

## Building Resilience in the Wake of Climate Disasters in Southern Haiti

### Part I: Project Information

**GEF ID**

10175

**Project Type**

FSP

**Type of Trust Fund**

LDCF

**CBIT/NGI**

CBIT

NGI

**Project Title**

Building Resilience in the Wake of Climate Disasters in Southern Haiti

**Countries**

Haiti

**Agency(ies)**

UNEP

**Other Executing Partner(s)**

Ministry of Environment (MDE)

**Executing Partner Type**

Government

**GEF Focal Area**

Climate Change

**Taxonomy**

**Rio Markers**

**Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 2

**Duration**

48 In Months

**Agency Fee(\$)**

411,146.00

**Submission Date**

4/2/2019

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCA-1	LDCF	3,416,729.00	10,286,000.00
CCA-2	LDCF	911,128.00	2,364,000.00
	<b>Total Project Cost (\$)</b>	<b>4,327,857.00</b>	<b>12,650,000.00</b>

## B. Indicative Project description summary

### Project Objective

To increase the adaptive capacity and resilience of communities residing amongst fragile ecosystems and vulnerable to recurring climate disasters

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
1. Climate-resilient Governance and Planning	Technical Assistance	1.1 Strengthened institutional governance and capacity to reduce vulnerability of physical assets, natural systems and livelihoods in Macaya and Barraderes & Cayemites	1.1.1 Climate change risk and vulnerability assessments undertaken in the two project areas to model the impact of climate change on the main indicators of importance to stakeholders  1.1.2 Two multistakeholder protected area governance mechanisms established (one in each area)  1.1.3 Training on climate change risk, vulnerability and adaptation provided to the protected area governance mechanisms  1.1.4 Participatory climate-resilient management plans, including EbA and Eco-DRR considerations and enforcement mechanisms, established for each of the protected areas in Macaya and Barraderes & Cayemites	LDC F	865,571.00	2,300,000.00

1.1.5 Climate change risks and policy tools to respond to them identified by national and departmental Governments

1.1.6 The national and departmental programmes of work of the Ministry of Environment (MDE), Ministry of Agriculture (MARNDR) and Civil Protection Directorate (DPC) include concrete climate resilient risk reduction practices, methodologies and procedures

1.1.7 EbA and Eco-DRR training provided to key ministerial staff

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<p>2. Ecosystem-based adaptation and disaster risk-reduction in response to climate risks</p>	<p>Investment</p>	<p>2.1 Enhanced climate-resilient land management, environmental protection and rehabilitation practiced by local authorities and communities</p>	<p>2.1.1 Climate-smart agriculture implemented with two pilot communities on 200 hectares of steep terrain, including adaptive soil conservation practices such as contour hedgerows, rehabilitation of ravines, and intercropping, use of short-range and seasonal weather forecasts and integrated pest management</p> <p>2.1.2 30 km of coastlines and 35 km of riverbanks rehabilitated through targeted reforestation with climate-resilient coastal and riparian species</p> <p>2.1.3 Small scale water capture and storage infrastructure built in each of the targeted communities (number to be determined)</p>	<p>LDC F</p>	<p>1,817,700.00</p>	<p>4,420,000.00</p>
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3. Green Economy Approach for Resilient Ecosystem-based Livelihoods	Technical Assistance	3.1 Strengthened climate-resilient agricultural value chains with improved access to markets in Macaya and Barraderes & Cayemites	3.1.1 A green economy assessment of agricultural value chains undertaken in Macaya and Barraderes & Cayemites	LDC F	1,438,498.00	5,630,000.00
			3.1.2 Training and technical support provided on at least one resilient value chain per area (e.g. castor oil, honey, fisheries, cacao, vetiver in Macaya and Barraderes & Cayemites)			
			3.2.1 At least two pilots of sustainable woodlots of fast-growing tree species established, with business plans for their management, to replace destruction of mangroves and native trees for charcoal production			
		3.2 Increased sustainability and climate-resilience of ecosystem-based livelihoods	3.2.2 Awareness raising and training events on natural buffer preservation (e.g, mangroves, coral reefs) and sustainable catches/livelihoods organized for at least two fishing cooperatives/ associations			
			3.2.3 A report on construction alternatives to coral and sand commissioned, with promising technologies in Haiti identified			
<b>Sub Total (\$)</b>					<b>4,121,769.00</b>	<b>12,350,000.00</b>
<b>Project Management Cost (PMC)</b>						
LDCF					206,088.00	300,000.00

