Government of Haiti

Global Environment Fund

United Nations Development Program

Strengthening Adaptive Capacities to Address Climate Change Threats on Sustainable Development Strategies for Coastal Communities in Haiti

PIMS No. 3971, ATLAS project ID No. 00073302

Brief Description

The proposed project follows from the findings and recommendations of Haiti's NAPA, which has identified the coastal development sector as a top national priority for climate change adaptation. In line with guidance for the LDCF (GEF/C.28/18, May 12, 2006), this proposal seeks LDCF funding for a programmatic approach to support climate risks management (CRM) in the most vulnerable Low-Elevation Coastal Zones (LECZ) of Haiti. LDCF resources will be used specifically to meet the additional cost of building national and local adaptive capacities, enhancing the resilience of current coastal development policies and plans to climate change risks, as well as implementing an urgent set of pilot adaptation measures in response to the most pressing threats posed by climate change on coastal populations and economy.

Ranking 155th in the HDR list, Haiti belongs to the poorest LDCs group and has long been vulnerable to climate related disasters. Haiti has long been vulnerable to tropical storms and hurricanes. The country lies on the primary pathway of tropical storms that originate in the Atlantic and strike Caribbean islands

every hurricane season.[1] However, in recent years, the country has been afflicted by a significant increase in the occurrence of severe natural disasters. Haiti has recently been identified as one of the countryôs most vulnerable to the impacts of climate change.

The main climate change-induced problem facing most vulnerable Low-Elevation Coastal Zones (LECZ) of Haiti to be addressed by the project is that climate change is likely to further increase. The local and national governments presently lack the technical capacity, management capacity, physical resources and financial resources to overcome or cope with the anticipated changes. The coastal population in particular lacks the capacity, resources and financial assistance to adapt to and overcome worsening climatic conditions.

The present proposal addresses climate change adaptation needs, a national development priority and identified in the current UN and UNDP cooperation frameworks in Haiti. In particular, the United Nations Development Assistance Framework (UNDAF) 2006-2010 and the UNDP Country Program Action Plan (CPAP) identifies climate change as a major threat to development and UNDP Haiti is committed to invest core resources to support the project. This project, being the first of its kind, with support from the GEF, and other national and international partners, will try to help raise awareness on vulnerability of coastal areas in the context of CC. The project through a systemic approach will focus on advocating for better planning and investment policies in coastal areas, building capacities and improving better decision frameworks where and when possible. While this initiative will focus largely on the impact of climate change in coastal zones, it will also analyze and state the importance of the key sectors which are integral to the overall development goals set forth in the NAPA. To achieve this, the following outcomes will be delivered:

1. Institutional capacity to plan for and respond to increasing coastal hazards improved.

2. Climate risks management is fully mainstreamed into humanitarian and development investment frameworks.

3. Resilience of low-elevation coastal zones to emerging climate change threats enhanced.

4. Models of best practices and lessons learned from the project activities captured and institutionalized.

[1] ñ*Environmental Vulnerability in Haiti: Findings and Recommendations*ò, USAID/HAITI, 2007.

[2]

Date/Month/Year

TABLE OF CONTENTS

[2] For UNDP supported GEF funded projects as this includes GEF-specific requirements

LIST OF ACRONYMS

AECID	Spanish Agency for International Cooperation
ALM	Adaptive Learning Mechanism
APR	Annual Project Report
AWP	Annual Work Plan
CIAT	Inter Ministerial Committee of Land Use Planning
CNIGS	National Center of Geospatial Information
CNSA	National Coordination of Food Security
CCU	Climate Change Unit
CIF	Climate Investment Fund
DINEPA	National Direction of Drinking Water and Sanitation
DRM	Disaster Risk Management
EWS	Early Warning Systems
FAES	Economic Assistance and Welfare Fund
FREH	Fund for Rehabilitation for Haitian Environment
GEFSEC	Secretariat of the Global Environment Facility
IR	Inception Report
IA	Implementing Agency
IW	Inception Workshop
IWRM	Integrated Water Resources Management
IWRM-AP	Integrated Water Resources Management Action Plan
LDCF	Least Developed Countries Fund
LECZ	Low Elevation Coastal Zones
LF	Local facilitators
MDB	Multilateral Development Banks
M&E	Monitoring and evaluation
MDGs	Millennium Development Goals
MEF	Ministry of Economy and Finance
MPCE	Ministry of Planning and External Cooperation
NAPA	National Adaptation Programme of Action
NC	National Coordinator
NPD	National Project Director
OECS	Organization of East Caribbean States
ONACA	National Land Registry Office
ONEV	National Observatory of Environment and Vulnerability
PNAP	National Early Warning Program
PPCR	Pilot Program for Climate Resilience
PCU	Project Coordination Unit
PIR	Project Implementation Review
PRSP	Poverty Reduction Strategy Paper
SNGRD	National System for Disaster and Risk Management
TPR	Tripartite Review
TTR	Terminal Tripartite Review
VRA	Vulnerability Reduction Assessment

1. SITUATION ANALYSIS

1. Haiti has long been vulnerable to tropical storms and hurricanes. The country lies on the primary pathway of tropical storms that originate in the Atlantic and strike Caribbean islands every hurricane season.[3] However, in recent years, the country has been afflicted by a significant increase in the occurrence of severe natural disasters. Haiti has recently been identified as one of the countryôs most vulnerable to the impacts of climate change. These observations have been confirmed by the alarming trend in successive disasters: 56 internationally recognized disasters, including 20 major disasters in the 20th century and 4 major disasters in the last decade alone[4] (table 1 highlights the latest impacts on the last decade). In part, the country is subject to a broad range of natural threats of a hydrometeorological (hurricanes and droughts) or seismic (earthquakes and tsunamis) origin.. From May to November, Haiti is exposed to cyclones which, due to the high winds, flooding, landslides and mud flows they cause, entail considerable damage. Haiti is situated in a seismically active zone. Thus, four fault lines capable of producing high magnitude shocks across its territory.

Table 1: Summary of the last four disasters in Haiti

Event	Effect on GDP	Individuals affected	Dead
2004 Hurricane Jeanne	7%	300, 000	5,000
2007 Hurricanes Dean and Noel	2%	194,000	330
2008 Hurricanes Fay, Gustavm Hanna and Ike	15%	1,000,000	800
2010 Earthquake	100%	2,000,000	222,500
Total		**3,494,000**	**228,600**

2. Susceptibility is intensified owing to the steepness of its topography and intense geodynamic processes which induce frequent flooding, landslides, and rock slides.[5] Over past decades, climate variability has led to serious challenges in terms of food security, poverty alleviation and socio-economic development. More recently, there is a concern by the local and national governments that long-term climate change is contributing to the increased incidence of natural hazards, threatening to magnify pressures brought about by current climate conditions, which in turn is likely to have major direct impacts on sustainable development strategies for coastal communities.

3. These concerns were proven to be correct on January 12, 2010, when an earthquake of magnitude 7.3 on the Richter scale shook the most populous parts of Haiti as well as destroying its economic and administrative centre. It was the most powerful earthquake to hit the country in 200 years. The hypocentre of the earthquake was close to the surface (at a depth of 10km) and its epicentre was close to the town of Leogane, around 17 km south-west of the capital Port-au-Prince in the Department of Ouest. Around 1.5 million, representing 15% of the population, have been directly affected by the recent event. Over 220,000 people lost their lives and over 300,000 were injured.

4. Impacts of climate changes will increase country vulnerability and induce more casualties among population if accurate mitigation measures are not implemented in many sites especially in coastal areas. The Global Climate Risk Index constructed for the period between 1997 and 2006 and covering both human and economic impacts, ranks Haiti 6th in the world, underscoring the

[3] ñ*Environmental Vulnerability in Haiti: Findings and Recommendations*ò, USAID/HAITI, 2007.
[4] Haiti PDNA 2010, Pg. 24.
[5] Haiti: Poverty Reduction Strategy Paper, 2008, IMF

countryôs very high vulnerability to weather related events. In recent years (between 2001 and 2008), storms and floods have had the highest human and economic impact in Haiti, with losses for the period 1997-2006 averaging at 0.05% of GDP ï 1.8 million people have been affected by storms (5 events) with the cost of damages reaching US$ 101 million and 295,569 people have been affected by floods (4 events) with the cost of damages reaching US$ 15million.[6]

5. Haiti is situated on the western part of Hispaniola, the second largest island in the Greater Antilles and is the third largest country in the Caribbean behind Cuba and the Dominican Republic (the latter shares a 360 kilometre (224 mi) border with Haiti). Haiti at its closest point is only about 45 nautical miles (50 mi; 80 km) away from Cuba and boasts the second longest coastline (1,771 km/1,100 mi) of any country in the Antilles, Cuba having the longest. Haiti's terrain consists mainly of rugged mountains interspersed with small coastal plains and river valleys.

6. The northern region consists of the Massif du Nord (Northern Massif) and the Plaine du Nord (Northern Plain). The Massif du Nord is an extension of the Cordillera Central in the Dominican Republic. It begins at Haiti's eastern border, north of the Guayamouc River, and extends to the northwest through the northern peninsula. The lowlands of the Plaine du Nord lie along the northern border with the Dominican Republic, between the Massif du Nord and the North Atlantic Ocean. The central region consists of two plains and two sets of mountain ranges. The Plateau Central (Central Plateau) extends along both sides of the Guayamouc River, south of the Massif du Nord. It runs from the southeast to the northwest. To the southwest of the Plateau Central are the Montagnes Noires, whose most north-western part merges with the Massif du Nord.

7. The southern region consists of the Plaine du Cul-de-Sac (the southeast) and the mountainous southern peninsula (also known as the Tiburon Peninsula). The Plaine du Cul-de-Sac is a natural depression which harbors the country's saline lakes, such as Trou Caïman and Haiti's largest lake Lac Azuei. The Chaîne de la Selle mountain range, an extension of the southern mountain chain of the Dominican Republic (the Sierra de Baoruco), extends from the Massif de la Selle in the east to the Massif de la Hotte in the west. This mountain range harbors Pic la Selle, the highest point in Haiti at 2,680 metres (8,793 ft).

8. The latest briefing from the International Crisis Group, which is an independent, non-governmental organization (NGO) covering some 60 crisis-affected countries and territories across four continents, argues that the combination of environmental destruction and other factors such as weak institutions, extreme poverty and rapid population growth raise the risk of new challenges in the island republic.7 A number of socio-economic, climatic and geographical factors render Haiti particularly vulnerable to climate change. Firstly, Haiti has remained the only least-developed country in the Americas. It is an impoverished country, one of the world's poorest and least developed. Comparative social and economic indicators show Haiti falling behind other low-income developing countries (particularly in the hemisphere) since the 1980s. Haiti now ranks 155th of 177 countries in the United Nations Human Development Index (HDI). About 80% of the population were estimated to be living in poverty in 2003. Economic growth was negative in 2001 and 2002, and flat in 2003. These socio-economic factors translate to the communities, networks and governments having a very low capacity to adapt to climate changes.

9. Secondly, although reliable country level forecasts are not available, Haiti is expected to experience amongst the greatest climate induced impacts on the planet such as recurrence of earthquakes of

[6] The World Bank Country Note: Haiti. December 2008.
[7] International Crisis Group-News Briefing, Haiti: Saving the Environment, Preventing Instability and Conflict, April 2009.

high magnitude earthquakes. The recurrence interval is expected at 150-200 years, with the countryôs two biggest towns, Port-au-Prince and Cap Haitien situated directly on the fault lines. Other provincial towns such as Les Cayes, Jacmel, Leogane, Fort Liberte and Ouanminthe are also very close to the fault lines which make these areas extremely vulnerable.8 Haitiôs vulnerabilities are mainly due to acute poverty, rapid population growth and unplanned urbanization. According to USAID, since the early 1980s, the Haitian economy has been marked by a long-term pattern of negative growth and increased poverty. As in sub-Saharan Africa, Haiti is experiencing rapid urbanization at rates that are not matched by development gains and redistribution of assets and services, urban areas are not generating economic growth and the agricultural sector is not productive. Despite these economic conditions, Haitiôs overall rate of urban population growth is 3.63 percent compared to 0.92 percent in rural areas. Port-au-Prince is growing by 5 percent annually, and 40 percent of Haitiôs population lives in urban settlements, including shantytowns in coastal flood plains such as Cite Soleil in Port-au-Prince, Raboteau in Gonaives, and La Faucette in Cap-Haitien. The Port-au-Prince metropolitan area now comprises one-fourth of Haitiôs entire population. Given the sheer scale of settlement in coastal flood plains, predicted deaths due to catastrophic flooding in Port-au-Prince would far surpass all other disasters in Haitiôs meteorological record.[9] Recent research revealed that Haitiôs southern peninsula presents a heightened vulnerability to hurricanes compared to rest of the country. Climate change and associated impacts pose a direct threat to the islandôs coastal settlements and economies. Indeed, the population is primarily concentrated in low-elevation coastal lands which prove to be highly prone to hurricanes, storm surges, flooding, erosion and salinization. *Due to the unplanned nature of rapid urbanization, in coastal communities in particular, these areas are expected to experience the most challenging climatic changes in terms of temperature, rainfall, storms and extreme events.*

10. Thirdly, Haitiôs population and economy is largely dependent on primary food production and natural resources. Although not very productive, agriculture employs 66 percent of the active population. It is almost the unique contributing factor to food security for the vast majority of the population. The agriculture and food production sectors are also the sectors the most susceptible to climate change. Hence, the large parts of the population and the economy are involved in and dependent on the sectors most vulnerable to climate change.

11. In summary, with a population that has a low capacity to adapt, with climate changes forecasted to be very significant, and with the majority of the population engaged in economic activities highly vulnerable to climate change, Haiti is one of the most vulnerable countries on earth to climate change.

12. The most important cities of the country are located on the coast and these areas house majority of the economic infrastructure such as factories, harbours and other key economic engines. Apart from the economic infrastructure, the coastal cities hold a large part of the countryôs population. According to the NAPA, the coastal zones are extremely eroded in the lowest parts of the watersheds due to extensive deforestation and mangrove destruction. These areas receive strong unguided streams of water, waste and sediments which erode the watershed. These effects, particularly in areas such as Port-au-Prince, not only endanger the environment of the area but also the population who reside in the areas as Cite Soleil, La Saline, Cite de Dieu, Cite lôEternel, La Fossette, La Savanne etc..

8 Haiti PDNA 2010, Pg. 25.

9 ñ*Environmental Vulnerability in Haiti: Findings and Recommendations*ò, USAID/HAITI, 2007.

Table 2: Climatic risks identification in connection with zones and sectors vulnerable

Climatic Risks	Vulnerable zones	Vulnerable Sectors/Activities,	Impact Sectors
Cyclones Heavy rain Floods	• West • South • Artibonite • Northwest • Soutwest • North	• Agriculture • Livestock • Water resources • Coastal zones • Fishing • Transportation • Road infrastructures • Communication • Commerce • Health • Education	• Loss of human lives • Loss of crops • Loss of livestock • Destruction of homes • Paralyzed fishing and maritime activities • Destroyed maritime ecosystems • Death of infant fish • Increased fish migration • Spring pollution • Increased erosion • River siltation • Obstruction of sewer systems • Damaged water conveyance • Increased water-borne diseases • Higher cost of living and hunger
Drought	• Northwest • Northeast • South • North • Southeast	• Agriculture • Livestock • Fish • Water resources • Health • Craft • Education • Commerce	• Crop destruction • Decrease in agricultural products • Decrease in spring water • Water and food scarcity • Accelerated deforestation • Health problems linked to lack of water • Air pollution • Loss of livestock • Stopping of livestock activities • Farm land ï Land structure alteration • Human and Fish migration • Higher cost of living
Earthquake and Raz-de Maree	• North • Northwest • Artibonite • West	• Tourisme • Transport& communication • Commerce • Coastal zones- Fish	• Increase in loss of human life • Destruction of infrastructure • Destruction of crops • Loss of Livestock • Destroyed homes • Maritime transport affected • Diminished fishing activities • Diminished commercial activities

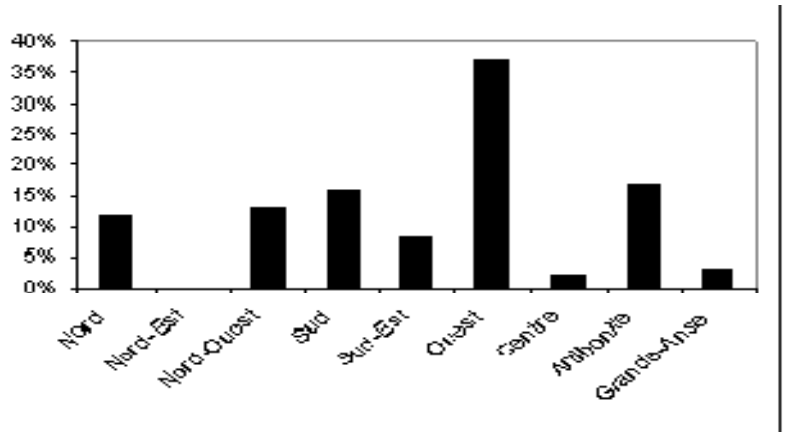
13. As illustrated in Table.2, there are strong climate risks throughout the country but the majority of climate risks which are cyclones, heavy rains and floods, are concentrated in coastal regions such as the North, North-West, South, South-West, West, and the coastal region of Antibonite. According to Oxfam, one of the reasons why the above mentioned coastal regions are highly affected by climate risks is because these cities; Cap-Haititien (North), Port de Paix (Nortwest), Cayes (South), Jacmel to Marigot (Southeast), Gonaives and St Marc (Artibonite), and Léogane (West) are build over alluvial plains. Furthermore, climate risks affect majority of the sectors in the country with extensive infrastructure and human losses.[10]

14. Although hurricanes and tropical storms threaten the country, in the past decade, severe flooding has caused the most damage and account for the highest number of deaths than any other natural hazard in Haiti. The areas most affected by floods are the West with 36% of the cases followed by Artibonite, the South, the North-West and the North. The other regions all together present only about 10% of the cases. The risk of flooding is high in most of Haitiôs coastal and lowland areas.

