger and stronger seedlings; (iv) Support to various national planting activities and small plantation establishment; (v) Training personnel in nursery site and plantation field; (vii) Home visits, meetings and on sites visits.
   - For the littoral dune ecosystem. The key activities are: (i) Refill and sustainably maintain littoral dune opened parts to block maritime incursions from threatening existing infrastructures and the capital city; (ii) Refill the frontal maritime barrier with layers in order to reinforce the progressive replenishment of the littoral dune by an annual extension of 10 hectares; (iii) Replacement and protection of the 7-hectare pilot plantation plots established in 2004.

4. A technical schedule will be observed as to maximize plant survival rate; this will be reviewed at each stage; two assumptions need to be raised at this stage: (i) Seedling timing, plantations and mechanical stabilization of dunes require meteorological and climate data compilation which will be provided by the national office of meteorology (ONM); (ii) Planting would start each February for some species and each April for *Prosopis juliflora*.

Annex 2. List of acronyms

CC Climate Change
CE Community Educator
DENV Department of the Environment
DM Dry Matter
DRTE Department of Research, Training, and Education
DSFSC Department of the Surveillance of Fisheries and Marine Control
EEZ Exclusive Economic Zone
GEF Global Environment Facility
GHG Greenhouse Gases
IEC Information Education Communication
INCCC Initial National Communication on Climate Change
IPCC Intergovernmental Panel on Climate Change
IUCN World Conservation Union
IWRM Integrated Water Resource Management
MEA Multilateral Environmental Agreements
MFME Ministry of Fisheries and Maritime Economy
MIE Multilateral Implementing Agency
MIOFR/NCOFR Mauritanian Institute for Oceanography and Fisheries
MoE Ministry of Environment
MWE Ministry of Water and Energy
NADWS National Agency for Drinking Water and Sanitation
NAP National Action Plan to Combat Desertification
NAPA National Adaptation Programme of Action
NCAARD National Centre for Agronomic and Agricultural Research and Development
NCSAR National Centre for Livestock farming and Animal Research
NCWR National Centre for Water Resources
NEAP National Environment Action Plan
NPBA National Park of Banc d'Arguin
ONM National Office of Meteorologyl
PRSP Poverty Reduction Strategy and Action Plan
PSPVN *Programme special pour la protection de la ville de Nouakchott*
SNDD National Strategy for Sustainable Development
SPO Socio-Professional Organization
UNCCD United Nations Convention to Combat Desertification
UNCBD United Nations Convention on Biological Diversity
UNFCCC United Nations Framework Convention on Climate Change