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<b>Sub Total(\$)</b>	<b>206,088.00</b>	<b>300,000.00</b>
<b>Total Project Cost(\$)</b>	<b>4,327,857.00</b>	<b>12,650,000.00</b>

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**C. Indicative sources of Co-financing for the Project by name and by type**

<b>Sources of Co-financing</b>	<b>Name of Co-financier</b>	<b>Type of Co-financing</b>	<b>Investment Mobilized</b>	<b>Amount(\$)</b>
Recipient Country Government	Government of Haiti	In-kind	Recurrent expenditures	500,000.00
Donor Agency	Government of Norway	Grant	Investment mobilized	5,200,000.00
Donor Agency	Government of France	Grant	Investment mobilized	6,000,000.00
GEF Agency	World Bank	Grant	Investment mobilized	500,000.00
GEF Agency	UN Environment	Grant	Investment mobilized	100,000.00
GEF Agency	UN Environment	Grant	Investment mobilized	350,000.00
			<b>Total Project Cost(\$)</b>	<b>12,650,000.00</b>

**Describe how any "Investment Mobilized" was identified**

Investment mobilized refers in these cases to new investment through parallel donor funded projects.

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	LDCF	Haiti	Climate Change	NA	4,327,857	411,146	4,739,003.00
<b>Total GEF Resources(\$)</b>					<b>4,327,857.00</b>	<b>411,146.00</b>	<b>4,739,003.00</b>

E. Project Preparation Grant (PPG)

PPG Required



PPG Amount (\$)

150,000

PPG Agency Fee (\$)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)	
UNEP	LDCF	Haiti	Climate Change	NA	150,000	14,250	<b>164,250.00</b>	
					<b>Total Project Costs(\$)</b>	<b>150,000.00</b>	<b>14,250.00</b>	<b>164,250.00</b>

## Core Indicators

### Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	0.00	0.00	0.00

### Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

### Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

**Indicator 3.3 Area of natural grass and shrublands restored**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

**Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

**Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	0.00	0.00	0.00

**Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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**Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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**Documents (Please upload document(s) that justifies the HCVF)**

<b>Title</b>	<b>Submitted</b>
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**Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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<b>Female</b>				
<b>Male</b>				
<b>Total</b>	0	0	0	0

## Part II. Project Justification

### 1a. Project Description

#### *A1.1. The project problem, root causes and barriers that need to be addressed*

##### **Background**

Haiti is the poorest and most environmentally degraded country in the Western hemisphere. Its national economy depends mostly on agriculture, with coffee, mango, banana, corn, beans and rice being among the most significant crops. 66.8 percent of Haiti's land is devoted to agriculture, mainly small-scale subsistence farming on which two-fifths of the population depend for their livelihoods. The 2017 GDP was estimated at US\$ 766 per capita[1] with more than 80 percent of the population living below the poverty line.[2] Haiti is one of the least developed countries (LDCs) in the world, with growth hampered by several political and environmental crises, including a devastating earthquake in 2010, and more recently by Hurricane Matthew (October 2016), which left 1.4 million Haitians in need of food assistance[3]. The country occupies the 168<sup>th</sup> rank out of 189 countries with a Human Development Index (HDI) of 0.498 (HDI, 2018). [4] Political instability, extreme rates of inflation have seen periods of conflict and crisis, as recently as February 2019.

Haitian agriculture contributes to 25 percent of the GDP. However, for the last five decades the growth of agricultural production has been less than 1 percent. [5] While this is a sector that employs 60 percent of the population, droughts and climate events have left communities food insecure and impoverished. Rural poverty in Haiti is higher than in the cities, which indicates that changes are needed in the agricultural sector to improve people's livelihoods and standard of living. The transformation of agricultural products is not developed, and most of the income is derived from exploiting and supplying raw materials.

Fishing is also a significant economic activity. The country has nearly 1,700 km of coastline and 22,000 ha of freshwater.[6] There is potential of growth in the sector as there are highly sought-after fish species in Haitian waters. However, negative climate impacts, poor governance in fisheries, proliferation of invasive fish species (*Pterois*), erosion of marine ecosystems and unsustainable practices have hampered the sector. While aquaculture offers a strong economic potential, it has not been advanced in the Southwestern part of the country.