[10] Oxfam. 2002. Cartes et études de risques de la vulnérabilité et des capacités de réponse en Haïti)

In 53% of the cases, floods strike coastal cities or localities where the average population density is relatively high.11 The below graph illustrates the scale, extent and high number of victims and deaths caused by the floods of major hurricanes. The severe floods of 2004 in Gonaives (Artibonite), Fonds Verrettes (West), and Mapou (South-East) forced a new awareness of Haitiôs heightened risk of catastrophic floods. The coastal cities of Haiti are so fragile that in the case of Port-au-Prince, at the first sign of rains, the residents fear for floods and loss of their daily livelihoods. And prospective deaths due to catastrophic flooding in Port-au-Prince would far surpass all other disasters in Haitiôs meteorological records.[12]

Figure 1: Flood Frequencies by Region (1968-1977)



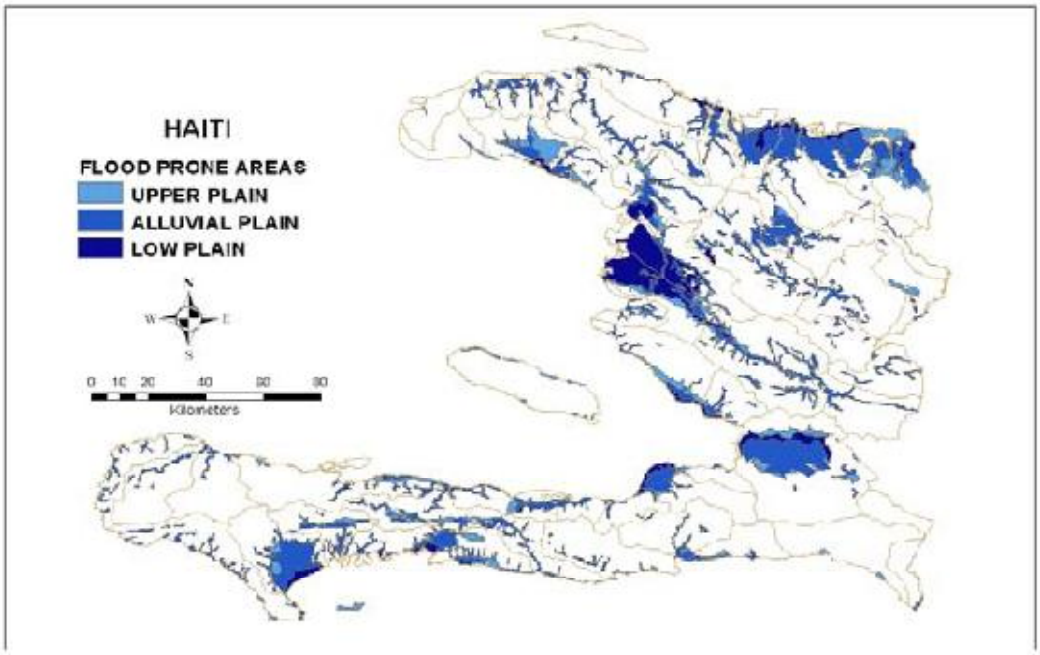
15. In nearly 50 years, from 1968 to 1997, nearly a hundred floods and torrential rains have been registered in the country. Defined as the intersection of habitat density with flood prone areas (see map below), vulnerability of the population is highest in the countryôs urban centres i.e., high population densities residing in low coastal plains. In addition, runoff is very high in areas such as Port-au-Prince and its surrounding areas mainly due to deforestation of surrounding mountains, unplanned human settlement, and poorly constructed infrastructures which obstruct the drainage systems. It has also been noted that during the recent years with increased population growth, cities such as Cap-Haïtien is also facing similar problems as Port-au-Prince.[13]

11 Mathieu, P., J.A. Constant, J.Noel & B. Piard. 2002.

12 Mathieu, P., J.A. Constant, J.Noel & B. Piard. 2002.

13 Oxfam. 2002. Cartes et études de risques de la vulnérabilité et des capacités de réponse en Haïti)

Map 2: Flood Prone Area Map of Haiti



16. Although not productive, fishing is considered common activity in the coastal areas. The fishing industry is not productive due to the fact that fishermen tend to fish too close to the coast line and they do not utilize sustainable fishing methods. Increased rains, floods and unsustainable waste disposal have contributed to the pollution of waters near the coast. The waters near the coast have been polluted by sediments and other debris from inland. Apart from salt water fishing, the coastal population also depend on fishing in other coastal ecosystems. For example, mangrove forests (166.5km2 in 1983) are situated in North and North East coast (Baie de Fort Liberte, Baie de Caracol and Baie de lôAcul), the Artibonite estuary, Les Cayes, Lôîle a Vache, La Gonaive and the Grand Cayemites.[14] These areas play an important role in the reproduction cycle of numerous coastal and pelagic fish species as well as provide shelter for their offspring. These species include pike (*Centropomus Undecimakis*), and crustacean species such as prawn and lobster (*Penaeus spp* and *Panaulrius Argus*), and mollusks (*Strombus Giga*). The fishing of these species is considered to be an important economic activity in the coastal areas.[15] As with sea water pollution caused by increased rains and floods in the area, these ecosystems, are increasingly threatened.

17. Apart from the fishing industry, as illustrated in table 2 below, there is some agricultural activity in the coastal areas. According to a study on watersheds and coastal areas in Haiti, based on the current scenario, climate change would negatively impact the conditions of water feeding for important crops like beans. For example, Haiti is normally affected by drought every five years but the impacts of climate change would change the periodicity and frequency of droughts. In addition, due to changes in weather patterns, there is an increased presence of fungi and bacterial diseases in crops such as sugar cane, coffee, tomato and tobacco.[16]

[14] ANAP, 2009

[15] Report on Watersheds and Coastal Areas in Haiti. Ministry of Environment, Regional Consultative Meeting on the GPA Program of Work in the Wider Caribbean, February, 2004.

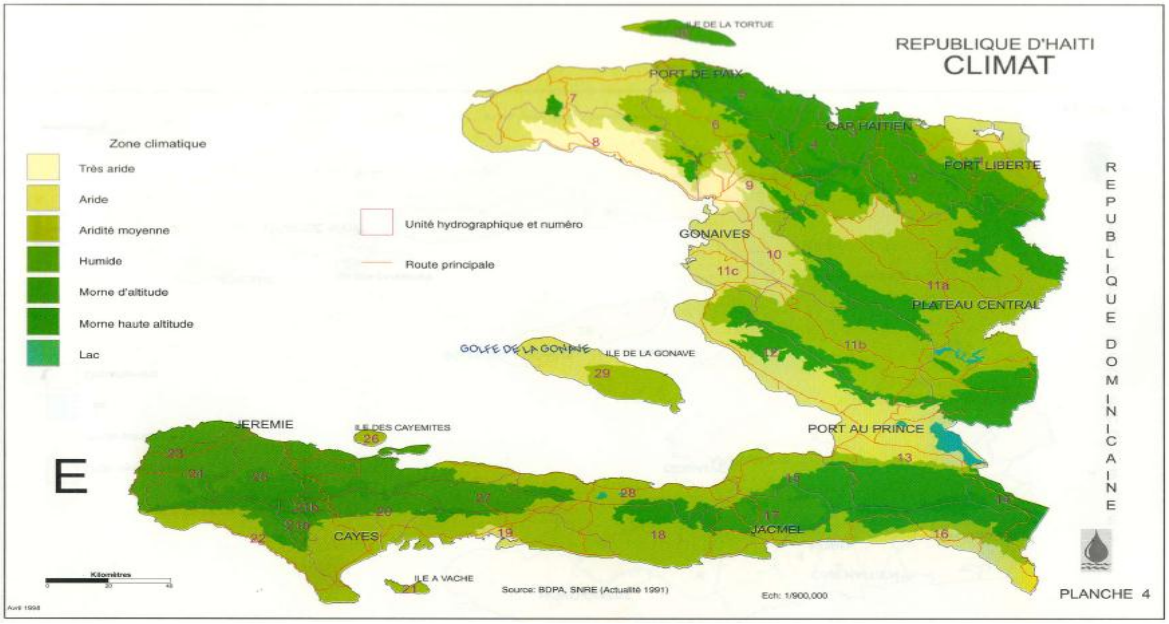
[16] Report on Watersheds and Coastal Areas in Haiti. Ministry of Environment, Regional Consultative Meeting on the GPA Program of Work in the Wider Caribbean, February, 2004.

Table 3: Types Crops in Coastal Zones

Regions/ Cultures	North	North-West	South	South-East	West	Artibonite
Corn	ã	ã	ã	ã	ã	ã
Sorgho		ã	ã	ã	ã	ã
Beans	ã		ã	ã	ã	ã
Manioc		ã	ã			
Sweet Potato	ã	ã	ã			
Igname				ã		
Arachide		ã			ã	
Melon					ã	
Banana	ã		ã	ã	ã	
Sugar Cane		ã	ã	ã	ã	

18. It is important to note that the region naturally exhibits high levels of spatial and temporal climate variability, particularly in terms of rainfall. The level of rainfall can vary dramatically from year to year, and over quite small distances. Anticipated increases in sea levels and sea surface temperatures are also likely to be primary causes for increased beach erosion, salinization of fresh water aquifers and estuaries, coastal erosion and increased coral reef bleaching throughout the island. According to preliminary studies made in 2001, running MAGGIC/SCENGEN model, it is expected to have a sea level rise of 10.9 cm in 2030 and 24.4 cm in 2060. For sea surface temperature, thereôs no data available. As a result of these factors, the coastal communities stand to be highly impacted from these events. One major impact of predicted global climate change is likely to be the exacerbation and intensification of this variability.

Map 3: Map of Climate Zones in Haiti



Source: Ministry of Environment (1999)[17]

[17] Ministry of Environment, 1999, Formulation Program of Politics of Water, Principle Report.

19. Additionally, climate change is expected to: (i) lead to temperatures rising at rates higher than global averages; (ii) lead to unpredictable changes in rainfall distribution ï in terms of the start, end and duration of the rainy season (iii) lead to an increase in extreme events, such as drought and storm. Moreover, changes to rainfall patterns will lead to changes in the hydrological regime that will lead, in turn, to changes in water availability, and in turn directly impact the agriculture and farming sectors. Erosion and changed water cycles will lead to changes in sedimentation and water quality. Finally, changes to disease and pests vectors, changes in the health sector, and human migration in response to climatic threats will lead to secondary impacts on agriculture[18].

1.1. Climate change - induced problem

20. The main climate change-induced problem facing most vulnerable Low-Elevation Coastal Zones (LECZ) of Haiti to be addressed by the project is that climate change is likely to further increase. The local and national governments presently lack the technical capacity, management capacity, physical resources and financial resources to overcome or cope with the anticipated changes. The coastal population in particular lacks the capacity, resources and financial assistance to adapt to and overcome worsening climatic conditions.

21. According to the Haiti PDNA 2010, climate change projections and impacts predicted for Haiti correspond with the global trend predicted for Small Islands in the Caribbean Basin. Haiti has the highest index of vulnerability to cyclones of all the developing small island states. Located in the middle of the Caribbean Basin, 96% of the population of Haiti lives in constant danger of 2 or more risks.

22. The following projections have been predicted for the Haiti by different sources:
    - Increasing rainfall variability, decrease in precipitation in the range of -5.9% to -20% by 2030.[19]
    - Sea level rise (SLR) of 10.9 cm in 2030 and 24.4 in 2060.[20]
    - Temperature rise in the range of 0.8°C to 1°C by 2030 and in the range of 1.5°C to 1.7°c by 2060
    - An increase in the frequency of climatic hazards (e.g. tropical cyclones, droughts, episodes of heavy rainfall, flooding and seismic events).

Changes in rainfall levels and patterns

23. It is important to note that the region naturally exhibits high levels of spatial and temporal climate variability, particularly in terms of rainfall. The level of rainfall can vary dramatically from year to year, and over quite small distances. Increase in rainfall variability, decrease in precipitation in the range of -5.9% to -20% is expected by 2030.[21] In addition, groundwater supply quality will be reduced by the reduction of rainwater filtration, thus reducing the groundwater table and the dilution effect. For example, in areas where rainfall increases 20% groundwater levels might actually rise 40%; while in areas seeing a similar decrease in rainfall there could be as much as a 70% decrease in groundwater.[22] As the episodes of heavy rains are predicted to increase, these

[18] Unless otherwise noted, in this report ógricultureô refers to the integrated agricultural/livestock/agro-forestry systems.

[19] NAPA, 2006

[20] MAGGIC/SCENGEN Models

[21] NAPA, 2006

[22] Global Warmingôs Effects on Precipitation Patterns Could Mean Even Bigger Changes in Ground Water by Mathew McDermott, Science and Technology, Dec. 2008.

patterns will increase the frequency and intensity of extreme floods and drought events. The current Haitian observations tend to confirm these finding, people report dry seasons that last longer, while rainy seasons are shorter but more intense.

Sea-level rise

24. Haiti has the second longest coastline (1,771 km/1,100 mi) of any country in the Antilles, therefore, is highly susceptible to impacts of SLR. Anticipated increases in sea levels and sea surface temperatures are also likely to be primary causes for increased beach erosion, salinization of fresh water aquifers and estuaries, coastal erosion and increased coral reef bleaching throughout the island. Data or predictions related to sea surface temperature are currently not available. Data related to SLR is available for Haiti. According to preliminary studies made in 2001, running MAGGIC/SCENGEN model, it is expected to have a sea level rise of 10.9 cm in 2030 and 24.4 cm in 2060.

25. Rising sea levels inundate wetlands and other low-lying lands, erode beaches, intensify flooding, and increase the salinity of rivers, bays, and groundwater tables. Some of these effects may be further compounded by other effects of a changing climate. Additionally, measures that people take to protect private property from rising sea level may have adverse effects on the environment and on public uses of beaches and waterways.

Rise in temperature

26. Studies undertaken within the framework of the National Adaptation Programme of Action (NAPA) and the established that the annual average temperature across the country is expected to rise in the range of 0.8°C to 1°C by 2030 and in the range of 1.5°C to 1.7°c by 2060.

27. The increasing trend in temperature results in an increase in evapo-transpiration rates which, coupled with the anticipated decline in rainfall, will reduce water recharge into rivers, river flow and groundwater supply rate. Whilst this directly affects water supply, it will also result in a reduction in the dilution effect (in both rivers and uncovered cisterns), thereby reducing water quality. Both changes in rainfall and temperature patterns (such as the prolonged dry season) are affecting and will continue to affect the quantity and distribution of water resources available to end users.

Forecasted impacts of climate change on key sectors

28. Geographic conditions make Haiti particularly prone to recurring natural hazards and disasters of a hydro meteorological nature. According to the NAPA, the entire Haitian economy is affected by climate change. The entire coastal zone of Haiti and sectors are vulnerable to impacts of climate change due to majority of their populations and main commercial activities on, or near, the coastline and with limited surface and groundwater resources. In response to the catastrophic impacts of 2008 hurricane season, the Government of Haiti has elevated the profile of risk management and vulnerability reduction to the forefront of its development agenda as evident by the inclusion of vulnerability reduction and risk management as one of the three strategic pillars of their Programme de Reconstruction des Infrastructure Economique 23. Although almost all sectors are affected by impacts of CC, the key sectors that are at greatest risk due to climate change include agriculture and water resources particularly watershed management.

[23] Climate Investment Funds: Proposal Prepared by Inter-American Development Bank and World Bank Group for PPCR Regional Program for the Caribbean (July, 2009).

29. For agriculture sector, vulnerability is linked to water and soil. Anticipated impacts of climate change on water resources in Haiti as well as heavy winds, floods and droughts will directly impact agricultural production through a number of conduits including erosion. A recent study led by the Ministry of Environment (MDE, 2000), concluded that there is a significant increase in soil aridity throughout Haiti. The study further maintains that by the beginning of the second half of the twenty first century, as a result of climate change, more than half of Haitiôs land surface will be in danger of deforestation. In general, the drier climate will decrease the production of agricultural crops, deepening the food deficit. This decrease amounts to an average of 25 percent of current agricultural crop production rate. This occurrence is important to note as 48 percent of nationally consumed food is imported, 47 per cent is produced locally and 5 per cent is food assistance.

30. According to the First National Communication (INC) and general circulation models, due to climatic changes in Haiti, the yield decreases are expected to be observed on irrigated crops: a) corn-4% decrease by 2030 and 7.7% decrease by 2060; b) rice- 9% decrease by 2030 and 15% decrease by 2060; and c) potato- 5% decrease by 2030 and 10% decrease by 2060. Oxfam reports that almost US$229 million was lost in agriculture, and damages have been valued at 15% of the GDP, making it difficult for future economic progress.24

31. In the water sector, fresh water resources of the country are limited to five rivers which provide approximately 60% of the countryôs drinkable water (MDE, 1999a). The water sector is very vulnerable to floods and droughts, periodically affecting the country. Floods and intense rainfall are mostly prevalent in the West, South, North-West, the valley of lôArtibonite and the South-East of the country leading to the destruction of cropland and soil erosion. Droughts mostly affect the North-West, North-East, the South and the South-East of the country, resulting in destruction of croplands, decrease crop yields and death of livestock. Some adaptation practices identified in the water sector, designed to face drought problems, are the use of water tanks for collecting rainwater, which is used as drinking water for livestock, among others, as well as the construction of water ponds to be used in agriculture.

32. Because of erosion, any kind of precipitation pollutes the limited fresh-water sources. Downpours, especially, quickly fill up rivers with dirty, sediment-filled, contaminated water. Fresh water is easily tainted, not only by ground erosion, but also due to contact with previously polluted water and is unusable for irrigation. As drinking water becomes scarce the availability of basic services also decreases, making this sector all the more vulnerable. The countryôs watershed exposure further exacerbates the fact that domestic and industrial resources, as well as agricultural waste, are not properly managed. Contrary to the issue of flooding, droughts impede river flow and groundwater recharge, increasing the potential and/or causing the springs and rivers to dry out completely. Less groundwater hinders agricultural production during dry periods, making irrigation impossible. Furthermore, decreased subterranean water levels facilitate salinization from ocean water which has infiltrated the groundwater, further harming agriculture.

33. According to the World Bank Country Note on Haiti (2008), Agriculture is responsible for 94 percent of the total freshwater withdrawal in the country, compared to the Latin America and the Caribbean average of 71percent. Agriculture in Haiti relies mostly on rainfall (92 percent of total)-particularly in hillside areas, where water storage facilities are absent; and only 8 percent of total cropland is currently under irrigation. The irrigation system in Haiti is comprised of: a) one large scheme located in the Artibonite valley with 35,441 hectares of area equipped for irrigation, b) thirty eight medium-size schemes with only five of them presently working and covering an area of

[24] Haiti: óA Gathering Stormò Climate Change and Poverty. Oxfam International. Pg. 7.

39,237 hectares equipped for irrigation and c) one hundred and twenty eight small schemes with a total area equipped for irrigation of 10,854 hectares.

34. The following tables provide data which indicate that rainfall will decrease, as well as other hydric parameters, especially the potential volume of water resources in Haiti.