Due to its location, Southwestern Haiti is exposed to extreme weather events and natural risks. These include hurricanes, cyclones, floods, droughts, landslides, earthquakes and tsunamis. The capacity to plan, manage, adapt to and respond to these risks by national and *departemental* governments and local community members, is very low, resulting in destruction of livelihoods, assets, illnesses and even deaths. While many Caribbean island states face similar natural risks, Haiti faces higher death tolls, greater destruction of infrastructure and longer-lasting negative impacts (such as food insecurity, water shortages and disease outbreaks) due to maladaptive practices, and a lack of capacity by key stakeholders to buffer the country from climatic events. Delayed elections, and lack of coordination among municipal, departmental and national governments have left many vulnerable communities on their own. There is a



lack of extension services. Community-based organizations do not have the funds to provide ongoing training and support. Haiti does have a rich culture of associations and cooperatives in the agricultural and fisheries sectors, which provides entry points for capacity building, but a lack of resources, technical know-how, and access to markets hamper these organizations.

One example of a severe climate event and its impact is that of Hurricane Matthew, a Category 4 hurricane which descended upon Haiti on October 4, 2016, in the departments of *du Sud* and *Nippes*, where the project will be implemented. The impact of the hurricane resulted in near complete crop damage in some zones, shortage and diversion of water resources, destruction of infrastructure and households, extreme food insecurity, and mortality. The Post Disaster Needs Assessment (PDNA) conducted after the hurricane revealed USD 2.8 billion of losses in infrastructure and housing, in the environment, agriculture, livestock and fisheries sectors – amounting to the entire national budget for the current fiscal year.

Many of the existing early warning protocols put in place by the *Direction de la Protection Civile* (DPC) failed to resonate with the citizenry on how to prepare and evacuate. While it is inevitable that large hurricanes cause disruptions and destruction, the impact in Haiti is far worse due to a lack of knowledge on adaptive measures, disaster risk reduction measures, and on how to prepare and buffer communities from extreme weather events.

Such impacts directly affect fisheries and agriculture, the two significant sources of livelihoods in the area, leading to severe negative impacts on food security and a general increase in poverty, creating other social challenges and crises related to governance, conflict, competition over scarce resources and displacement.

While Hurricane Matthew galvanized some international resources to meet immediate disaster relief needs, the response from international donors was nowhere near enough to respond to the environmental degradation or to address the need for planning for future climate events.

In terms of climate change scenarios in Haiti, it is predicted that temperatures will increase by 0.5-2.3 degrees Celsius by 2060 (compared with the reference period of 1986-2005). The mean annual temperatures are projected to increase between 2040-2060 by 1.1-2.2 degrees Celsius for the high emission scenario (RCP 8.5). The number of hot days and nights are projected to increase throughout the country. Rainfall projections predict decreases in rainfall during June-August, while rainfall projections during the remainder of the year are less certain.[7] Extreme weather events, such as severe rainfall leading to floods, are anticipated to increase in frequency.[8] Hurricane intensity is projected to increase by 5-10 percent and related precipitation by 2 percent by 2050.[9] This presents a dire forecast as communities have often barely recovered from one weather event when another one strikes, creating an ongoing cycle of increasing poverty and devastation.

Precipitation is highly variable with high levels of inter-annual variability, from excessive rainfall to water shortages. Flash floods are increasingly being recorded during the rainy months. The rains, which mark the onset of the season, increasingly arrive late, leading to a delay in the planting period, affecting production. Droughts during the dry season are also longer and more acute. Haiti experienced a severe drought from 2013-2015, from which communities had

barely recovered when they were pounded by Hurricane Matthew.

In addition to precipitation-related climate change impacts, the communities in the low-lying coastal areas and islands of Barraderes-Cayemites are also vulnerable to sea level rise (SLR), which is anticipated to increase from 16 to 62cm by 2100. There is already evidence of low-lying islands being submerged due to SLR. SLR will cause accelerated beach and coastal erosion, potentially leading to inundation of low-lying communities especially in areas lacking a vegetated buffer, once again impacting people's lives, security and livelihoods. Thus, climate change can cause serious climate-related catastrophes due to Haiti's naturally high vulnerability to hurricanes, floods and storms.

The project will be implemented in two zones, the first overlapping the border between *Departement de la Grand'Anse* and *Departement de Nippes*, and the second in the *Departement du Sud*, within the following communes (the selection of specific villages will be finalized at PPG)[10]: (1) Barraderes et Cayemites; (2) Parc Macaya, all of which are located in Southwestern Haiti.