Table 4: water balance (1961-1990)

Variables	Value
P	1388
rE	1057
pE	1586
Q	356
W	9760

Table 5: estimated water balance

Year	P	rE	pE	Q	W
2030	1201	968	1708	233	6385
2060	911	814	1908	97	2661

(All is expressed in mm, except W that is expressed in million of m^3)

P: rainfall; rE: real evapotranspiration; pE: potential evapotranspiration; Q: runoff; W:potential volume of hydric resources

35. The coastal zones, the lowest section of the watershed, are extremely eroded. These zones collect waste and other sediment which flow down the steep mountain slopes and course into the coast. Damage of the watershed caused by deforestation and the destruction of mangroves, along with poorly constructed buildings in urban areas, particularly Port-au-Prince, result in flood-level waters which endanger the lives of the local population. Economically and culturally the most important cities are coastal as the majority of economic structuresð such as factories and harbour facilitiesð are concentrated along the seaboard; vital ecosystems and a very large concentration of the population also occupy the coast. Additionally, the coastlines are the site of the principal shanty towns: Cite Soleil, La Saline, Cite de Dieu, Cite lðEternel, La Fossette, La Savanne, and others. Over the last ten years floods in Port-au-Prince, Cap-Haïtien, Belle-Anse, Gonaïves, and Saint Marc, all coastal cities, have resulted in a significant loss of human life, infrastructure, and material goods. On an anecdotal note, the city of Port-au-Prince is ever apprehensive, even during small showers, about the danger which threatens the capital because of potential floods.

36. Clearly, the above factors may have major negative impacts on the economic activities in coastal communities in Haiti. Under present circumstances, the above climate-induced threats to the natural resources are likely to lead to: increased poverty, reduced revenues, increasing conflicts over remaining natural resources, high migration levels, severe food crises, and civil and political instability.

37. Climate change is expected to have a disproportionate impact on women where women represent 51.7% of the population25 with 60% of the households are headed by women.26 For example, the impact of climate change on water resources is predicted to increase the distances to accessible water sources in rural areas, in particular, since many of the rivers are drying up and the yield of the

[25] NAPA, 2006

[26] Haiti Agricultural Intensification Project: Environmental and Social Impact Report. IDB.

wells is diminishing. Women and children are affected by this situation to a greater extent because women are traditionally in charge of collecting water from public fountains, wells and cisterns which are mostly situated at long distances from home (often more than 2 km) in rural areas. As temperatures increase and rainfall patterns change, these distances will increase as water becomes increasingly scarce. This physical labour becomes increasingly difficult for the women in the communities and represents an opportunity cost in terms of time and labour. Similarly, as in many developing countries, women are mainly responsible for household food production in Haiti. Women also farm the land and sell the crops and they achieve this despite unequal access to land, water, information, and inputs, such as improved seeds and fertilizers. The agriculture sector, which has been identified as one of the most vulnerable sector to climate change, is the main source of employment for rural population and for women in particular.27 As such, understanding how different social expectations, roles, statuses and economic power of men and women affect, and are affected by, climate change will improve actions taken to reduce vulnerability and combat climate change in the developing world.

1.2. Underlying Causes of the Problem

38. The baseline context underpinning the climate change-induced problem is described section 1.1. While climate change exerts indisputable pressures on Haitiôs coastal areas, a number of non-climate driven problems seriously increase the vulnerability of LECZs to climate hazards and limit their capacity to adapt. The immediate threats to Haitiôs coastal systems include non-climate change-driven causes which are described in detail below.

Non-climate change-driven causes

Geographic Location

39. Haitiôs geographic location is the key factor contributing to countryôs vulnerability to climatic impacts. Haiti is characterized by a mountainous topography. Sixty three percent of all land in Haiti slopes at a gradation of more than 20 percent and more than a third of the country lies at 400 meters above sea level with peaks in the southern region reaching an altitude of 2700 meters above sea level and 2100 above sea level in the central region. Given the characteristics of Haitiôs landscape, the topography lends itself to high risks associated with climate change such as floods and erosion.

Limited government budgets

40. No specific budget is allocated for climate change adaptation. However, climate change adaptation-related activities are achieved through international budget available for the implementation of the UNCCC.

Government instability

41. At present, the government instability is due to the recent events related to the January 2010 earthquake. There has been massive infrastructure destruction. According to the Haiti PDNA 2010, much of the government institutions have been completely destroyed or damaged. For example, over 1,300 educational establishments, over 50 hospitals, part of the main port is not operational, the Presidentôs Palace, Parliament, the Palace of Justice, and most of the Ministries and public administration buildings have been destroyed.

[27] Haiti Agricultural Intensification Project: Environmental and Social Impact Report. IDB.

42. Prior to the January 2010, earthquake there were repeated cycles of political crisis and instability which is predicted to repeat. This situation leads to poor institutional governance. Government capacity is therefore low, which reduces political traction on adaptation priorities and thus increases the vulnerability of the Haitian population to expected climate change impacts.

Ecological state of the land

43. Before the January 2010 earthquake, forests represented only 2% of Haiti. Now after the earthquake, naturally, it is expected that some of the affected population will migrate inland cutting down more trees in search of habitable land. Land degradation, attributable to episodes of heavy rainfall, related soil erosion and steep slopes, reduce water supply and quality in Haiti. This situation is compounded by unsustainable activities undertaken by Haitian communities, such as the high levels of deforestation and the unsustainable agricultural techniques employed (e.g. hillside farming without proper soil and water conservation methods). Land degradation also affects food security and livelihoods of Haitian communities through the reduction of agricultural productivity, thereby rendering communities more susceptible to predicted climate change impacts. This significantly jeopardizes the likelihood that Haitian communities will be able to overcome or adapt to the impacts climate change is expected to have on water supply and quality.

Land tenure

44. Haiti lacks an order relating to the land tenure system. The non-application of the provisions of the law of 29 May 1963 had led to uncontrolled urban growth and sprawl at the expense of agricultural land. Most landowners in Haiti have no real title deeds as there is no land to register or social and legal aspects such as the weakness of the civil registry office complicates the process to issue title deeds to those who own land. There is a mismatch between land legislation and reality (several institutions can have the same powers) which is typical and deters people in following the process. The proliferation of unauthorized construction due to the absence of zoning in areas that are unsuitable for housing is almost in all parts of the country while crops are grown on unsuitable land. This result in lack of willingness to invest in the protection and improvement of the arable lands by the owners and such a situation promotes unsustainable agricultural techniques and deforestation.

45. It is hoped that post earthquake reconstruction efforts would[28];
    - eliminate unorganized land use by freezing all transactions while awaiting the setting-up of services to check title deeds;
    - set up a national land registry, giving the National Land Registry Office (ONACA) the task of listing, updating and classifying property belonging to individuals and the State in order to identify them physically, legally, fiscally and economically;
    - determinate competencies of bodies involved in land management with the following breakdown: the Direction Générale des Impôts (tax office) to collect taxes for the State, the ONACA to deal specifically with property inventory, and the Institut National de la Réforme Agraire (National Institute for Agrarian Reform) to deal with solving land-related problems and drafting of agrarian policy.

Population density

46. Uncontrolled and unplanned urbanization along the coast boosted by rapid population growth and booming rural migration to coastal cities have put additional stresses on the environment.

[28] The guidelines have been suggested in the Haiti PDNA 2010. Pg. 47

Population density in Haiti is presently high. There are estimated 10 million habitants, with a high population concentration on the coastal plains and valleys, as in Port-au-Prince. This coupled with the islandsô limited land area causes people to move further inland (and up the slopes) in order to find fertile land for agriculture. Haitiôs mountainous agricultural base has long surpassed its carrying capacity and cannot support this rate of population growth.

47. According to a recent report by USAID, The high rate of population growth and rapid urban expansion do not allow aquifers and floodplains to function as natural storage and filters particularly during flood conditions. Due to unplanned urbanization, hard surfaces caused by anarchic construction methods prevent the infiltration of surface water required to recharge the countryôs most important aquifers, located in the major plains of Cul-de-Sac, Gonaïves, Léogane, Les Cayes and Cap-Haïtien.[29]

Unsustainable farming practices

48. Unsustainable farming practices, such as overgrazing and hillside agriculture, over-pumping of coastal aquifers, and clearing of mangroves for agriculture and charcoal production are quite common in Haiti. Hillside agriculture practices are not unsustainable and are not managed at all. The countryôs steeply sloped agricultural plots require substantial investments to keep soil, water and agricultural inputs in place. Hillside farmers have long farmed Haitiôs slopes; however, these slopes were never suited to annual agriculture and most farmers cannot afford the cost of installing and maintaining appropriate agricultural practices.[30]

49. Due to the low financial capacity of most households will enable most of the population to continue these unsustainable farming practices. As with many other areas of Haiti, coastal areas in Haiti are poor, and the simplest of new approaches to deal with climatic hazards require an investment. This implies an associated financial risk. Those risks preclude many coastal people from being able or willing to attempt new practices.

Poverty

50. The levels of poverty in Haiti are some of the highest in the world and the highest in the Western Hemisphere. The greatest poverty is in rural areas. Most Haitians have no retirement provisions, no social security and no savings. Income distribution is particularly unequal with almost half the national income going to the upper deciles of the population, whereas the last two deciles receive less than 2% of the national income. The country is unable to invest in adaptation practices and infrastructure in order to cope with expected climate change impacts. This inherently low capacity to adapt increases the vulnerability of Haiti to climate change.

Education

51. Education service provision is both insufficient and unequal. The majority (90%) of services are provided through the non-public sector. The system is very poorly regulated and the State does not fulfil its central management role satisfactorily. School attendance rates are low (22% at secondary school and 10% in higher education). However, the primary school attendance rate is much higher, at 76%. The system performs poorly: the rate of return is 45% in primary and secondary education and 20% at university level, with major differences in discipline choices between men and women. Professional training is fragmented (managed by eight different Ministries), lacks regulation and has obsolete programmes. Higher education operates within a specific legal framework that fails to

[29] Environmental Vulnerability in Haiti: Findings and Recommendations. USAID, April 2007.

[30] Environmental Vulnerability in Haiti: Findings and Recommendations. USAID, April 2007.

take the countryôs development needs into account. 38% of those aged 15 and above are illiterate (41% among women). The informal education system (including adult education) is managed in a fragmented way by the ministry and its relationship with the formal system is poorly defined. The countryôs education programmes include hardly any technical and scientific streams, resulting in a lack of human resources in fields that are critical to the countryôs development.[31]

1.3. Long-term solution and barriers to achieving the solution

Preferred solutions

52. The preferred solution of the Govt of Haiti is to promote development that protects the local communities from climate change impacts. This includes creating resilient economies and societiesô and reducing risks for vulnerable populations in Haiti. In the aftermath of the rebuilding effort that is currently ongoing, one of the main goals of GoH is to strengthen institutional capacities to support shifts toward resilient economies and societies possible. In short, Haiti would have integrated climate change risk management into development solutions including:
    - Public policy, legislative and institutional reform promoted to proactively manage climate change risks.
    - National and sub-national climate change governance structures strengthened to enhance coordination.
    - Policy and fiscal instruments for adaptation developed, including changes in incentives and adjustments in national budgets.
    - Market instruments for promoting autonomous adaptation, including expanding markets and promoting market access for the poor, and market diversification.
    - Development finance from multilateral and bilateral funds, as well as alternative sources of financing accessed in light of anticipated adaptation costs to effectively meet national costs.
    - Global, regional, national, sub-national knowledge from good practices learned from experiences codified, shared and replicated.

Barriers to achieving the preferred solution

Policy related barriers

53. The current environmental policies mention environmental management and but they do not currently contain specific language related to CC. Haitiôs existing policies promoting climate-resilient coastal land planning, at both central and municipal levels, are inefficient. This situation is largely compounded by the fact that first, overall awareness of policy makers is inadequate; second, the technical capacities of staff are limited; third, all stakeholders (i.e., policy makers, technical staff, and local communities) are not fully prepared to address the risks associated with climate change. As a result, the incorporation of specific climate change risks in existing or future coastal planning frameworks, investment programmes, zoning regulations and management practices remains quite limited.

54. Policy makers do not have a strong set of guidelines to follow in implementing the appropriate policies related to climate change adaptation. For example, the issue of climate change is addressed as early as 1999 in the National Environmental Action Plan (NEAP, 1999), where the responsible ministries agree to adhere to the UNFCCC guidelines on managing climatic risks;

[31] Haiti, PDNA 2010, Pg. 62.

however, thus far, there have not been steps taken toward addressing climate change adaptation. In support of the aforementioned statement regarding existing policy gaps, it is important to mention the existing policies in Haiti. The NEAP is the major policy document which offers guidance on all aspects of environmental management and in contrast, climate change is not mentioned in the government of Haitiôs UNDP funded National Risk and Disaster Management Plan (NRDPM, 2000).

Institutional barriers

55. The current institutional set-up is characterized by overlaps and lack of clarity in terms of mandates, missions and operational means to deal with coastal planning, protection and disaster management. This situation is further exacerbated by a insufficient institutional coordination between line ministries and key autonomous institutions concerned with coastal management, environmental protection and disaster management. Such a situation impedes anticipatory, smooth and effective management of emerging coastal hazards in Haiti. Another important adaptation barrier is the limited information and use of relevant climate information for informing CRM strategies and for reacting in time to climate-related catastrophic events. EWS remain very limited in scope due to lack of technical, financial and material means to develop capacity to produce data and information and then to ensure climate-related events monitoring, generally, EWS, because of the inter institutional coordination weakness, lack the robustness and integration needed for addressing more frequent and intense coastal disasters, as well as the ability to transmit data and warnings to policy makers and vulnerable stakeholders in a timely and efficient manner.

56. Furthermore, the majority of studies which have been completed in the last 5-10 years in the environment sector show that the institutions which are dedicated to assist in the management of climate change (i.e., MDE, MARNDR, and MTPTC) have very few qualified staff members who work in the area of climate change. This is partly due to the fact that there are no formal descriptions of the positions filled or motivational strategies for the incumbent staff. Apart from the inadequate workforce, staff in both private and public sectors has received minimal or no training in the field of climate change adaptation. Furthermore, the staff with training is not presented with appropriate opportunities for follow-up training necessary to help implement suitable programs in coastal zone management.

57. Apart from the policy and institutional related barriers, Haiti's approach to tackle human pressures on LECZ and to respond to increasing climate related risks and disasters has been mainly reactive and scattered. This has led to a profusion of interventions in coastal zones without coordination, which is needed to assist Haiti in making a sector-wide shift towards climate-resilience. Moreover, the on-going humanitarian and development investments flows in coastal zones do not integrate the likely impacts of climate change into their design, planning and implementation, which renders them heavily exposed to more frequent and intense climate hazards. Similarly, the understanding of the cost of climate change and adaptation in Haitiôs vulnerable LECZs remains very limited. As a result, the economic dimension of climate change continues to be overlooked in coastal policy and in investment decisions. Furthermore, the absence of climate risks costing methodologies and findings limit the formulation and implementation of long term strategies to expand and mobilize financing options for coastal risk reduction. Another major issue lies in the absence of a country-based approach to address adaptation of coastal zones, with strong ownership and leadership from the government. This results in financial and technical assistance from donor agencies remaining ñproject-basedò and highly variable in nature. There is no mechanism to assess adaptation financing needs and secure availability and predictability of funds at a programmatic level.

58. National capacities to design and implement suitable adaptation responses are still insufficient and not supported by proven CRM models and best practices. A key problem is that urban planning processes, zoning and constructions standards, as well as shoreline management plans do not factor in the new patterns of risks brought about by changing climatic conditions and rising sea levels. Recent climate related disasters have shown that current coastal land planning and management practices are unlikely to be able to cope with more frequent and intense extreme weather events. Moreover, coastal communities continue to apply unsustainable resources management practices that have a huge maladaptive potential and put their development and security at jeopardy. They have limited access to alternative livelihoods and on-the-ground adaptation measures and technologies that could potentially strengthen their capacity to adapt. In the same vein, community-based adaptation activities still need to be developed and disseminated across the most vulnerable portion of the coastal population. However, scaling up of successful climate risks management practices is further constrained by the absence of an effective knowledge management and information sharing system in Haiti.

59. All of the above mentioned barriers have a key underlying problem which is that there is a lack of education, public awareness regarding the increased climatic threats, how to adapt to these threats and having the appropriate financial mechanisms in place to deal with the issues. The current project would help overcome these barriers by achieving the project outcomes.

2. STRATEGY

2.1. Project rationale and policy conformity

60. The present proposal addresses climate change adaptation needs, a national development priority and identified in the current UN and UNDP cooperation frameworks in Haiti. In particular, the United Nations Development Assistance Framework (UNDAF) 2006-2010 and the UNDP Country Program Action Plan (CPAP) identifies climate change as a major threat to development and UNDP Haiti is committed to invest core resources to support the project. This project, being the first of its kind, with support from the GEF, and other national and international partners, will try to help raise awareness on vulnerability of coastal areas in the context of CC. The project through a systemic approach will focus on advocating for better planning and investment policies in coastal areas, building capacities and improving better decision frameworks where and when possible. While this initiative will focus largely on the impact of climate change in coastal zones, it will also analyze and state the importance of the key sectors which are integral to the overall development goals set forth in the NAPA.

61. The principal added-value of this project will be its contribution to the improvement of the government ´s capacities to plan and execute adaptive measures to climate change in coastal areas. This will be achieved through: ; (1) improved conditions for the government and local authorities to better address increased climate change risks through the strengthening of systemic capacities; (2) improved institutional coordination; (3) efficient programmatic finance for country-led national climate resilient national and local development plans; (4) increased knowledge and better access to information ; and (5) improved legal frameworks.

62. The pilot initiatives will be implemented and will provide with the necessary technical consultation platforms to improve climate change understanding. They will also provide with tools and information on two key vulnerability issues. : water and agriculture. This in turn will also serve increase the understanding and provide with solutions in fields related to disaster and risk management, urban planning and ecosystem management. Finally the results of these pilot

initiatives will be used to implement best practices with regard to most effective climate change threat preventive strategies

Policy Context

63. In December 1999, the Haitian government, with the endorsement of the Council of Ministers, published the National Environmental Action Plan (NEAP). The NEAP is the main policy which offers guidance on all aspects of environmental management. Its specific objectives are to:
    - Strengthen and rationalize the management of the National System of Protected Areas;
    - Restore the ecological balance of the watersheds through the implementation of exploitation norms and best practices;
    - Improve the quality of life through a better management of urban and rural areas as well as the valorisation and conservation of natural and cultural heritage;
    - Provide a framework to better reach coherence among plans and programs within the environmental sector.

64. Furthermore, after the January 12, 2010 earthquake, the Haitian government adopted the Action Plan for National Recovery and Development (PARDH) of Haiti which defines a long-term vision and approach for Haitiôs rebuilding. This framework for reconstruction focuses on four main areas;

    1. ***Territorial rebuilding***, including identifying, planning and managingg new development centers, stimulating local development, rebuilding affected areas, implementing economic infrastructure required for growth (roads, energy and communication), and managing land tenure, in order to protect property and facilitate the development of large projects.
    2. ***Economic rebuilding***, which will aim to modernize the various components of the agricultural sector, develop the export potential for of fruits and tubers, improve the situation of livestock farming and fisheries,; develop the construction sector with laws and regulations relating to earthquake-resistant and hurricane-resistant; promote manufacturing industries; and promote the development of tourism.
    3. ***Social rebuilding*** which will prioritize a system of education guaranteeing access to education for all children, improve university education and develop a health system ensuring minimum coverage throughout the country and social protection networks for the most vulnerable.
    4. ***Institutional rebuilding*** which will focus on making national institutions operational again by prioritizing the most essential functions; redefining the legal and regulatory framework to better adapt to the post disaster situation ; develop the capacities manage the reconstruction process and establish a culture of transparency and accountability in the country

LDCF Conformity

65. Haiti is included in the list of Least Developed Countries (LDCs) and Small Islands Developing States (SIDS). The country ratified the UNFCCC on 26 September 1996 and submitted its NAPA to the UNFCCC Secretariat in December 2006. Therefore, in consistence with guidance for the LDCF (GEF/C.28/18, May 12, 2006), GEF support is requested for developing a Full-Size Project (FSP) to respond directly to the priority actions related to coastal zones development identified during the NAPA process.