Both zones have been identified by the Government of Haiti (GoH) as having significant environmental value and have been declared as protected areas (PAs), but as of yet, there are no marked boundaries or enforcement practices that establish these as protected areas with associated protocols. The location of the two areas is indicated in Annex A.

### Barraderes et Cayemites

The Barraderes et Cayemites Marine Managed Area declared in March 2017 (with UN Environment's support) is 87,621 ha in size and is considered to be one of Haiti's most outstanding coastal areas. It is located in the *Departement de Nippes*, with overlap with Grand'Anse, with a population of 342,325 (2015 estimates). It includes a shallow bay (Barraderes) and an archipelago of small islands (Cayemites). The bay is lined with mangrove vegetation that is under threat from deforestation and the cays line a coral reef system. Barraderes and Cayemites' topography is composed of low-lying and relatively flat coastal zones. In its terrestrial part, the wooded hills of the mainland rise steeply from the coast before descending into a series of valleys. The hills are mostly composed of permeable limestone. The southern boundary of the zone is the highest ridge of the watersheds. The main river in this area discharges in the Barraderes Bay. There are eight main watersheds in this zone, two of which are significant, however there are few watercourses other than the river mentioned. Given the terrain, a ridge-to-reef approach, is applicable in this project site.

In Barraderes and Cayemites, there are interrelations/dependency between coastal mangroves, coral reefs and seagrass beds: together, these form highly diverse and structurally complex ecosystems in which the reefs act as a barrier that shelters seagrass beds and mangroves from high wave energy; these in turn provide foraging and nursery habitats for many larvae and juveniles of reef species of fish and invertebrates including those of commercial value to fisheries. Coastal lagoons are commonly associated with mangroves and act as nursery grounds for many species of aquatic fauna, both benthic and pelagic.

The main livelihood activities include fishing and charcoal production at the coastal levels, which contribute to deforestation and overfishing. At the lower slopes, above the coastline, communities cultivate crops such as cassava, plantains, beans, sweet potatoes, yams and maize, and mangoes. There is limited cultivation of coffee taking place at intermediate altitude. However, due to the shortage of water and rough terrain, farmers are under extreme pressure and suffer from food insecurity. There is limited surface water and the area is prone to drought. The majority of the population resides at the coastal level, which is highly vulnerable to storms, floods and sea-level rise.

Baraderes & Cayemites suffers from deforestation and mangrove destruction for the production of charcoal. Fishing is one of the mainstays of the local economy. Coastal fishing communities are some of the poorest in the country and have observed a decrease in the quality and quantity of the fish, with a significant influx of the lionfish (*Pterois volitans*) due to warmer waters. The lionfish is not native to the region, has a large appetite and little to no predators due to its venomous spine. It can negatively impact native fish populations, particularly reef fish, leading to decreased reef health. The lionfish feeds on small crustaceans and commercially significant fish which negatively impacts both food security and livelihoods. Fish protein is often one of the most available and affordable animal proteins in the coastal areas of LDCs.[11] A decrease in fish availability not only impacts livelihoods, but also health and nutrition.

Baraderes & Cayemites also houses important coral cover in the country and contains the most endangered coral species in Haiti. Most coral reefs in the country are in a de-stabilized condition, where macroalgae dominate and living hard corals are small and occupy less than 15% of the seabed. There are several reasons for coral destabilization which include: disease, bleaching (from rising temperatures), nutrification and overfishing. During the 1970s-80s, a disease killed off two important reef-building coral species throughout the Caribbean, the staghorn (*Acropora cervicornis*) and the elkhorn coral (*Acropora palmata*), that formerly occupied two entire zones of most reefs. At that time, typically 20 to 50 percent of each reef was comprised of these two species alone. Now, these species are rare in the Caribbean with remaining skeletons of elkhorn corals in many countries, including Haiti. These species, both of which are on the US Endangered Species List, have been slow to recover in the Caribbean, however, their recovery in Haiti has been relatively faster than in most countries and patches of colonies have been counted throughout the country. In fact, in a startling discovery made in 2014 by Reef Check, it was discovered that a very large area of healthy coral reef with hundreds of square meters of staghorn and elkhorn coral exists off the coast of Anse d'Azur. This demonstrates the healthiest and largest of the recovered reefs. Because of the rarity of the two *Acropora* species in the Caribbean, the high numbers and wide distribution of healthy elkhorn *Acropora palmata* and staghorn coral *A. cervicornis* are regionally significant as a potential source of larvae to help re-populate other areas downstream of the biological corridor on both the north and south coasts of Haiti. Protecting and potentially gardening these two species to increase the population size can provide livelihoods while contributing global benefits to the whole Caribbean region, indicate that regeneration is possible, and can provide nature buffers from climate disasters.[12]