66. The project is aligned with LDCF goals since it will aim at funding the additional costs associated with addressing the most immediate and urgent adaptation needs and gaps in Haiti through ensuring climate-resilience of coastal zone development policies and other vulnerable sectors. This fits with the strategic objective of the LDCF which is to promote climate change resilient development in LDCs and secure attainment of MDGs. The project is clearly country driven since it proceeds from a national planning and consultation exercise involving a wide range of

stakeholders and yielding a broad-based consensus to tackle climate change threats in coastal zones as a priority area of intervention.

67. The proposed set of measures is also highly catalytic and will leverage additional co-funding from on-going and planned related initiatives. In addition, the project will facilitate the coordination between baseline activities conducted in LECZ, thus contributing to greater coherence, synergy and partnership at the national level. The three-pronged approach of the project (i.e. capacity building, policy dialogue/formulation and institutional strengthening, and piloting of demonstration actions) will prove highly cost-effective and sustainable. Finally, application of UNDP-GEF M&E standards and adaptive management protocols will guarantee efficiency of project implementation and high-impact and results.

Overall GEF Conformity

68. The project has also been designed to meet overall GEF requirements in terms of design and implementation. For example:
    - Sustainability: The project has been designed to have a sustainable impact, at community and at national level. See section on Sustainability below for more details;
    - Monitoring and Evaluation: The project is accompanied by an effective and resourced M&E framework, that will enable an ongoing adaptive management of the project, ensuring that lessons are learned, management decisions are taken based on relevant and up-to-date information, and regular progress reports are available for concerned parties;
    - Replicability: Great attention has been paid in the project design to ensure that lessons are replicable, and that the necessary replication mechanisms are in place. See section below on replicability for more details;
    - Stakeholder involvement: Following on from the NAPA process, the design of this project was effectively participatory. Moreover, the design of the project ensures the appropriate involvement of stakeholders in project monitoring and implementation.

2.2. Country ownership: country eligibility and country drivenness

69. Haiti ratified the UNFCCC in September 1996 and the Kyoto Protocol in July 2005. It has also ratified the GEF instrument. As such, Haiti is fully eligible for support under the GEF funds.

70. As a LDC, Haiti is fully eligible for funds under the LDCF. The first activity under the LDCF is the preparation of the NAPA. Haiti completed this and submitted to the UNFCCC in December 2006. As such, Haiti is eligible for GEF LDCF support to implementing its NAPA.

71. The preparation of the NAPA was a participatory identification and prioritisation process. The NAPA identified the several vulnerable sectors; however, our initiative will focus on the following: agriculture and water resources in coastal zones. The NAPA also identified the most vulnerable groups to be farmers and the people living in fragile regions: river beds, ravines, craggy hillsides and the coastlines of the most economically significant towns such as Port-au-Prince, Cap-Haitian, Gonaives and Saint-Marc. This proposed project responds directly and comprehensively to those urgent needs identified in the NAPA.

72. The NAPA has identified eight priority actions to be implemented immediately, which cover the vulnerable groups in the above-mentioned sectors. The priority actions include:
    - Priority 1: Watershed and grounds conservation
    - Priority 2: Coastal zone management
    - Priority 3: Promote and preserve of natural resources
    - Priority 4: Preserve and enhance food safety

- Priority 5: Protect and conserve water
- Priority 6: Construct and rehabilitate infrastructure
- Priority 7: Manage waste
- Priority 8: Raise awareness through education and information dissemination

73. Through the NAPA process, studies particularly focused on the vulnerability and the adaptation of the country to the climate change and related variables. As a result, several reports were produced on:
    - Evaluation of the vulnerability in the current climatic variations and in extreme meteorological phenomena.
    - The identification of the main measures of adaptation to climate change based on vulnerability evaluation.

74. The specific design of the proposed project builds on the above eight project concepts and the survey of coastal regions from the NAPA. Based on an analysis conducted by the Government of Haiti two departments of the country have been identified for pilot activities: the south-eastern Department and Southern Department. Both Departments are highly vulnerable to climate risk. Population density is high in both Departments and there are many ongoing development programs where strategic collaboration could be established with the current initiative.

75. Moreover, the project strategy and activities are consistent with local and national development priorities. It builds upon the existing local and national development plans including the PRSP which focuses on poverty reduction, environmental vulnerability and adaptation to climate change.

76. To maximize synergies between activities in Haiti, a thematic and systemic approach towards Integrated Coastal Zone Management (ICZM) is therefore suggested, in which the emphasis is on coastal development. In this respect, the general principles of ICZM will be applied to vulnerable coastal settlements, infrastructure and ecosystems as a result of climate change. Depending on how the countries prioritize their investment needs, it would be possible to 1) implement high priority actions identified in their national adaptation strategies, (2) scale-up successful disaster preparedness and vulnerability risk reduction activities at the community level in collaboration with the regional institutions, and (3) work on watershed management, hillside stabilization, and coastal zone planning, including infrastructure, tourism and ecosystems.

Stakeholder baseline analysis

77. In order to foster ownership of the project, the project document was formulated with the help of stakeholder consultations from the outset. These consultations included:
    - The Project Preparation Grant (PPG) Inception Workshop held in April 2009.
    - Informal consultations, during the PPG phase, with different governmental entities such as CIAT, MDE, DINEPA, CNIGS, CNSA, ONEV.
    - Log Frame Workshop held in PAP on July 28, 2010.

2.3. Design principles and strategic considerations

78. The project will work in conjunction with and benefit from other ongoing project interventions in Haiti in order to avoid duplication of project efforts and to benefit from synergies. Of particular, relevance are the following projects:
    - *National Program of Flood Early Warning (PNAP)*. This project is executed by the MARNDR. It supports the implementation of the initial stage of the Government's National Disaster and

Risk Management Plan. Specifically, it will finance three sets of activities for the national system for flood early warning: (a) equipment and related services will be procured in the three principal components of a flood early warning system, including hydro meteorological monitoring and forecasting equipment and stations, communications systems, and preparedness and response equipment; (b) institutional strengthening for the principal agencies involved; and (c)awareness and education campaign.

- *Capacity Building in and Mainstreaming of Sustainable Land Management in Haiti (GDT).* Financed by the GEF and executed by the MDE, the project aims at creating an enabling environment for SLM by developing capacities within appropriate government and civil society institutions/user groups and mainstreaming into government planning and strategy development to halt and where feasible to reverse desertification processes in Haiti. The project has 4 outcomes: 1) SLM principles are mainstreamed into national policies, plans and legislation; 2) Capacity building for SLM is enhanced through training and inter-sectoral approaches; 3) Capacities for knowledge and awareness for SLM strategies and options are developed including by development of Land Information Systems and land tenure assessments; and, 4) Resource mobilization in support of SLM is enhanced and an Investment Plan is developed.
- *Reducing conflicting water uses in the bi-national Artibonite River basin through development and adoption of a multi-focal area Strategic Action Programme*. This project is financed by the GEF and proposes to assists Dominican Republic and Haiti in improving the joint management of the bi-national Artibonite watershed, through an ecosystem level approach that addresses the upper, mid, and lower watershed as a single unit. It aims to remove the major barriers and constraints to sustainable land and water resources management, foster bi-national cooperation, and generate national, regional, and global benefits. A Transboundary Diagnostic Analysis of the watershed will enable both countries to better understand priority national and transboundary environmental issues and socio-economic root causes, and develop an agreed program of interventions. Through the formulation of a Strategic Action Programme (SAP), required priority interventions, reforms, and investments will be agreed to thereby laying the foundations for improved watershed governance at bi-national and national levels. Within the SAP process, national integrated watershed action plans will be developed to support implementation of a more comprehensive, ecosystem-based approach integrating IWRM and SLM principles into the management of the watershed. To assist this process, the project with establish a bi-national data and information management system as well as a monitoring and evaluation framework. On-the-ground investments and innovative demonstrations will be carried out in sustainable agriculture, soil and water conservation practices, and decentralized environmental management. The project will also promote the development of sustainable financial mechanisms for implementation of the SAP and the national integrated watershed action plans. These will include the identification of opportunities to support investments in environmentally sound, sector-specific business opportunities, and improvements in market access and transformation. Modalities for increasing access to credit by local producers will be identified to support sustainable practices and improved livelihoods.
- *Creation of a National Protected Areas System*. This project financed by the GEF addresses the alarming loss of biodiversity in Haiti, and the limited effectiveness of current protected areas for ensuring BD conservation, due to their limited access to reliable funding and planning. This will be done by promoting increased investment in PAs by the Government, in recognition of their importance for national development and vulnerability reduction; increasing the efficiency and effectiveness of the use of the funds available; and diversifying the sources of income available to PAs. The project will make a significant qualitative change to the functionality and sustainability of the PA system, allowing its highly important and threatened BD to be subject to effective conservation for the first time in the countryôs recent history, and creating favourable conditions for future expansion of the PA system to cover currently under-represented habitats.

The project will focus on laying the institutional bases for achieving financial sustainability in the NPAS, by stimulating increased investment in PA management, increasing the efficiency of the use of the resources available, and reducing the cost burden of PA management on the Government. Once conditions for financial sustainability have been established through the project, it will be possible for the Government to subsequently expand its effective presence into other protected areas which currently only exist on paper.

- *Support Programme for Environment Management (PAGE).* The PAGE project which is financed by UNDP focuses on systemic issues and on providing the necessary tools for more efficient decision making and resource use planning. Resource mobilization is a key aspect of the PAGE´s strategy. The objective is to leverage both funding and strategic partnerships to consolidate a coherent approach and achieve: 1) the strengthening of institutional and policy frameworks; 2) the strengthening of national capacities; 3) the development of a territorial approach to natural resource management from Ridge to Reef; 4) the development of an efficient information and monitoring mechanism for territorial management and conservation decisions; and 5) The strengthening of the bi-national dialogue on environmental management and vulnerability reduction
- *Programme for Developing the National System of Risks and Disasters (PDSNGRD).* The project is executed by UNDP and the goal of this project is to improve livelihoods of targeted populations through mitigating disasters and reducing vulnerability. Three objectives will be achieved: 1) to develop projects and activities in a participatory manner, with rapid impact on risk reduction; 2) to strengthen the institutions and actors responsible for promoting and coordinating the National System of Risk and Disaster Management; and 3) to mainstream risk management into the PRSP.
- *Watershed Initiative for Natural Environment and Resources (WINNER).* WINNER is executed by Chemonics and the purpose of the WINNER project is to invest in sustainable natural resource management at the scale and density needed to produce future positive landscape level reductions in environmental, infrastructural, and economic vulnerability in the Cul-de-Sac, Cabaret, Gonaïves/La Quinte, and other selected watersheds. This will be done In close collaboration with governmental institutions and former associations, the WINNER team works to achieve four results: 1) livelihoods of people living in the watersheds improved through increased agricultural productivity and alternative income generation sources; 2) critical infrastructure improved and the threat of flooding reduced; 3) watershed governance strengthened; and 4) public-private partnerships established. Thus, the WINNER project will enhance resilience and reduce climatic risks downstream.
- *Programme of Land-based Information for the Sustainable Development (PITDD)/CNIGS.* The PITDD project aims at supporting the sustainable development process in Haiti, through systematic implementation and effective exploitation of land-based information tools. It covers six thematic applications: 1) land use planning; 2) watershed management; 3) national parks management; 4) communication and geographic infrastructures; 5) agriculture and food security; and 6) global land observatory.
- *National Inventory for Establishing the Geo-referenced Baseline of the Drinking Water Sector.* This project lead by DINEPA aims to complete the geospatial database of the ONEV with the existing data scattered through different institutions. Once completed, data will be collected throughout the country relative to availability of water, pluviometric stations, localities, settlements, public drinking water and sanitation infrastructures, individual sanitation infrastructures and key actors. The captured data will be checked. On this basis, a national drinking water and sanitation action plan will be established for rural communities and cities less than10, 000 inhabitants.
- *Institutional Strengthening for Environmental Management Project (PRIGE)*. The activities of this project executed by the MDE aims at establishing a functional environmental governance

structure. It consists of three components as follows: 1) support to the national system of environmental management, including professional training in critical areas, structuring the National Environment Council (CONAE) and other coordination mechanisms; 2) capacity building for local environmental management, including implementation of pilot projects in resource management and restoration; and 3) strengthening of the national environment information system including the design of applications for future priority setting for management and restoration.

- *Support to Enhancing Food Security Monitoring in Haiti (ARSSA).* The objective of this project executed by the CNSA is to contribute to reduce food insecurity and poverty in Haiti through diffusing geo-referenced information and harmonizing food security programmes. Two results are expected: 1)the present decisions making tools related to food security are improved and information is published on a regular basis,; and 2) the consultation mechanisms between actors engaged in food security programmes are strengthened to improve intervention coordination.
- *The Pilot Program on Climate Resilience*. The PPCR which derives from the Strategic Climate Fund (SCF) of the Climate Investment Fund (CIF) is about to initiate its first phase in Haiti under the leadership of the World Bank and in close partnership with IADB and UNDP. The PPCRôs scope of activities proceed along two tracks; 1) region-wide activities focused on climate monitoring, institutional strengthening, capacity building, and knowledge sharing; and 2) country-based investments in a selected number of highly vulnerable countries in the Caribbean such as Haiti. In the case of Haiti, due to itsô lower level of preparedness, it will focus in extensive capacity building in conjunction with targeted national investments which fits within the current projects list of priorities for the reconstruction.

  Based on the *PPCR Guidance Note on Regional Programs,* measures for integrating climate resilience focusing on the coastal environment are proposed to all countries in the region, including Haiti. In the case of Haiti the PPCR will put emphasis on infrastructure and settlements thus complementing very efficiently the proposed project. In cases where sustainable upper watershed management is the key to improving coastal area resilience these activities would also be included in close coordination with the LDCF initiative. Efficient coordination mechanisms will be ensured between the two initiatives as these will both be coordinated under the leadership of the CIAT in close partnership with the MDE.

2.4. Pilot site selection

79. The project will implement priority interventions within 2 pilot sites across 2 departments of Haiti: In the southern Department the project will collaborate with the CNSA and focus on developing adaptive measure in the agriculture sector along the coastline. In the South Eastern Department, the project will collaborate with DINEPA on the resilience of the water sector in the South-East region

80. The pilot sites were identified through an intensive consultative process held at the national and community level. During the Inception Workshop (held in April 2009), teams of stakeholders from different sectors identified regions most vulnerable to climate change impacts. Once this was established, the country team explored the possibilities to collaborate with strategic organizations such as CNSA and DINEPA to identify the pilot sites for this project.

81. The pilot sites were selected according to following criteria;
    - Regions with high climate vulnerability
    - Opportunities in the water and agriculture sectors
    - Existing investments in hydro-climatic and agro-climatic monitoring
    - Population density and vulnerability

- Climate risks (drought, floods, hurricanes)

2.5. Project objective, outcomes and outputs/activities

82. The Goal of the project is strengthen Haitiôs capacity to mainstream climate change adaptation policies into local and national development plans. The Objective of the project is to strengthen adaptive capacities of populations and productive sectors in coastal areas to address increasing climate change risks. These will be addressed through the realization of the outcomes detailed below.

Outcome 1 ï Institutional capacities to plan for and respond to increasing coastal hazards improved.

Co-financing amounts for Outcome 1: $1,000,000

LDCF project grant requested: $510,000

Baseline Situation

83. In the baseline, in the absence of GEF support, coastal development policies would continue to favour short-term reactive responses to emerging hazards and would fail to properly integrate the risks associated with increasing climate variability. Coastal ecosystems in Haiti are experiencing growing levels of stress due to demographic development, traditional resource use for subsistence farming and household energy usage, farmersô limited financial resources and difficult access to credits, inappropriate agricultural practices, and due to the absence of a cohesive, inter-departmental government approach to management and development of resources within the coastal zone. Forecast impacts of climate change will generally increase pressures on natural ecosystems and severely affect living conditions of rural population, especially in coastal areas of Haiti. Though, there are numerous ongoing efforts to improve local governance and sustainable resource management in coastal zones, e.g. UNDPôs local governance project in the north-east and the Small Grant Programme (SGP). However, in the baseline scenario, local and national capacities to adapt to climate change would not be developed systematically.

Table 6: Institutions involved in Coastal Area Management in Haiti

Institution	Mission
Ministry of Agriculture, Natural Resources, and Rural Development	Enforcement of fishing regulations, policy formulation on fishery, promotion of different kind of aquaculture activities, training
Ministry of Environment	Policy formulation on Coastal Area Management, Conservation of coastal ecosystems, Abatement and control of coastal marine degradation including pollution, protection of landscape, training
Ministry of Public Works, Transports, and Communication covering; SEMANAH, APN (National Port Authority), BME (Bureau of Energy and Mines).	Regulation of shipping transportation and regulation of sand mining.
Ministry of Justice and Public Security, covering PNH (National Police of Haiti) and the Coast Guard	Law enforcement
Ministry of Culture and Communication	Protection of natural and historic coastal and marine heritage.
Ministry of Economy and Finance covering the Customs General Office	Tax Collection

Ministry of Planning and External Cooperation	Land use policy
Prime Ministerôs Office with the CIAT	Land use planning
Ministry of Tourism	Coastal development, promotion and tourism
Civil society organizations covering; National Fishing Association (ANP), National Hotel Association, universities	Lobbying, coastal development projects, tourism activities.

84. There are various different recent and ongoing projects related to outcome 1, Institutional Response Capacity Building for Coastal Hazards. For example, the UNDP has set up a broad program focusing on Crisis Prevention and Recovery, using emergency funds received after the 2008 hurricane season (see http://www.ht.undp.org/public/domainedetails.php?iddomaine=3). This programme finances reconstruction and thus contributes to improved hazard preparedness in the North-West, South-East, South and Artibonito Departments. Further, it also includes institutional capacity building with the national police corp. (PNH). Already since 2006, the project ñStrengthening of the National Risk and Disaster Management Systemò (SNGRD) has consistently developed the institutional capacities of the Office of Civil Protection (DPC), which has a central role in developing the national hazard response capacities throughout the country. Improved national hurricane preparedness is the main adaptive capacity developed through this project during the present phase 2009-2011.

85. Further, UNDPôs Environmental Management Support Program (PAGE) aims at strengthening institutional capacities within the MDE and the development of complementary institutions that will increase national implementation capacities of environmental policy and projects. Improved management of the natural environment and of the national territory is a key concern with regard to developing adaptive capacities and climate risk resilience. In parallel, UNDPôs ñPedernalesò project in collaboration with AECIDôs Araucaria programme elaborates a strategy for sustainable development based on a watershed management approach in the South-East department. Its methodological approach is also referred to as an example in the national dialogue about sustainable watershed and land management, which applies a holistic view of coastal agricultural plains, urban centres and severely degraded mountain slopes upstream in the same watershed. The involvement of decentralized structures of the MDE and public services, local authorities and the population, which mainly lives along the coast, makes this project a potential entry point for further development of institutional capacities with regard to climate risk management, prevention and response to coastal hazards.

Adaptation Alternative

86. In the adaptation alternative, the project will foster a policy shift from reactive crisis management to proactive and planned climate change risk management. The project will promote policy development and program design for coastal areas with a view to climate risk management. In close technical partnership with UNDP´s Bureau for Crisis Prevention (BCPR), LDCF funding will be used to develop the management skills of the SNGRD, such as improving the effective flood and drought management early warning systems, mapping vulnerable areas, improving evacuation strategies and implementing improved post disaster recovery methods. The project will do this by analyzing existing legislation, policies and programmes in the agriculture and water sector and based on lessons learned from pilot sites, make recommendations for additional modifications (for example, incorporating CC risk management into CIAT programmes and donor investments). In parallel the project will inform and raise awareness among all concerned stakeholders regarding adaptation to climate change. The lobbying and targeted awareness raising will be achieved through development of technical support tools to be adapted to the main concerns of the

stakeholders. The project will also support the development of information kits, and facilitate training programs.

87. The project will integrate technical and financial criteria into official Haitian guidelines for emergency fund utilization. The project will do this by analyzing the existing financial mechanisms and previous experiences on emergency fund mobilization and use to determine the efficiency of the state institution´s response to climate related disasters.

88. In addition, LDCF resources will be utilized to establish a data sharing network that will provide relevant climate information to agriculture producers. The project will in particular collaborate closely with the CIAT, CNIGS, CNM, DINEPA, CNSA and ONEV to create a data sharing network to collect, process and disseminate data to the vulnerable communities. Also, it will elaborate and build training programs for government technical staff on how to use and adapt regional and global climate models. And finally the project will implement the training programs.

89. Four Outputs will contribute to this Outcome:

Output 1.1: Develop management skills of National System for Risk and Disaster Management (SNGRD)in coordination with key sectoral agencies (agriculture, CIAT, etc.), such as developing effective early warning systems, mapping vulnerable areas and effective evacuation strategies and implementing improved post disaster recovery methods to facilitate a shift from a reactive approach to managing climate disasters to a proactive approach.

Indicative Activities

1.1.1. Analyzing and adapting existing legislation, policies and programmes in the agriculture and water sector to make sure they take into account mitigation of climate changes impacts

1.1.2. Develop planning tools to adapt the agriculture sector to increased frequency of extreme climatic events including early warning systems, adapted agriculture campaigns, alternative crop patterns, and rainwater conservation schemes.

1.1.3. Develop planning and training tools for the SNGRD to strengthen local development planning exercise and review risk and disaster management practices at municipal level taking into account climate change

1.1.4. Strengthen the capacities of the Ministry of Agriculture in coordination with the SNGRD to install efficient water storage and distribution systems adapted to a context of increased climate risks

1.1.5. Strengthen the capacities of DINEPA and its coordination mechanisms with the SNGRD to plan and install drinking water storage and distribution facilities.

1.1.6. Implement training programs on climate change, and adaptive measures in the fields of risk and disaster management, food security and water distribution at the level of municipalities and for local committees for disaster and risk management.

Output 1.2: Integrate cost-effective standards into official Haitian guidelines for emergency fund utilization regarding climate change adaptation.

Indicative Activities

1.2.1. Analyze the existing financial mechanisms to support the reconstruction of Haiti as well as previous experiences on emergency fund mobilization in order to identify all the gaps and barriers that constitute an obstacle for efficient climate proofing of development investments in Haiti

1.2.2. Review and adjust the current national investment policies and review criteria for funding proposals submitted to the interim committee for the reconstruction of Haiti.

1.2.3. Support key national institutions including sectoral ministries involved in recovery and reconstruction plans to integrate cost-effective standards for adaptation to climate change into their internal guidelines.

1.2.4. Identify vulnerable coastal sites where debris from the earthquake could be used for protection of coastal settlements (in particular slum areas).

Output 1.3: Strengthening the CIAT to integrate climate change adaptation into watershed planning of coastal municipalities.

Indicative Activities

1.3.1. Systematize climate change mainstreaming into CIAT ongoing efforts to produce national watershed management models and train CIAT staff in climate risk assessment and adaptation. The project will review carefully all the ongoing watershed management plans under development and propose climate proofing strategies. Particular attention will be given to the plans being developed for La Quinte; Jacmel and Grande Riveiere,

1.3.2. Develop and provide to the key national institutions collaborating with CIAT the necessary technical tools for decision making including database systems, and computer software,

1.3.3. Develop recommendations and guidelines for local authorities on watershed management and climate change.

Output 1.4: Establish a data sharing network to provide processed and accurate climate information to the producers of the raw data and to the end users.

Indicative Activities

1.4.1. Develop technical partnerships through formal agreements with key strategic institutions such as CNM, CNSA, CNIGS, UNIQ, DINEPA and ONEV

1.4.2. Develop a common data sharing network system among these institutions

1.4.3. Strengthen regional partnerships to support capacity building of these institutions. Formal agreements will be sought with CATHALAC and CATIE in particular

1.4.4. Support the Vulnerability Reduction unit of the CIAT and the SNGRD, to create common and coordinated approaches to collect, process and disseminate climate data to vulnerable communities and adapt existing early warning systems.

1.4.5. Elaborate and implement training programs for government experts on regional and national climate simulation models to forecast climate-based events at the national level.

Outcome 2 ï Climate Risks Management is fully mainstreamed into humanitarian and development investment frameworks.

Co-financing amounts for Outcome 2: $815,000

LDCF project grant requested: $370,000

Baseline Situation

90. In the baseline, the donor community, thus far, does not systematically ensure that the program they promote are climate proofed based on a thorough analysis the range of possible climate risk scenarios in Haiti. Also, the programmatic approach that is necessary to provide the required level of funding and coordination to accurately manage coastal hazards over the long run is missing. Current sectoral investment frameworks are simply not focusing on the risks that climate change is likely to entail in the country.

91. However, there are some initiatives that are currently exploring ways to climate proof development investments. UNDP for example, is conducting a study on the socioeconomic impacts on climate change with the support of the United Nationôs Economic Commission for Latin America and the Caribbean (CEPALC), which is expected to be completed in 2010. Additionally, the GEF funded International Waters (IW) watershed project for the integrated management of the transboundary Artibonito watershed (2009-12) will produce inter alia a watershed investment plan which will take into consideration all relevant climate change information and serve as a model.

92. The current platforms where donors meet (international donor conference on Haiti, the interim committee for the reconstruction of Haiti etc.) as well as the sectoral groups established after 2004 and where donors, national institutions and the civil society meet will all serve as the mechanisms through which the project will actively promote mainstreaming of adaptation to climate change concepts.

Adaptation Alternative

93. In the alternative scenario, the project will support the Ministry of Economy and Finance (MEF) in developing a methodology to integrate climate change costs into the institutional budgets. The project will also assist the MPCE in designing a national programmatic strategic framework for climate change adaptation within the bi-lateral and multi-lateral cooperation. More specifically, the project will provide the resources to the MEF so it can produce the necessary tools to assess climate change costs. The project will also assist the MEF in reviewing the annual national budget in order to climate proof public investments and develop mechanisms to link to Economic and Welfare Assistance Fund (FAES) as well as the Fund for Rehabilitation for Haitian Environment (FREH) to programs which will have climate change adaptation components. Finally the project will support the MEF and the MPCE to assess Haitiôs bi-lateral and multi-lateral development programs with regards to climate change adaptation and use the results of the assessment to design a national programmatic investment framework. A variety of sources, including national budgets, bilateral development cooperation agreements, country assistance programs of multilateral agencies, and private foundations will be pulled in by the project to contribute to these exercises.

94. Two outputs will contribute to this outcome

Output 2.1: Support MFE in developing a methodology to integrate climate change costs into the institutional budgets.

Indicative Activities

2.1.1. Provide the MEF with tools to assess climate change costs.

2.1.2. Assist the MEF in reviewing the annual national budget in order climate proof public investments.

2.1.3. Develop mechanisms to link to Economic FAES and FREH to fund projects/programs which has a climate change adaptation component.

Output 2.2: Assist the MPCE in designing a national programmatic strategic framework for climate change adaptation to guide bi-lateral and multi-lateral cooperation in and around coastal areas.

Outcome 3 ï Enhance the resilience of low-elevation coastal zones to emerging climate change threats through targeted pilot sites with co financing support.

Co-financing amounts for Outcome 3: $4,000,000

LDCF project grant requested: $1,550,000

Baseline

95. In the baseline scenario, current efforts to alleviate poverty, stimulating coastal economies, developing municipal infrastructure and enhancing disasters preparedness and recovery in LECZs will remain largely dispersed and limited in scope, with very little consideration paid to the new patterns of risk brought about by climate variability and change. These initiatives are unlikely to be sufficient for building the required adaptive capacity of the coastal sector.

96. The two main coastal management programs which have been implemented in the last 10 years in Haiti were financed by the IDB and implemented by the MDE. The programs included the Program of Coastal Zone Management (1998-2002) and Program of Strengthening Coastal Communities (2003-2004). USAID, through its DEED project, Watershed and Coastal Management (2008), is currently establishing a marine park in the coastal zone of the ñCote des Arcadins.ò In addition, this project ia also looking at ways to stimulate broad scale investments in sustainable natural resource management to stimulate better environmental management, develop sustainable infrastructures, and reduce the economic vulnerability in the selected coastal watersheds where it is operating.

97. UNEP-Haiti is also planning to develop a program in coastal zones, which at a national level, will focus on: 1) Policy development; 2) Technical assistance and advocacy; 3) facilitating interagency coordination. Within specific coastal zones UNEP-Haiti would focus on: 1) Developing marine assessment projects; 2) Developing marine areas management plans; 3) Facilitating interagency coordination and increased investment in this area; and 4) promote restoration programmes.

98. Currently, USAID through its project Winner is implementing a series of watershed management program with coastal components including rural development components: these are operating in the Cul de Sac, Cabaret, and Gonaives/La Quinte mainly. Four key results are sought: 1) Livelihoods of vulnerable populations improved through increased agricultural productivity and alternative income generation sources. 2) Critical Infrastructure Improved and flood risk reduced. 3) Waters governance strengthened. 4) Public-Private partnerships established.

99. In reaction to the devastating hurricane season in 2008,the Haitian Government launched in March 2009 a US$15 million programme aiming to protect five coastal cities which included Gonaïves, Cabaret, Léogâne, Jacmel and parts of Port-au-Prince. As a result, road and bridge infrastructures and riverbeds were improved in light of potential flooding, and storm water run-off channels and drainage systems were rehabilitated. These measures were very limited in scope and impact and have to be repeated almost annually.

100. Additionally, the National Direction of Drinking Water and Sanitation (DINEPA) has executed the project ñNational Inventory to set-up a geo-referenced baseline of the drinking water and sanitation Sector.ò The project has three objectives: 1) develop the geospatial database of the National Observatory of Drinking Water and Sanitation; 2) identify all existing sources of water and conduct an inventory of the available resources , install pluviometrical stations3) set up a national action plan for the drinking water and sanitation sector.

Adaptation Alternative

101. The alternative scenario will focus on both sectors: water and agriculture. The first pilot project, executed by the DINEPA, is proposed to establish enabling conditions for building the climate change resilience of the water sector in the coastal areas of the South-East region. This project would facilitate the systematization of environmental data and establish indicators related to climate change risk and vulnerability for the water sector. On this basis, water sources will be identified as well as the need for adaptation measures. These measures will be prioritized to be planned and implemented accordingly. Climate change adaptation tools will be developed for the water sector, for replication and up-scaling.

102. The second pilot project executed by the CNIGS, in collaboration with the CNSA, aims to establish enabling climate change adaptation conditions for improving agriculture tolerance to drought in the coastal areas of the Southern region. The project will develop the capacities for monitoring agro-climatic events, particularly drought and its impact on agriculture. To do so, the existing climate observation network related to agriculture will be enhanced in the area of drought monitoring. At which point, the available data and information could be produced to develop tolerance to extreme droughts in the region. Climate change adaptation tools relatively to drought will be developed for the agriculture sector, for replication and up-scaling.

103. Prior to the January 12, earthquake, Haiti also lacked the technical capacities to which are necessary to carry out field work. The earthquake further exasperated this problem by destroying much of the infrastructure, equipment and material the country may have had have been destroyed. Thus, the investments will be used to improve the technical capacities for DINEPA and CNIGS by providing the agencies with necessary equipment, software and construction material necessary for the planned works by the agencies. The funds will be used to purchase the proper equipment and material from other countries. As there is almost no existing technical capacity in the country at the moment, the investments will further aid installations in the project areas.

104. Two outputs will contribute to this outcome.

Output 3.1: Enabling conditions established to build the climate resilience of the water sector in the Coastal Areas of the South-East Department (DINEPA)

Indicative Activities

3.1.1. Systematization of hydro-climatic information.

3.1.2. Planning and implementation of climate change adaptation measures to protect and conserve identified water sources based on climate simulation and model analisis

3.1.3. Economic valuation of the investment needed to climate proof the water storage and distribution systems in the south East Department.

3.1.4. Testing of small scale rainwater harvesting and artificial recharge techniques

3.1.5. Development and dissemination of accurate tools (manuals, guidelines) for replication and up-scaling of the pilot project approach.

Output 3.2: Enabling climate change adaption conditions established to improve watershed resilience and tolerance to climate change-related drought in the coastal areas of the Southern Department (CNIGS/CNSA).

Indicative Activities

3.2.1. Monitoring system to analyse drought effects and impact on rural livelihoods in the watersheds of the Southern Departments where UNDP is leading several watershed management programs .

3.2.2. Establishment of an climatic observation network for the Southern Department

3.2.3. Economic valuation of the impact of climate change on the agriculture sector in coastal areas and development of an investment plan to climate proof the sector

3.2.4. Development and dissemination of accurate tools (manuals, guidelines) for replication and up-scaling of the pilot project approach.

Outcome 4 ï Capture and institutionalize models of best practices and lessons learned from the project activities.

Co-financing amounts for Outcome 4: $1,637,000

LDCF project grant requested: $720,000

Baseline

105. In the baseline, there are ongoing efforts to identify lessons related to strengthening adaptive capacity of populations and productive sectors in coastal areas and to disseminate these to other parts of Haiti. However, these efforts do not address adaptation to climate change. As there are no lessons available related to climate change adaptation in the baseline, at the moment, there are no systems in place to disseminate lessons.

Adaptation Alternative

106. Outcome 4 ensures that all activities implemented are adequately assessed that the lessons learned from their implementation are captured and disseminated to communities, provinces and other countries embarking on similar processes. Adapting to climate change is a new sector and requires innovation; this project is one of the first to support adaption in the Caribbean region. Hence, it is expected that the project will be a source of vital information on climate change adaptation in a user-friendly way to all relevant local communities, coastal area stakeholders and authorities.

107. Lessons from the implementation of this project are crucial for enhancing the understanding of approaches to adaptation that most countries, especially LDCs, will have to build upon in the future. This project provides an opportunity to pilot and operationalize interventions that improve adaptive capacity to climate change, including variability. A comprehensive learning component is important so that LDCs can learn from the experiences of each other, as well as disseminate lessons nationally. Linkages will be made to UNDP-GEFôs Adaptation Learning Mechanism (ALM) to

ensure that lessons from this project will reach a broader audience, including other international agencies, donors and the Secretariat of the Global Environment Facility (GEFSEC) who are likely to be engaged in similar initiatives in other countries.

108. The achievement under Outcomes 1, 2 and 3 will contribute to lessons on improving resilience to climate change, including variability. These lessons will form a crucial input to inform Haitiôs plans and strategies to adapt to climate change, including variability, over the coming years. GEF, through the LDCF, will play a pivotal role in enhancing local knowledge and capacities, which will in turn enable Haiti to scale up and replicate these interventions.

109. Four Outputs will contribute to this Outcome.

Output 4.1: Dissemination of toolkits, knowledge products and guidance materials on climate-resilient coastal development to key agencies, municipalities and local communities.

Indicative Activities

4.1.1. Systematic documentation of project related activities

4.1.2. Design useful knowledge products and toolkits.

4.1.3. Translation and publication of the products and toolkits.

4.1.4. Systematic and targeted dissemination of hard and soft copies.

Output 4.2: Thematic program on climate risk data management developed within the CNIGS, ONEV, CIAT.

Indicative Activities

4.2.1. Identify competent local and international partners to collaborative entities to gather information on climate change risks.

4.2.2. Thematic capacity building programs to strengthen their capacity to systematically manage climate risk relevant data.

Output 4.3: Project website developed as a knowledge platform.

Indicative Activities

4.3.1. Consult the stakeholders to establish the content that will be published in the website.

4.3.2. Regularly update content project related activities and topic related information.

Output 4.4: Project lessons prepared for dissemination through the Adaptation Learning Mechanism (ALM).

Indicative Activities

4.4.1. Develop a project communication strategy.

4.4.2. Prepare news briefs, hold workshops and round tables etc., in order to share lessons throughout the vulnerable regions.

4.4.3. Make regular contribution to the UNôs ALM.

2.6. Key indicators, risks and assumptions

110. See the Logical Framework Analysis in Part 7 (Section II) for details of Smart indicators, baseline values, end-of project targets and sources of information on. Part 7 also provides an explanatory note on the choice and pertinence of each indicator.

111. **Outcome 1** is ôInstitutional capacity to plan for and respond to increasing coastal hazards improvedõ. The indicators for achieving this are:
- Establish a rating system to evaluate quality of the plans. The ministries (agriculture, environment, and planning) have. The plans are then; a) conceived by the accountable structures in the government. b) once conceived, they discuss the plans, finalize it and validate the plans by the three ministries (agriculture, environment and planning); c) once they are validated, the plans are implemented and coordinated. This will be assessed by reviewing the existing plans for the concerned organizations.
- Number of guidelines and tools do these ministries, i.e., agriculture, environment and planning have. This will be measured based on questionnaires and surveys.
- Percentage of communal with published emergency evacuation plans. This will be measured by the percentage increase in communal with emergency plans compared with average levels at the beginning of the project.
- Number of people evacuated safely from coastal areas during hurricane season. This will be based on surveys regarding number of evacuated people in each communal.