Climate change is anticipated to exacerbate the risks that local communities face. Climate change is likely to result in reduced precipitation and more frequent droughts, and the shortage of water and arable land will pose increasingly severe food security and health risks. Meanwhile, the coastal areas and low-lying Cayemites islands face the risks of flooding due to sea-level rise and the increased frequency and intensity of extreme weather events. Figure 1 below captures a hint of submerged islets off the shore of Corail (approximately 8-10 km Southwest of Cayemites), which until a decade ago were still inhabited by local populations that have since been displaced. Figure 2 is from a site adjacent to Figure 1, and shows islets that are not yet submerged and house

vulnerable local populations. These photographs demonstrate the risks that low-lying islands face. The Baraderes & Cayemites site is also at great risk from sea-level rise and extreme climate events, as was witnessed in October 2016. According to the WMO, sea levels have been rising about 3 mm per year since 1993, and Jeremie counts among the spots that are most at risk in relation to sea level rise and flooding.[\[13\]](#)

With climate change and increasing temperatures, despite the positive levels of coral, there are extreme risks that this globally significant coral will be further destroyed like other reefs in Haiti and the Caribbean at large. Coral reefs are extremely vulnerable to climate change because of the high sensitivity of corals to small changes in environmental conditions. Minor increases in water temperature can stress corals, leading to coral bleaching. If high temperatures persist, mass death of corals can occur. The stress caused by elevated water temperatures also leads to increased risk of disease in corals and many other species that engage with the coral reef system. Due to climate change, coral reefs under pressure will be less able to provide the services that support human communities, such as food and fisheries income, recreational opportunities and commercial tourism, and protection of vulnerable shorelines. Climate change is therefore a major concern not just for coral reefs, but also for food security, economic prosperity and social wellbeing of communities that depend on them.

Fig. 1: Submerged Islets at Corail, Grand'Anse



Fig. 2: Islets at Corail, Grand'Anse



### Macaya

The Macaya Protected Area declared in 2013 contains Haiti's last primary forest and is a global biodiversity hotspot, containing endemic species of orchids, mammals and the largest concentration of endemic amphibians in the world. It is located in the *Departement* du Sud which houses a population of 774,976. Located in the south-west region of the country, the Park is part of the Massif de la Hotte, the second largest mountain chain that runs the length of Haiti's southern peninsula. UNESCO declared the Massif de la Hotte a Biosphere Reserve in 2016, thereby making it part of the global UNESCO Man and Biosphere Network.[14]

In 2013, as part of a concerted effort by the government and its partners, including UN Environment, to protect and restore the Park, the boundaries of the protected area were expanded from 2,000 hectares to more than 8,700 hectares.

Pic Macaya, the highest point in the Park, reaches 2,347 meters and the surrounding area contains some the country's last virgin cloud forest. The region houses epiphytes, including ferns, bromeliads and orchids, containing an impressive 141 varieties of orchids, 38 of which are endemic, as well as 367 other varieties of flowering plants, including 55 endemic species. Other important plant varieties include 99 species of moss and 103 varieties of ferns, three of which are endemic to the area.[15]

The Macaya peak is surrounded downstream by significant marine sites composed of unique coral species and other marine organisms influencing the wider Caribbean region. There are flows of impacts and threats, as well as ecosystem services and benefits that cross the boundaries between mountain watersheds and coastal and marine areas in this protected area.

According to the Interministerial Committee on Territorial Development (CIAT), the population of Macaya is still unknown. Due to its rich biological diversity and natural resources, Macaya attracts farmers and dwellers from other regions in search of land, resources and new opportunities to support themselves. The negative impacts of human practices on ecosystems and livelihoods are visible, which indicate that ecosystem-based adaptation approaches would benefit its residents, many of whom suffered and perished during the hurricane. Over the last decade, increasing numbers of encroachments have been observed, leading to rapid environmental deterioration of the area.

The main destructive practices include poor land use practices such as tree cutting, overgrazing and cultivation without adequate soil conservation practices. The consequence of such a trend is the widespread silting of waterways and floods downstream, the decrease in the carrying capacity of the land (soil), and the deterioration of watersheds, which in turn lead to the observable downward economic and environmental spiral. Moreover, the destruction of one of the last primary forests in Haiti will contribute negatively to the earth's climate, and reduce Haiti's adaptive potential. Climate change further exacerbates this baseline situation through decreased access to water, degraded watersheds, decrease in productive landscapes, and an increase in pests, resulting in a decrease in agricultural output and food insecurity.

Macaya has received support in establishing a community-led management plan for the Protected Area. However, this is in early phases and does not specifically include climate change adaptation measures. The work carried out thus far has been about identifying and including appropriate stakeholders, especially as many of the communities residing in the Park are somewhat inaccessible, and may be illegally occupying premises.

In sum, the Government of Haiti (GoH) has recognized the vulnerability and ecological potential of the zones targeted by the project, and has identified them as a Protected Areas (PAs) through Presidential Decrees. Barraderes and Cayemites' declaration was decided by the GoH on 29 March 2017, which is a fairly recent event and highlights the need to advance on this momentum. The declaration gives the parameters for demarcation; however, this needs to be translated into practical enforcement and climate-resilient sustainable practices, which would distinguish these protected areas from non-protected sites. Communities are often unaware that they live in a site deemed to be protected, and do not benefit from any protocols that would benefit their environment and build resilience. Climate-resilient management plans are needed for articulating the ecological and socio-economic values of the protected areas, as well as identifying sustainable measures that communities can undertake to protect their livelihoods and futures in the face of climate unpredictability. In the case of Macaya, while an initial management plan has been developed with collaboration from key stakeholders, climate-resilient measures need to be implemented and the local populations still require support and training for building and maintaining resilience. In the case of Barraderes and Cayemites, a UNDP project is in the process of identifying and strengthening key stakeholders that would contribute to climate-resilient management proposed in this project.

**The main problem** this project seeks to address is that the project zones are highly vulnerable to frequent and severe climate events that threaten local populations' livelihoods, food security and well-being. In order to cope with socio-economic circumstances, communities are undertaking maladaptive practices which degrade ecosystems and render communities more vulnerable in the face of climate events such as storms, hurricanes, droughts and floods, which are increasing in frequency and intensity. This creates a negative cycle of increasing vulnerability and desperation in the context of growing climate unpredictability. There is also the issue of immediate danger posed by climate events, and the slow onset of climate change, which means that if current agriculture and livelihood practices do not change, there will be catastrophic outcomes with regards to food security in the near future.

**The solution** to this problem, which will be further developed in the next section, seeks to break this negative feedback loop by: (i) enhancing environmental governance that can guide development, sustainability and enforcement of climate-resilient practices; (ii) rehabilitating environmental zones so that they may buffer vulnerable communities from negative impacts of floods and droughts and provide greater food security; and (iii) providing alternative livelihoods and economic opportunities through resilient value chains that are suited to project implementation zones. The goal will be to disrupt the ongoing depletion of natural resources that is increasing vulnerability to climate change impacts and leading to entrenched poverty. Instead virtuous feedback cycles will be sought: communities will sustainably use and manage environmental resources which increase their resilience and implement measures which support adaptation to climate change, while strengthening their livelihoods and food security.

The project focuses on Ecosystem-Based Adaptation (EbA) and Ecosystem-Based Disaster Risk Reduction (Eco-DRR) approaches in addressing the climate change challenges outlined above. EbA approaches use biodiversity and ecosystem services to help people and communities adapt to the adverse effects of climate change, where as Eco-DRR entails the sustainable management, conservation and restoration of ecosystems intended to reduce disaster risk, including in the face of extreme climate events, with the aim to achieve sustainable and resilient development. Although Eco-DRR and EbA approaches have much in common in practice and are different ways to express the relationship between risk management and development strategies, they often operate under different policy fora, have slightly different foci and are often undertaken by different institutions, mirroring differences seen generally under climate change adaptation and disaster risk reduction[16]. The project will appeal to both sets of policy actors and will integrate the language and concepts of EbA and EcoDRR in order to build a stronger constituency of support for adaptation interventions.