112. There is one notable risk that, even if all the Outputs and Activities under this Outcome are delivered optimally, the Outcome will not be realised. These risk is:
- Insufficient coordination between line ministries and institutional instability which was further degraded by the recent earthquake slow down the intended project activities.- Medium. However, a strong commitment from the government and the political leadership of the MDE minimize such a risk. In addition, the project will be prepared and carried out under the oversight of the PSC, which brings together the main government institutions concerned with this project. The committee, placed under the authority of the MDE, will play a strong facilitation role and will ensure a high level of coordination between sectors.

113. **Outcome 2** is ôClimate Risks Management is fully mainstreamed into humanitarian and development investment frameworksõ. The indicators for achieving this are:
- Percentage of investment frameworks incorporating climate risks. Investment frameworks financed by the project will be assessed.
- Percentage of humanitarian and development organizations that include climate risks in their mandates. This will be assessed through a review f the organizational structures.
- Percentage of municipalities committed to climate change adaptation. This will be measured by percentage increases in municipalities compared with the average numbers at the start of the project.

114. There is one notable risk that, even if all the Outputs and Activities under this Outcome are delivered optimally, the Outcome will not be realised. The risk is:
- Low absorptive and technical capacities of national institutions results in delays and sub-optimal performance of the project ï High. In order to mitigate the associated risk, the project budget requested is clearly within the financial scope of projects usually administered by the Haitian government. Also, UNDP-GEF quality management procedures will be applied so as to secure high delivery rates throughout implementation. In addition, the project will make a particular effort to introduce tools and technologies that are accessible to government staff and

communities, and which show a high replicability potential under the Haitian context. Introduction of more sophisticated innovations will mobilize technical assistance of international experts and will be accompanied by strong capacity building and training activities.

115. **Outcome 3** is óResilience of low-elevation coastal zones to emerging climate change threats enhanced through targeted pilot sites with co financing support. The indicators for achieving this are:
    - Enhanced awareness and response to climate change and its impacts by the pilot area populations. This will be assessed through dedicated surveys financed by the project and implemented by experts in environmental surveys.
    - Number of communities served by EWS. This will be assessed by through surveys of community EWS availability.
    - Number of individuals engaged in livelihood options. This will be verified by employment data through the local municipalities.

116. There is one notable risk that, even if all the Outputs and Activities under this Outcome are delivered optimally, the Outcome will not be realised. The risk is:
    - Political instability or degradation of the security situation may hamper the project from operating normally and effectively ï Medium. However, Currently, the MINUTAH forces are solidly installed in the country and have largely contributed to pacifying the country. The crime rate has dramatically decreased since 2004 and the recent presidential election did not result in domestic troubles and conflicts. The current government has yielded a strong consensus among all segments of the Haitian society. The current political situation is therefore very conducive to internationally supported projects and is likely to remain the same throughout the life of the proposed intervention.

117. **Outcome 4** is óModels of best practices and lessons learned from the project activities captured and institutionalizedô. The indicators for achieving this are:
    - Number of ólessons learnedô codified about managing climate change risks through coastal management as a result of this project. This task will be accomplished through the organization of a database that will enable local, national and international access to project information.
    - Number of men and women (public and decision makers) having access to best practices and lessons learned from project activities. This will be measured through surveys.
    - Number of ólessons learnedô disseminated through the ALM platform and other regional networks. This will be assessed through surveys given to partners.

118. There is one notable risk that, even if all the Outputs and Activities under this Outcome are delivered optimally, the Outcome will not be realised. The risk is:
    - 1) Occurrence of natural disasters during preparation or implementation phase may deviate government and donors' attention and contribution from the project; 2) the sheer vastness of the country may hamper the effective sharing of information across provinces; and 3) the recent collapse/damage of institutional structures may slow down the effective sharing of information across provinces.ï Medium. In order to help mitigate this risk, the governmentôs strong and long-term commitment towards implementing the NAPA priorities minimizes such a risk. In addition, any climate change induced disasters that could possibly occur during the lifetime of the project would only reinforce the relevancy of the intervention as well as the political will to address the most pressing vulnerabilities to climate change. Also, the programmatic approach taken by the project should keep the risk of volatility of funds to a minimum.

2.7. Cost-effectiveness

119. During the NAPA process, the actions proposed in this PIF have been compared against a large array of adaptation alternatives and selected through a Multi-Criteria Analysis (MCA) that used cost-benefit ratio as one of the decision criteria. The proposed interventions clearly came out of this prioritization process as the cheapest and most effective means to achieve the desired adaptation outcomes in LECZ. In addition, the project will promote CRM strategies that are predicated on preventive and ñsoftò coastal management practices, rather than on costly engineering and ñhardò responses to climate hazards which have proven very costly and unsustainable in most instances. Also, the programmatic approach taken by the project and its embedding into existing national programmes will ensure lower transactions costs, higher impacts and greater profitability over the long run. During the PPG implementation phase, these considerations will be further elaborated and cost-effectiveness of the outputs proposed in this PIF thoroughly assessed. When the final proposal is submitted for CEO Endorsement it will contain all the necessary justifications for cost-effectiveness.

120. In addition, cost-effectiveness has been reflected in the project design on several levels:
    1) An Adaptation Benefit and Cost analysis has been performed for all project Outcomes;
    2) Throughout the project, LDCF funding is aligned with project Outputs that have competitive procurement components to ensure best value for money;
    3) The project has made a successful effort to secure cash co-financing of the project, which diversifies financial risks and increases financial flexibility.
    4) Additional due diligence will be conducted by the project team during project implementation, as per established UNDP practices.

2.8. Sustainability

121. The concept of sustainability differs for adaptation to climate change projects, compared with other types of GEF-funded projects. This is because adaptation projects seek to raise the adaptive capacity to long-term climate change. Consequently, raised adaptive capacity automatically implies sustainability. In addition, the project has the following elements to increase sustainability.

Ecological Sustainability

122. Given that an overall aim of the project is to strengthen adaptive capacity of populations and productive sectors in coastal areas to address increasing climate change risks, all elements of the project approach should contribute to ecological sustainability. This should include: watershed conservation and management, soil improvement and conservation, sustainable fishing methods, mangrove restoration and better construction of dwellings in the coastal areas.

Institutional Sustainability

123. This is important at both local and national governance levels. At local levels, the main measures in the project design to achieve this are: training for local people; activities to improve economic and market conditions locally; using existing consultation and decision-making structures as a basis for all project planning; and integrating all actions into existing, approved local development plans.

124. It is important to note that the ódemonstrationô aspect of the project has implications for sustainability. In part, the project aims to demonstrate innovation, and to capture lessons learned. Both of these are processes which require financing. Once something has been ódemonstratedô, it

does not require demonstrating again, so the costs associated with demonstration can be one-off (and do not need to be recovered).

125. At the national level, although the stakeholders and issues are different, the approach to assure institutional sustainability is the same. There will be important lobbying to secure political commitment, and the direct involvement of MDE and UNDP CO can help ensure that. Moreover, there will be significant training to ensure that qualified personnel remain after the project. In addition, all project activities will be designed and approved by using existing consultation and decision-making structures, and all activities will be an integral part of existing (approved) development and sectoral plans. The project is an integral component of the NAPA, and hence of the NRDPM and PRSP.

Economic Sustainability

126. This is particularly important at local levels. It has two aspects: first, that the pilot sites have the necessary financing to maintain investments and make new investments, as necessary, after the project has terminated; second, to ensure that other coastal areas have the financing required to make similar investments to adapt to climate change.

2.9. Replicability

127. Climate change adaptation is at an early stage of development both in Haiti and throughout the Caribbean region. In fact, this project is the first ever climate change related project in Haiti. This project can therefore identify new and innovative mechanisms for adaptation to climate change in coastal zones. These mechanisms will be useful to other countries facing similar challenges. Accordingly, this project is explicitly designed to facilitate the replication of successes and lessons learned. The strategy for this replication is two-fold:
    - First, pilot adaptation in a range of situations, with diverse climatic, geographical, political and civil characteristics. This will lead to the generation of a sizeable body of lessons and experiences;
    - Under Outcome 4, actively and strategically disseminate lessons learned. Outcome 4 focuses almost entirely on this. Replication is envisaged to cover other coastal areas in the project intervention area. Under Outcome 4, a range of inputs and activities will be organised to actively ensure this replication.

128. The project will make use of the GEF ALM, to ensure that the lessons learned from the project contribute to, and benefit from, experience in adapting to climate change across the whole of the GEF portfolio.

2.10. Stakeholder Involvement Plan

129. There is currently no structured institutional framework for managing sector-specific climate change risks in Haiti; although the government has mandated the Climate Change Division within the Ministry of Environment to manage climate change issues, this national-level structure is insufficient to ensure appropriate integration of climate risks into sectoral planning at various levels.

130. The analysis of stakeholders undertaken during the project preparation phase notes that stronger and sustained collaboration among stakeholders in government, academia, civil society and the private sector should be developed and implemented in the context of the current project. The matrix below gives a descriptive summary of specific stakeholders, their affiliations and their contributions to the project preparation and implementation phases.

Table 7: Stakeholder Contribution Plan

Institution	Affiliation	Contribution to the Project during preparation and implementation
Ministry of Environment (MDE)	State	Issues related to the conservation of coastal ecosystems, EWS, formulation of environmental policies.
Ministry of Agriculture and Natural Resources and Rural Development (MARNDR) CNSA	State	Issues related to watershed management, land resources management, food security, EWS and forestry.
Prime Minister Office CIAT	State	Issues related to land use planning
Ministry of Public Works (MTPTC) covering: DINEPA BME SMCRS	State	Issues related to building and land management, managing potable water and sanitation system, and waste management.
Ministry of Planning (MPCE), covering; CNIGS	State	Issues related to territory zoning, land use, climate change data collection and monitoring topographical changes.
Ministry of Economy and Finances, covering; FAES	State	Issues related to fiscal incentives for sound environmental management, baseline research for GEF funded projects covered through FAES.
Ministry of Health (MSPP), covering; POCHEP DHP	State	Issues related to water quality control.
Ministry of Culture and Information	State	Issues related to protection of natural and historic coastal marine zones.
Ministry of Trade and Industry	State	Issues related to sustainable development and improved construction practices.
Ministry of Tourism	State	Issues related to ecologically sustainable tourism infrastructure development.
Ministry of Justice and Public Security, covering; PNH (National Police of Haiti)	State	Issues related to law enforcement.
Ministry of National Education and Vocational Training	State	Issues related to development of environmental inclusive curriculum to increase awareness among the public.
MICT, covering; DPC OPDES OSAHM	Private	Issues related to baseline actions, hazard reduction and disaster management.
NGO, Private Commercial Enterprises, & Universities	Local Government	Issues related to climate change awareness, research and analysis as well as development of training methodology and materials.
Municipalities	Local Government	Issues related to the enforcement of site specific urban land use planning laws and facilitation of climate change adaptation methods of construction.
UNDP	Multilateral Agency	Issues related to climate change vulnerability reduction
USAID	Bilateral	Issues related to reducing climate risks and

	Agency	to providing climate information
Community Based Organizations (CBOs)	Private	Issues related to information dissemination on local knowledge on adaptation measures, and execution of local activities and community land use planning.

3. PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: Environment and natural resources management improved					
Country Programme Outcome Indicators: **1) Strategic, legal, institutional and communicational frameworks are developed, and their implementation promoted in order to better address environmental and natural resources management problems at the national and local levels.** **2) Tools and systems to improve access to drinking water, sanitation services, and management of solid wastes are developed and implemented.**					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR 2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.					
Applicable SOF (e.g. GEF) Strategic Objective and Program:					
Applicable SOF (e.g. GEF) Expected Outcomes:					
Applicable SOF (e.g. .GEF) Outcome Indicators:					
	Indicator	**Baseline**	**Targets** **End of Project**	**Source of verification**	**Risks and Assumptions**
Project Objective[32] **To strengthen adaptive capacities of populations and productive sectors in coastal areas to address increasing climate change risks**	1. 1. Number of existing department to integrate climate change risks into departmental plans 2. Number of related ministries, municipalities, CBOs and research institutions implementing climate change adaptation activities.	1. None of the current existing departments integrate climate risks into planning processes. 2. None of the current set of (ministries, municipalities, CBOs and research institutions) implement cc-adaptation related activities.	1. Increase in current number by 100%. 2. Increase the current number by 50% over established baseline at the beginning of the project.	1. Publication of the ToRs and the list of individuals for the established department. 2. Surveys	1. The impacts of climate change are far greater than predicted, for example, much more rain. 2. The agriculture, water resource sectors in coast zones are affected by globally-induced crisis. 3. The logistic challenges from the recent earthquake further slow down the capacity strengthening activities in already fragile areas. 4. Needs of women are not taken seriously by the communities.
Outcome 1[33] Institutional capacity to plan for and respond to increasing coastal hazards improved	1. Allocation of budget for CC adaptation targets in sectoral plans (Ministries, CIAT; SNGRD) 2. Percentage of vulnerable communes	1. None	1.CIAT, MDE, MPCE, MARNDR; SNGRD; CNIGS, DINEPA; ONEV; CNSA all allocate budget lines to clearly defined adaptation targets 2.30 communes with EWS adapted to increased climate risks and	1. Review of sectoral plans 2. Review of municipal plans 3. Review of institutional guidleines	1. Insufficient coordination between line ministries and institutional bottlenecks prevent successful formulation and implementation of the project. 2. Countryôs political stability which was affected in the aftermath of the recent

[32] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*

[33] *All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.*

	with published emergency evacuation plans adjusted to take into account increased climate risks 3. Strengthened capacities to understand and address adaptation to CC in Haiti	2. 20 communes with EWS 3. none	communal development plans with CC adaptation criteria 3.Key development institutions (CIAT, Primature, MARNDR; MDE;MPCE;MICT; MTPTC;MSPP; CNIGS; ONEV;CNSA) trained in adaptation to CC and with installed technical capacities capable of implementing adaptation actions according to NAPA	4. Review of budget allocation and adaptation targets 5. Questionnaires and surveys. 6. Surveys of CBOs, NGOs and international organizations	earthquake
Outcome 2 Climate Risks Management is fully mainstreamed into humanitarian and development investment frameworks	1. Percentage of national investment frameworks incorporating adaptation to climate risks. 2. Percentage of humanitarian and development organizations with adaptation targets and budget lines	1.Some NGOs are starting to incorporate CC adaptation within donor financed investment plans 2. None of the national policy and investment frameworks (post disaster recovery plan, national plans for poverty reduction etc..) include adaptation to CC targets	1) 50% of the programmes funded through the interim commission for the reconstruction of Haiti include adaptation to CC targets and clear budget allocations 2) 60% of the donor organizations operating in Haiti have included adaptation to CC in coastal areas as a priority of their investment 3) 100% of the national development policies and plans have budget allocated to address clear adaptation to CC targets in coastal areas	1. Review of donor funded programs in Haiti 2. Survey of donor organizations 3. Review of policy documents	1. Low absorptive and technical capacities of national institutions results in delays and sub-optimal performance. 2. Major disaster or political instability forcing donor community and central government to review investment priorities
Outcome 3 Resilience of low-elevation coastal zones to emerging climate change threats enhanced.	1. Enhanced awareness and response capacity to climate change and its impacts by the communities in pilot areas 2. Adaptation technologies by technology types transferred to targeted areas 3. Strengthened capacities to address climate risk in rural	1. Current field programs efforts remain largely dispersed with very little consideration paid to the new patterns of risk brought about by climate variability and change 2. No information available on the effect of CC on the water sector in coastal areas and no mitigation plans available 3. No information	1. 100% increase in the outreach and sensitization activities in all the communes in the pilot areas 2. Investments needs identified to climate proof the water sector in the southern departments and relevant adaptation technology in targeted areas installed 3. Investment needs identified to climate proof rural livelihoods in targeted vulnerable watersheds and efficient monitoring system in place to guide adapted transfer of technology in targeted areas	1. Municipal surveys 2. Verification of technology installed in targeted areas 3. Review of contracts and ToRs	1. Political instability or degradation of the security situation may hamper the project from operating normally and effectively 2. Major disaster forcing to review investment priorities

	livelihoods strategies in targeted areas	available on the effect of CC on rural livelihoods in vulnerable watersheds and no mitigation plans available			
Outcome 4 Models of best practices and lessons learned from the project activities captured and institutionalized	1. Number of ódessons learnedô systematized about managing climate change risks in coastal areas 2. Number of men and women (public and decision makers) having access to best practices and lessons learned from project activities. 3. Number of ódessons learnedô disseminated through the ALM platform and other regional networks.	1. There is very little available information on the adaptive capacities of populations and productive sectors in coastal areas (the baseline will be determined at the inception phase). 2. Gender related data are currently not available. The baseline will be determined at the inception phase. 3. The baseline will be determined at the inception phase.	1. existence of knowledge forums and networks on adaptation to CC by the end of the project 2. By the end of the project, at least ñ30ò% of the women have access to best practices and lessons learned from the project in targeted areas over baseline established during the start up phase of the project. 3. By the end of the project, project lessons are distributed in hard copy (e.g. pamphlets, briefing notes, newsletters, booklets, etc), electronically (e.g. via the project database), and via national and local workshops. 4. Halfway through the project, a database is operational and regularly updated with project information.	1. database that will enable local, national and international access to project information. 2. Gender-sensitive surveys among communities. 3. Participation in workshops. 4. Project evaluation report, ALM, publications, studies, reports, and media reports	1. Occurrence of natural disasters during preparation or implementation phase may deviate government and donors' attention to the project. 2. The recent collapse of all the major institutional structures may slow down the effective sharing of information across communes and departments

4. TOTAL BUDGET AND WORKPLAN

Award ID:	00058845	**Project ID(s):**	00073302
Award Title:	Strengthening Adaptive Capacities to Address Climate Change Threats on Sustainable Development Strategies for Coastal Communities in Haiti		
Business Unit:	HTI10		
Project Title:	Strengthening Adaptive Capacities to Address Climate Change Threats on Sustainable Development Strategies for Coastal Communities in Haiti		
PIMS no._____	3971		
Implementing Partner (Executing Agency)	Inter Ministerial Committee of Land Use Planning		

GEF Outcome/Atlas Activity	Responsible Party / Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:
OUTCOME 1:		**62160**	**LDCF**	71200	International Consultants	31,000	40,000	42,000	45,000	158,000	1
				71300	Local Consultants	10,000	13,000	14,000	16,000	53,000	2
				72100	Contractual services	9,000	12,000	13,000	16,000	50,000	3
				72800	Information & Technology Equipment	20,200	26,670	26,600	38,691	112,161	4
				72200	Equipment & Furniture	16,160	19,050	18,620	20,860	74,690	5
				72500	Office Supplies	5,606	7,950	11,478	8,940	33,974	6
				71600	Travel	8,463	9,686	7,980	4,470	30,599	7
Institutional capacity to plan for and respond to increasing coastal hazards improved				74500	Miscellaneous	2,821	2,153	3,990	4,112	13,076	8
			...		**Sub-total LDCF**	**103,250**	**130,509**	**137,668**	**154,073**	**525,500**	
			CoF		**Sub-total CoF**	**354,000**	**304,000**	**304,000**	**254,000**	**1,216,000**	
					Total Outcome 1	**457,250**	**434,509**	**441,668**	**408,073**	**1,741,500**	
OUTCOME 2:		**62160**	**LDCF**	71600	Travel	10,000	14,000	10,000	7,000	41,000	9
Climate Risks Management is fully mainstreamed				71200	International Consultants	27,000	37,000	37,000	32,000	133,000	10
				71300	Local Consultants	12,000	16,000	14,000	13,000	55,000	11
				72200	Equipment & Furniture	16,000	19,000	20,000	16,000	71,000	12

into humanitarian and development investment frameworks				72100	Contractual services	9,000	11,000	11,500	10,000	41,500	13
				72500	Office Supplies	7,000	8,000	9,000	8,000	32,000	14
				74100	Professional Services	17,000	24,000	25,000	26,000	92,000	15
					Sub-total LDCF	**98,000**	**129,000**	**126,500**	**112,000**	**465,500**	
			CoF		**Sub-total CoF**	**282,500**	**257,500**	**222,500**	**182,500**	**945,000**	
					Total Outcome 2	**380,500**	**386,500**	**349,000**	**294,500**	**1,410,500**	
OUTCOME 3:		**62160**		71600	Travel	15,000	31,000	35,000	38,000	119,000	16
Resilience of low-elevation coastal zones to emerging climate change threats enhanced				72200	Equipment & Furniture	40,000	117,000	133,000	148,000	438,000	17
				72100	Contractual services	20,000	41,000	48,000	56,000	165,000	18
				72500	Office Supplies	11,000	20,000	19,000	18,000	68,000	19
				71300	Local Consultants	15,000	40,000	43,000	57,000	155,000	20
				71200	International Consultants	80,000	170,000	181,000	175,000	606,000	21
				74100	Professional Services	35,000	71,000	92,000	110,000	308,000	22
					Sub-total LDCF	**216,000**	**490,000**	**551,000**	**602,000**	**1,859,000**	
			CoF		**Sub-total CoF**	**1,679,000**	**1,429,000**	**929,000**	**679,000**	**4,716,000**	
					Total Outcome 3	**1,895,000**	**1,919,000**	**1,480,000**	**1,281,000**	**6,575,000**	
OUTCOME 4:		**62160**	**LDCF**	71600	Travel	4,000	6,000	4,000	3,000	17,000	23
Models of best practices and lessons learned from the project activities captured and institutionalized				72100	Contractual services	6,000	5,500	5,000	4,000	20,500	24
				74500	Miscellaneous	3,000	3,000	2,000	1,000	9,000	25
				72200	Equipment & Furniture	12,000	16,000	15,000	14,000	57,000	26
				72500	Office Supplies	6,000	7,000	7,000	6,000	26,000	27
				71200	International Consultants	38,000	35,000	31,000	30,000	134,000	28
				71300	Local Consultants	9,000	10,000	11,000	6,500	36,500	29
					Sub-total LDCF	**78,000**	**82,500**	**75,000**	**64,500**	**300,000**	
			CoF		**Sub-total CoF**	**573,500**	**511,500**	**470,500**	**399,500**	**1,955,000**	
					Total Outcome 4	**651,500**	**594,000**	**545,500**	**464,000**	**2,255,000**	
Project Management Unit		**62160**	**LDCF**	71200	International Consultants	17,000	18,000	0	0	35,000	30

				71300	Local Consultants	51,000	51,000	51,000	51,000	204,000	31
				71600	Travel	5,000	6,000	5,000	5,000	21,000	32
				72200	Equipment & Furniture	30,000	25,000	20,000	15,000	90,000	33
					Sub-total LDCF	**103,000**	**100,000**	**76,000**	**71,000**	**350,000**	
			CoF		**Sub-total CoF**	**280,000**	**250,000**	**238,000**	**180,000**	**948,000**	
					Total Project Management	**383,000**	**350,000**	**314,000**	**251,000**	**1,298,000**	
	Totals by source		**LDCF**		**Sub-total LDCF**	**598,250**	**932,009**	**966,168**	**1,003,573**	**3,500,000**	
			CoF		**Sub-total CoF**	**3,169,000**	**2,752,000**	**2,164,000**	**1,695,000**	**9,780,000**	
					PROJECT TOTAL	**3,767,250**	**3,684,009**	**3,130,168**	**2,698,573**	**13,280,000**	

Summary of Funds

Donor Name	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)
GEF	598,250	932,009	966,168	1,003,573	3,500,000
MDE	800,000	750,000	700,000	650,000	2,900,000
CIAT	750,000	600,000	350,000	300,000	2,000,000
UNDP	50,000	50,000	50,000	50,000	200,000
CNIGS	500,000	400,000	350,000	250,000	1,500,000
CNSA	60,000	50,000	40,000	30,000	180,000
DINEPA	875,000	775,000	725,000	625,000	3,000,000
TOTAL	**3,633,250**	**3,557,009**	**3,181,168**	**2,908,573**	**13,280,000**

Budget Summary by GEF Outcomes

GEF Outcome	Budget	Percentage of total budget (%)
OUTCOME 1: Institutional capacity to plan for and respond to increasing coastal hazards improved	525,500	15.01%
OUTCOME 2: Climate Risks Management is fully mainstreamed into humanitarian and development investment frameworks	465,500	13.30%
OUTCOME 3: Resilience of low-elevation coastal zones to emerging climate change threats enhanced.	1,859,000	53.11%
OUTCOME 4: Models of best practices and lessons learned from the project activities captured and institutionalized	300,000	8.57%
Project Management Unit	350,000	10.00%
TOTAL	**3,500,000**	**100**

ATLAS Budget Summary

Atlas Budgetary Account Code	ERP/ATLAS Budget Description/ Input	Year1 US$	Year 2 US$	Year 3 US$	Year 4 US$	Total US$	%
International Consultants	71200	193,000	300,000	291,000	282,000	1,066,000	30.46%
Local Consultants	71300	97,000	130,000	133,000	143,500	503,500	14.39%
Travel	71600	42,463	66,686	61,980	57,470	228,599	6.53%
Contractual Services-Companies	72,100	44,000	69,500	77,500	86,000	277,000	7.91%
Equipment and Furniture	72200	114,160	196,050	206,620	213,860	730,690	20.88%
Information & Technology Equipment	72800	20,200	26,670	26,600	38,691	112,161	3.20%
Office Supplies	72500	29,606	42,950	46,478	40,940	159,974	4.57%
Professional Services	74100	52,000	95,000	117,000	136,000	400,000	11.43%

Miscellaneous Expenses	74500	5,821	5,153	5,990	5,112	22,076	0.63%
Totals		**598,250**	**932,009**	**966,168**	**1,003,573**	**3,500,000**	**100.00%**

Budget Notes Pertaining to Total Budget and Workplan

Atlas Description	Atlas Code	Budget Notes
Outcome 1- Institutional capacity to plan for and respond to increasing coastal hazards improved		
1. International Consultants	71200	Funds allocated for hiring international consultants with expertise in capacity development (total cost US$158,000)
2. Local Consultants	71300	Funds allocated for hiring of local consultants with local knowledge on the coastal hazards (total cost US$53,000)
3. Contractual services	72100	Contractual services of technical, legal and political expertise and for assistance with the preparation of the necessary legal instruments; technical base and capacity building for government officials and legislators in each department. (total cost US$ 50,000)
4. Information & Technology Equipment	72800	Office equipment (Computers, notebooks, scanner) for technical assistance (total cost US$ 112,161)
5. Equipment & Furniture	72200	Necessary equipment and furniture to be purchased (total cost US$74,690).
6. Office Supplies	72500	Fuel costs; services, office maintenance and supplies; security and insurance costs; banking costs and incidental expenses (total cost 33,974).
7. Travel	71600	Travel costs for coordinators and consultants to for questionnaire and survey takings and other outcome 1 related activities (total cost US$ 30,599).
8. Miscellaneous	74500	Telephone, internet costs and postage, Unforeseen expenses incurred by currency fluctuations (total cost US$ 13,076).
Outcome 2 – Climate Risks Management is fully mainstreamed into humanitarian and development investment frameworks		
9. Travel	71600	Airfares, land travel costs, vehicle maintenance aimed at gathering and collating financial information on humanitarian and development frameworks, signing formal agreements and developing, coordinating and testing financial mechanisms (total cost US$41,000).
10. International Consultants	71200	Hiring of international consultants with expertise in climate risk management, investment frameworks and CC (total cost US$133,000)
11. Local Consultants	71300	Hiring of local consultants with expertise in local humanitarian development investment frameworks (total cost US$55,000)
12. Equipment & Furniture	72200	Purchasing of equipment and furniture related to outcome 2 (total cost US$71,000)

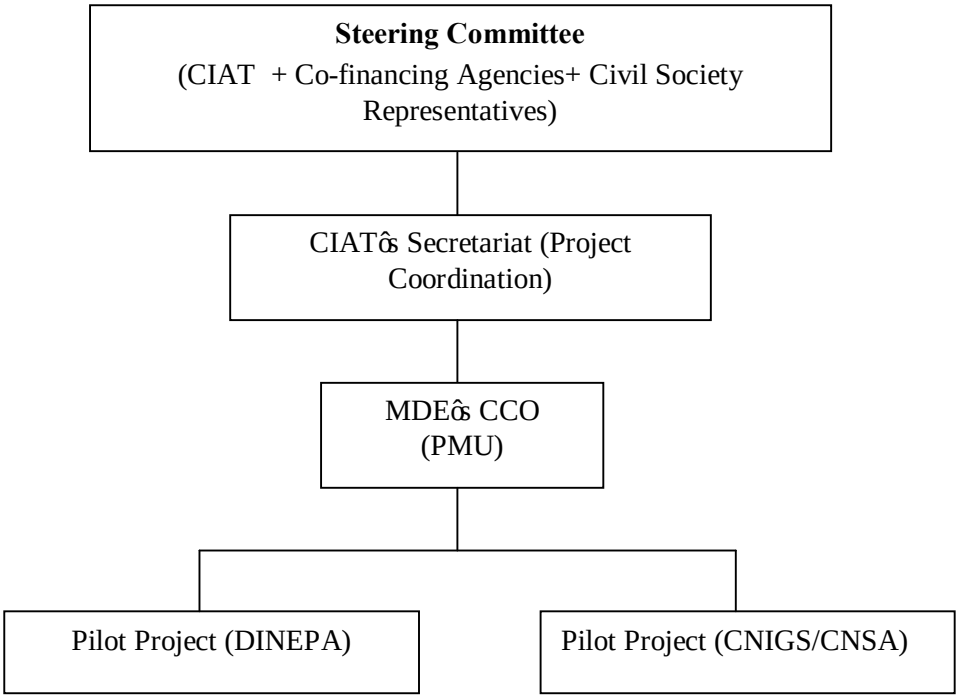
13. Contractual services	72100	Contracts with local and international research institutions, universities and NGOs for services and expertise involving research on climate risk management, financial mechanisms, baseline financial studies of selected PAs, and monitoring of implementation of financial mechanisms (total cost US$41,500).
14. Office Supplies	72500	Supplies and workshop materials for the development of sustainable financial mechanisms (total cost US$323,000)
15. Professional Services	74100	Services to review the existing investment frameworks incorporating climate risks, % of humanitarian and development of organizations that include climate risks in their mandates and % of municipalities committed to CC adaptation (total cost US$92,000).
Outcome 3 – Enhance the climate change resilience of low-elevation coastal zones to emerging climate change threats		
16. Travel	71600	Airfares, land travel costs between project sites (total cost US$119,000).
17. Equipment & Furniture	72200	Equipment will be purchased for the rehabilitation and construction of water supply infrastructure in 2 pilot sites (total cost US$438,000).
18. Contractual services	72100	Contracts with local and international research institutions, universities and NGOs for services and expertise involving research on water resources and baseline studies of selected pilot sites (total cost US$165,000).
19. Office Supplies	72500	Fuel costs; services, office maintenance and supplies; security and insurance costs; banking costs and incidental expenses (total cost US$68,000).
20. Local Consultants	71300	Local consultants will be hired to provide country specific information related to the rehabilitation and design of water related infrastructure and partake in related activities (total cost US$155,000).
21. International Consultants	71200	International consultants will be hired to ensure that the design of the infrastructure constructed and the rehabilitation of existing water supply infrastructure meets international standards (total cost US$606,000)
22. Professional Services	74100	Professional services will be contracted for the rehabilitation and construction of water supply infrastructure within pilot sites (total cost US$308,000).
Outcome 4: Models of best practices and lessons learned from the project activities captured and institutionalized		
23. Travel	71600	Travel to assigned departments (total cost $17,000)
24. Contractual services	72100	Dissemination of project lessons learned through reports, publications, studies (via electronically and project database) and via national and local workshops (total cost US$20,500)
25. Miscellaneous	74500	Allocated to miscellaneous expenses such a increased printing costs (total cost US$9,000)
26. Equipment & Furniture	72200	Equipment includes the cost of computers for additional staff, software and office furniture (total cost US$57,000)
27. Office Supplies	72500	Purchase of office supplies needed to print pamphlets, briefing notes, newsletters, booklet,

		etc. (total cost US$26,000)
28. International Consultants	71200	Daily fees associated with international technical experts (total cost US$134,000).
29. Local Consultants	71300	Hiring of local consultants with a knowledge of synthesizing lessons learned from projects (total cost US$36,500).
Project Management		
30. International Consultants	71200	Hiring of international consultants with expertise in project management (total cost US$35,000).
31. Local Consultants	71300	National consultants to be hired include: i) project manager/national expert to oversee all management of the project; admin and financial assistant to work with the PM to coordinate the project (total cost US$204,000).
32. Travel	71600	Project implementation meetings, project agreements with governments and private sector (total cost: US$21,000)
33. Equipment and furniture	72200	Equipment includes the cost of computers for additional staff, software and office furniture (total cost US$90,000)

5. MANAGEMENT ARRANGEMENTS

Project Organization Structure

131. This GEF project will be implemented through the UNDP through the National Implementation Modality (NIM).



132. The management arrangements were determined on an institutional assessment undertaken during the project preparatory phase. The project implementation partner will be Inter Ministerial Committee of Land Use Planning (CIAT) which is directly joined to the Office of the Prime Minister. CIAT will be the NIM executing agency. However, the pilot initiatives will be implemented by specific entities as DINEPA.The project would be under the overall leadership of a National Project Director (NPD), who would coordinate the Project Management Unit (PMU). The NPD will supervise activities, ensure timely Government input and will be entirely responsible to the Government and UNDP for project outcomes and products in accordance with UNDP NIM modalities.

133. The NPD will have the main responsibility for the execution of project-related activities, for monitoring indicators, and for the overall strategy and coordination of the project to ensure that objectives are achieved. This includes co-financing resources and/or activities conducted by other agencies that are collaborating with the project.

134. The NPD will also ensure that the work plans and associated budgets are executed in line with the parameters described in the logical framework of the project according to set schedule. The NDP will ultimately report to the Project Steering Committee (PSC).

135. The implementation of the project will be carried out under the general guidance of a PSC, specifically formed for this purpose. The composition, responsibilities and rules of operation of the PSC will be confirmed during its first meeting. The PSC would include the CIAT (composed of 7 Ministries such as the Ministries of Interior and Territorial Communities, Economy and Finance, Planning and Cooperation, Agriculture and Rural Development, Culture and Communication, Public Works, Transportation and Communication, and Environment). Agencies co-financing and representatives of the civil society and local authorities will be involved.

136. An executive designated by the CIATôs Technical Secretariat will be the Project Coordinator, which will let consistency between the objectives and activities for the project and the set of actions undertaken by the CIAT. It is expected that the PSC will meet at least one time per year and in addition could be convened extraordinarily by the Chair, on the request of individual members. In each session, the NDP will present a report on the advance of the Project activities and expected or achieved results. The PSCôs functions include:
- Supervising the overall development of the project and its related activities
- Monitoring the achievement of Outcomes
- Propose modifications and/or improve the activities as needed and in accordance with the established Outcomes of the project
- Approving the Annual Operational Work Plan
- Ensuring multi-sectoral coordination

137. In order to maximize project ownership by the Ministry of Environment (MDE) in charge of coordinating the implementation of the UN Convention on Climate Change, the PMU will create a Climate Change Office (CCO) which will be under the MDEôs guidance and authority. The PMU will be headed by the NPD who will be responsible for day to day oversight of the project as well as relations between the CIAT, MDE and UNDP.

138. To ensure coordination and inter-ministerial ownership, the PMU through the NPD will work closely with the CIATôs Technical Secretariat through the Project Coordinator to use the Focal Points in the Ministries forming the CIAT. Under the PMU supervision are the entities executing the pilot projects i.e. DINEPA and CNIGS/ CNSA. The PMU functions will include:
- Ensuring project implementation and management in consistent with the objectives and results presented in the Project Document and its Logical Framework
- Ensuring inter-institutional support and coordination by all the agencies committed to the project implementation; including the agencies and programs that participate in co-funding complementary project-related activities.
- Supervising the development of those project-related activities that have been subcontracted with external consultants.
- Permanent project monitoring, with special emphasis on the identification of obstacles and complexities preventing normal execution, and proposing plans, solutions, and the relevant action to overcome these.
- Ensuring the active participation of different stakeholders during the project implementation

139. Apart from the specific positions described above, in order to ensure and complement the technical capacity of the members of the PMU, a series of sub-contracts will be given to project specific specialists. The contracts will be made in accordance with the guidelines of the UNDP and terms of references defined by the NPD. And these contracts will be given during the first month of the implementation phase or annually which is in accordance with the projectôs work plan.

140. A memorandum of understanding would be agreed and signed by the CIATôs Technical Secretariat, the MDE, the DINEPA and the UNDP relatively to the operational and financial aspects of the implementation of the pilot project ñBuilding the climate resilience of the water sector in the Coastal Areas of the South-East Departmentò. Another memorandum of understanding would be agreed and signed by the CIATôs Technical Secretariat, the MDE (ONEV), the CNIGS, the CNSA and the UNDP relatively to the operational and financial aspects of the implementation of the pilot project ñImproving agriculture tolerance to drought related to climate change in the coastal areas of the South Departmentò.

141. As DINEPA, CNIGS, ONEV, CNSA and CNM are concerned by activities of both pilot projects, they will constitute a consultation committee to share information and coordinate.

6. MONITORING FRAMEWORK AND EVALUATION

142. The project will be monitored through the following M& E activities. The M& E budget is provided in the table below.

Project Start:

143. A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

144. The Inception Workshop should address a number of key issues including:
    a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
    b) Based on the project results framework and the relevant SOF (e.g. GEF) Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
    c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
    d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
    e) Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

145. An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

146. Progress made shall be monitored in the UNDP Enhanced Results Based Managment Platform.

147. Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects,

all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).

148. Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.

149. Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

150. Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and SOF (e.g. GEF) reporting requirements.

151. The APR/PIR includes, but is not limited to, reporting on the following:
    - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
    - Project outputs delivered per project outcome (annual).
    - Lesson learned/good practice.
    - AWP and other expenditure reports
    - Risk and adaptive management
    - ATLAS QPR
    - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits:

152. UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle:

153. The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the projectôs term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

154. The relevant SOF (GEF) Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

155. An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and SOF (e.g. GEF) guidance. The final evaluation will focus on the delivery of the projectôs results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG.

156. The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

157. The relevant SOF (e.g GEF) Focal Area Tracking Tools will also be completed during the final evaluation.

158. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the projectôs results.

Learning and knowledge sharing:

159. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

160. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

161. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Table 8: M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ Project Manager ▪ UNDP CO, UNDP CCA	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ UNDP CCA RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and team	None	Quarterly
Mid-term Evaluation	▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost : 40,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ local consultant	0	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	Indicative cost per year: 3,000	Yearly
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$ 93,000 (+/- 5% of total budget)	

7. LEGAL CONTEXT

162. This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the Standard Basic Assistnace Agreement (SBAA) [or other appropriate governing agreement] and all CPAP provisions apply to this document.

163. Consistent with the Article III of the SBAA, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDPôs property in the implementing partnerôs custody, rests with the implementing partner.

164. The implementing partner shall:
   a) Put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
   b) Assume all risks and liabilities related to the implementing partnerôs security, and the full implementation of the security plan.

165. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

166. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

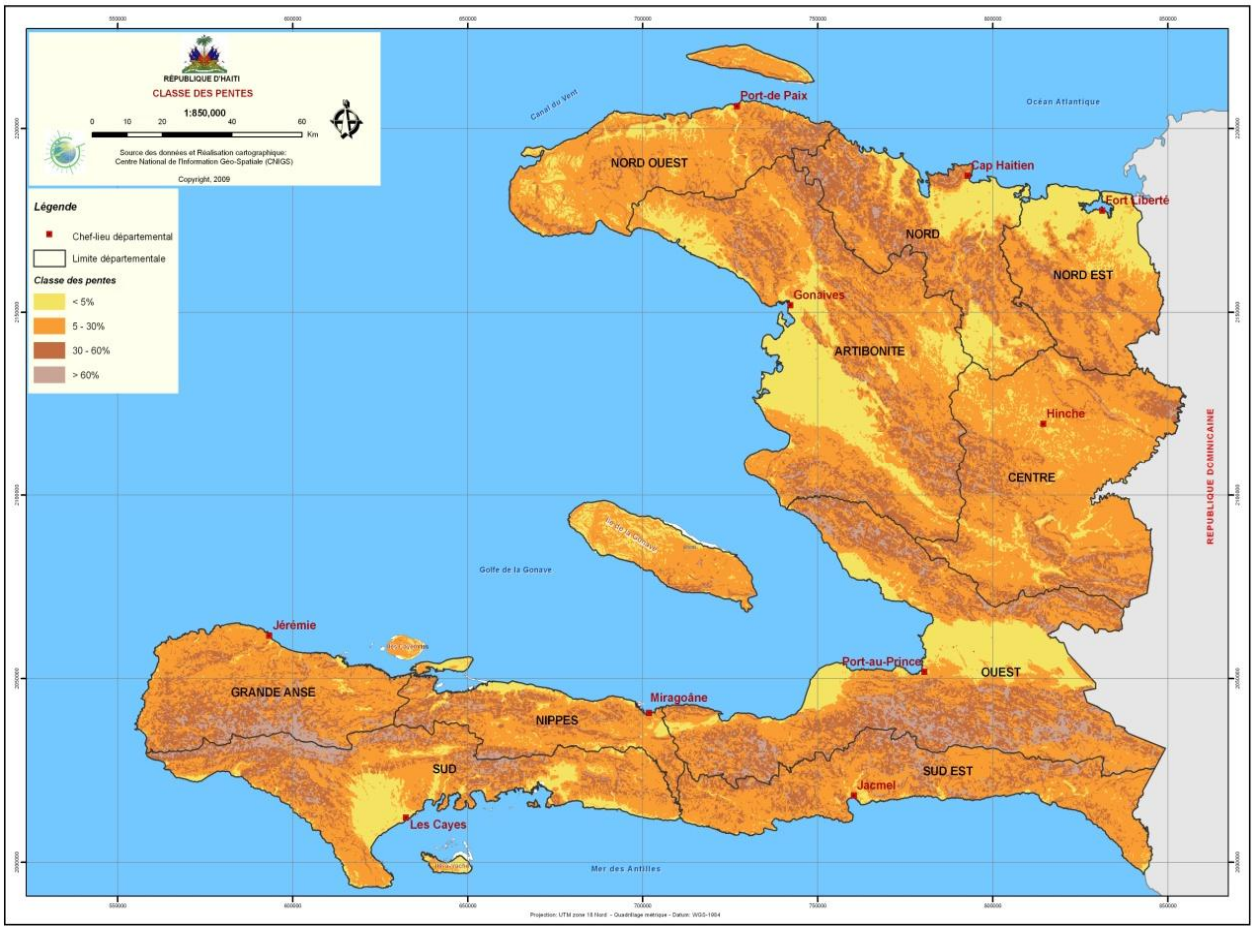
8. ANNEXES

8.1. Risk Log

Type of risks						
Environmental	**Financial**	**Organizational**	**Political**	**Operational**	**Regulatory**	**Strategic**
Natural Disasters: storms, flooding, earthquakes	Insignificant	Difficulty to come to a consensus between the responsible entities in relation to the implementation arrangements	Lack of Government commitment	Technical complexity	New unexpected regulations, policies	Question of CIAT leadership
Unsecurity increase		Weakness of institutional/execution capacity	Lack of political will			
		Change in the institutions which are responsible parties	Instability due to non realization or protests of the next elections			
			Change in Government after the elections			
Mitigation measures						
To conduct of disaster-risked activities out of the cyclonic season	No mitigation measure	To facilitate dialogue between the responsible parties	To strengthen the advocacy to enable the ownership of the project	To use UNDPs network in order to find the needed specialists	To adjust the project work plan	To support CIAT in the project coordination

To increase the protection of the employees and premises of the project		To strengthen the support of the Government	To adjust the project work plan in case of instability			
		To adjust the management arrangement structure				

8.2. Map of Haiti



8.3. Agreements

See separate document with co-financing letters.

8.4. Key assessment reports

N/A

8.5. List of stakeholders consulted during PPG phase

Daniel Brisard	MdE
Astrel Joseph	MdE
Joseph Ronald Toussaint	MdE
Irvelt Chery	MARNDR
Lionel Valbrun	MARNDR
Roger Montès	DINEPA
Myrlene Chrisostome	USAID
Marlene Gay	CFET
Yves André Wainrigt	Fondation Seguin
Volny Paultre	FAO
Gladys Guerrier Archange	CIDA
Harry Voltaire	MICT/DPC

Name	**Institution**
Roger Montes	DINEPA
James Woolley	USAID
Huguenel Alezi	CIDA (UAPC)
Jean Robert Estime	WINNER
Gérald Jean-Baptiste	CIAT and DINEPA
Rose-May Guignard	CIAT
Ross Gartley	World Bank
Eric Balthazar	World Bank
Gilles Damais	IDB

Neudy Jean Baptiste	FAMV
Jean Vilmond Hilaire	UNIQ
Mike Godfrey	DEED
Garry Mathieu	CNSA
Boby Piard	CNIGS
Eliott Amilcar	PNAP
Gilles Damais	BID
Fresnel Devalon	Oxfam/GB
Aldrin Calixte	Haiti Survie
Vernet Joseph	World Bank
Marc Josue	ACDI
Martin Epp	Helvetas
Antonio Perera	PNUE
Prospery Raymond	Christian Aid
Thomas Pitaud	PNUD

8.6. Terms of Reference

A. Project Board (PB)

The PB will meet at least twice a year, though they may meet more frequently if the need arises.

Responsibilities

- Establishing policies to define the functions, responsibilities, and delegation of powers for the implementing agencies and the project team.
- Providing overall guidance on budget management and project activities.
- Facilitating coordination of project activities across institutions.
- Making decisions on issues brought to its attention by the government and any other members of the project team.

B. Project Board Executive

MDE will appoint a Project Board Executive who will be responsible, on behalf of the government, for the project. The Project Board Executive will be responsible for the overall administration, management, coordination, implementation, monitoring, and reporting. The Project Board Executive will chair the PB and will head the project staff with support from the PM.

Responsibilities

- Ensuring effective partnership between the implementing ministries.
- Ensuring that project activities are integrated and coordinated with the established operations of the MDE at the national level.
- Developing and maintaining close linkages with relevant sectoral government agencies, UNDP, NGOs, civil society, international organisations and implementing partners of the project.
- Supervising and leading the project team in carrying out their duties at an optimum level through ensuring efficient and effective resource utilization.

With the support of the PM, the Project Board Executive shall:

- Oversee establishment of the PTC and local level technical coordination committee.
- Prepare detailed annual breakdowns of the work plan for all project objectives.

- Identify resource requirements, responsibilities, tasks outlines, performance evaluation criteria and work plans.
- Prepare quarterly work plans.
- Prepare and finalize detailed terms of reference and qualifications short term consultants.
- Submit all project reports as required.
- Approve quarterly status and financial reports for comments and approval by the PB.
- Oversee implementation of the PB directives.

C. Project Manager (PM)

The PM will report to the Project Board Executive and will lead the project team through the planning, implementation, and delivery of policies, reports, knowledge products, and other results approved in the project document and annual work plans. The PM will provide overall operational management for the successful execution and implementation of the programme. The PM will be responsible for financial management and disbursements, with accountability to the government and UNDP.

Responsibilities

- Facilitating the day-to-day functioning of the project staff.
- Managing human and financial resources in consultation with the Project Board Executive to achieve results in line with the outputs and activities outlined in the project document.
- Leading the preparation and implementation of annual results-based work plans and logical frameworks as endorsed by the management.
- Coordinating project activities with related and parallel activities both within MDE and with external implementing departments.
- Monitoring project activities, including financial matters, and preparing monthly and quarterly progress reports, and organising monthly and quarterly progress reviews.
- Supporting the Project Board Executive in organising meetings.
- Coordinating the distribution of responsibilities amongst team members and organising the monitoring and tracking systems.
- Reporting and providing feedback on project strategies, activities, progress, and barriers to UNDP and PB.
- Managing relationships with project stakeholders including donors, NGOs, government agencies, and others as required.

D. Chief Technical Advisor (CTA)

The CTA will provide technical guidance on the implementation of the project to the PM and will also assist the PM in leading the project. The CTA is likely to be sourced as an international consultant as the technical expertise required is currently unavailable within Haiti. Importantly, the CTA should be fluent in French and English.

Responsibilities

- Undertaking technical review of project outputs (e.g. studies and assessments).
- Assisting in the drafting of TORs for technical consultancies.
- Supervising the work of consultants.

- Assisting in monitoring the technical quality of project M&E systems (including AWPs, indicators and targets).
- Providing advice on best suitable approaches and methodologies for achieving project targets and objectives.
- Providing a technical supervisory function to the work carried out by the other technical assistance consultants hired by the project.
- Assisting in knowledge management, communications and awareness raising

E. Administrative and Financial Assistant

One administrative and financial assistant will report to PM and the Project Board Executive.

Responsibilities

- Standardize the finance and accounting systems of the project while maintaining compatibility with the government, UNDP financial accounting procedures.
- Prepare budget revisions of the project budgets and assist in the preparation of the annual work plans.
- Comply and verify budget and accounting data by researching files, calculating costs, and estimating anticipated expenditures from readily available information sources, in particular partner agencies.
- Prepare status reports, progress reports and other financial reports.
- Process all types of payments requests for settlement purposes including quarterly advances to the partners upon joint review.
- Prepare periodic accounting records by recording receipts, disbursements (ledgers, cash books, vouchers, etc) and reconciling data for recurring or financial special reports and assist in preparation of annual procurement plans.
- Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.
- Assist in the timely issuance of contracts and assurance of other eligible entitlements of the project personnel, experts, and consultants by preparing annual recruitment plans.

F. Monitoring and evaluation expert

The M&E expert will report directly to the Project Board Executive. He/she will lead the project team (including implementing partners) through the planning, implementation, and delivery of policies, reports, knowledge products and other results approved in the project document and annual work plans. Together with a contracted Knowledge Management expert (see G below), the M&E expert will design and implement a system to identify, collect, analyze, document and disseminate lessons learned. The M&E expert will be responsible for collecting and collating information from the pilot sites and submitting it to the website manager for uploading on the climate change website. The M&E expert will also provide support on the ground, which is needed to closely evaluate progress and barriers and to prepare detailed quarterly, annual, and other monitoring reports. The M&E expertôs work will be guided by the Project Results Framework, a draft which is provided here-in (see Section 3) but will be refined and agreed upon by all the stakeholders during the IW. This will provide performance and impact indicators for the project along with their corresponding means of verification.

Responsibilities

- Establish the overall results-based M&E strategy in accordance with M&E plans outlined in the project document.
- Provide timely and relevant project performance information to the PB, CTA, PM and the PTC.
- Together with the Knowledge Management Expert, design a system for collecting information on project lessons to be used in preparing lessons learnt documents periodically by the expert.
- Together with subject matter specialists, develop questionnaires and other data collection tools that will be used to collect information during the project period for writing technical reports.
- Guide and coordinate the review of the project Strategic Results Framework, including:
- Provide technical advice for the revision of performance indicators.
- Together with a hired expert, conduct a baseline study at project initiation.
- Identify sources of data, collection methods, who collects data, how often, cost of collection and who analyses the data.
- Ensure all critical risks are identified.
- Coordinate the preparation of all project reports. Guide project staff and executing partners in preparing their progress reports in accordance with the approved reporting formats and ensure their timely submission. This includes quarterly progress reports, annual project reports, inception reports, and ad-hoc technical reports.
- Foster participatory planning and monitoring by training and involving primary stakeholder groups in the monitoring and evaluation of activities.

G. Knowledge Management Expert

This expert will be contracted periodically and when the need arises.

Responsibilities

- Develop a mechanism for capturing lessons learned and consolidating a culture of lessons learned involving all project staff.
- Ensure all the ToRs for project consultants recruited also incorporate mechanisms to capture and share lessons learned through their inputs to the project, and ensure that the results are reflected in the M&E reporting system and the adaptation learning mechanism.

- Document, package, and disseminate lessons learned at least every 12 months.
- Facilitate exchange of experiences by supporting and coordinating participation in any existing networks of UNDP projects sharing common characteristics. These networks would largely function on the basis of an electronic platform but would also entail other methods and tools such as workshops.
- Together with the M&E expert, design a system that will be administered by the M&E expert for capturing lessons learned from the project on a continual basis and synthesize results of activities under Outcomes 1, 2, 3 and 4 for use by stakeholders.
- Collate technical reports and other documents from the project and contribute to the ALM, GAN and IW Learn.
- Guidelines for extracting lessons learned will be drawn from the ALM, GAN and IW Learn.
- Advise on the hiring of a consultant to develop and publish (in a peer-reviewed international journal) a briefing paper on lessons learned from the project.

8.7. Special Clauses

In case of government cost-sharing through the project which is not within the CPAP, the following 10 clauses should be included:

1. The schedule of payments and UNDP bank account details.

2. The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization by the UNDP of the payment, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNDP shall inform the Government with a view to determining whether any further financing could be provided by the Government. Should such further financing not be available, the assistance to be provided to the project may be reduced, suspended or terminated by UNDP.

3. The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities. It may be amended to be consistent with the progress of project delivery.

4. UNDP shall receive and administer the payment in accordance with the regulations, rules and directives of UNDP.

5. All financial accounts and statements shall be expressed in United States dollars.

6. If unforeseen increases in expenditures or commitments are expected or realized (whether owing to inflationary factors, fluctuation in exchange rates or unforeseen contingencies), UNDP shall submit to the government on a timely basis a supplementary estimate showing the further financing that will be necessary. The Government shall use its best endeavours to obtain the additional funds required.
7. If the payments referred above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph ( ) above is not forthcoming from the Government or other sources, the assistance to be provided to the project under this Agreement may be reduced, suspended or terminated by UNDP.

8. Any interest income attributable to the contribution shall be credited to UNDP Account and shall be utilized in accordance with established UNDP procedures.

   In accordance with the decisions and directives of UNDP's Executive Board:

   The contribution shall be charged:

   (a) [é %]cost recovery for the provision of general management support (GMS) by UNDP headquarters and country offices

   (b) Direct cost for implementation support services (ISS) provided by UNDP and/or an executing entity/implementing partner.

9. Ownership of equipment, supplies and other properties financed from the contribution shall vest in UNDP. Matters relating to the transfer of ownership by UNDP shall be determined in accordance with the relevant policies and procedures of UNDP.

10. The contribution shall be subject exclusively to the internal and external auditing procedures provided for in the financial regulations, rules and directives of UNDP.

SIGNATURE PAGE

Project Title	Strengthening Adaptive Capacities to Address Climate Change Threats on Sustainable Development Strategies for Coastal Communities in Haiti
ISF Outcome(s):	Territorial rebuilding: Strengthened capacity of local institutions for disaster risk management through reinforcing policies and tools and ensuring their inclusion across sectors and into local development plans, including through early warning systems.
Expected CPAP Outcome(s): *(Those linked to the project and extracted from the CPAP)*	Environment and natural resources management improved.
Expected Output(s): *(Those that will result from the project and extracted from the CPAP)*	1/ Strategic, legal, institutional and communicational frameworks are developed; and their implementation promoted in order to better address environmental and natural resources management problems at the national and local levels.. 2/ Tools and systems to improve access to drinking water, sanitation services, and management of solid wastes are developed and implemented.
Implementing Partner:	National Committee for Large Public Infrastructure and Projects (CIAT)
Responsible Parties:	Ministry of Environment (MDE), National Direction of Drinking Water and Sanitation (DINEPA), National Center of Geospatial Information (CNIGS), Food Security (CNSA)

Programme Period:	2011-2015
Atlas Award ID:	00058845
Project ID:	00073302
PIMS #	3971
Start date:	January 2011
End Date	December 2015
Management Arrangements	NEX
PAC Meeting Date	February 2011

Total resources required	**13,280,000**
Total allocated resources:	*3,700,000*
○ GEF (-LDCF)	3,500,000
○ UNDP	200,000
In-kind contributions	*9,580,000*
○ MDE	2,900,000
○ CIAT	2,000,000
○ CNGIS	1,500,000
○ CNSA	180,000
○ DINEPA	3,000,000

Agreed by (Executing Entity/Implementing Partner):

15/04/2011
Date/Month/Year

Agreed by (UNDP): Date/Month/Year

18/04/2011
Date/Month/Year