After the passage of the category 4 Hurricane Matthew in Haiti, EbA and Eco-DRR approaches have been proven to be more necessary than ever. On the aftermath of the hurricane it was noted that the capacity and speed of natural recovery are superior when ecosystems are healthy. Considering the importance of ecosystem-based livelihoods in rural Haiti (agriculture, fisheries, tourism), natural recovery is a key process contributing to socio-economic resilience of the population affected. Furthermore, natural assets such as mangrove forests were used by fishing communities as successful shelters for boats and fishing gears, in coastal areas located several dozen kilometers away from the eye of the storm. Taking into account these lessons learned, this proposal is designed to further strengthen environmental resilience and fortify natural buffers in order to protect and build the resilience of local communities and economic assets.

Given the topography of the targeted areas composed of mountains and coastal areas, the specific challenges communities in these sites face, and the interconnections between marine and terrestrial ecosystems, a ridge-to-reef approach is recommended. UN Environment has applied this approach to all its initiatives in Haiti's Southern region, as it recognizes the environmental and economic interconnectedness among upland and coastal activities and



livelihoods. There are several factors which contribute to strong interconnections between these upland and coastal areas and thus to a ridge-to-reef approach, including the following:

- Steep topography which results in rapid and devastating run-off;
- Rising seas, damaging storm surges, coastal deforestation and sand mining contribute to land loss, and retreat of shoreline, with implications for upland communities and settlements;
- Agricultural practices and deforestation upland result in soil erosion and land degradation, with impacts on coastal communities; and
- Strong interlinkages (both environmental and economic) between fisheries and agriculture. Most fishing communities cannot survive on fishing alone and practice some form of small-scale agriculture upland. Poor agricultural practices and soil erosion negatively impact fisheries, forcing people into agriculture upland.

### **Threats and Barriers**

The threats and barriers to adaptation include:

*Deforestation:* Haiti is one of the most deforested countries in the world, with forest cover estimated at just 3.5 per cent.[17] Deforestation contributes to soil degradation, erosion, flooding, desertification, and scarcity of water resources. Dependence on charcoal and firewood as energy sources is the major contributor to deforestation. Haiti has attempted to carry out reforestation projects over the years, but few have succeeded. This is due to poor maintenance, lack of soil material for trees' roots, pests, inadequate soil moisture in the dry season, failure to develop selective tree species breeding, lack of energy alternatives and livelihood options. Most importantly, deforestation has continued due to the inelastic demand and ongoing supply of charcoal, which is predominantly used as fuel in Haiti. Other projects have also sought to combat deforestation through reforestation initiatives that have only led to the deforestation of the planted trees. Without other beneficial uses of trees, an understanding of why reforestation is necessary, sustainable/affordable alternatives to charcoal, and livelihood means lucrative enough to replace charcoal production, deforestation will continue. Widespread sharecropping and renting of land also impact the sustainability of reforestation initiatives: tenant farmers lack incentives to invest in long-term efforts such as tree cultivation and agroforestry. There are however, success stories in pilots carried out by UN Environment. These have involved the development and maintenance of climate resilient species' nurseries—including multi-use trees, even in conditions of drought, successful planting and maintenance of mangroves with extensive local awareness/training, and successful handover to local communities to foster a sense of local ownership. There are also successful experiences with *forets energetiques* which involve the cultivation of fast growing species specifically grown and harvested in different cycles for sustainable charcoal production. These experiences, in remote areas like Maniche for instance, have been ongoing for over a decade, have decreased the rates of deforestation in that area, and have allowed farmers to populate lands with other agroforestry so that trees can provide multiple benefits other than charcoal. However, these practices have not been upscaled. Smaller local organizations are now beginning to test this out with demonstrable success in the last three years (e.g. the Organization for Rehabilitation of the Environment has been carrying out this practice through support of UN Environment in Camp Perrin, Port-a-Piment). However, these pilots have not been carried out in the areas targeted by the project.

*Unsustainable livelihood practices:* Many of the practices that people depend on are unsustainable and exacerbate the negative impacts of climate change. In the project sites, mangroves, which have traditionally assured some form of coastal protection are being depleted for charcoal production, and reef rock is often mined for lime production. Sand mining is common for construction purposes. This destruction of natural buffers is induced by a lack of livelihood alternatives, but also aggravates the overall vulnerability of communities to coastal hazards. Poor agricultural practices diminish the diversity of soil biota. Poor practices can also result in soil, vegetation and water resources degradation. Agricultural practices such those being used in target sites can result in greater vulnerability in the face of climate change and impact ecosystem services such as pollination, nutrient cycling and regulation of pest and disease outbreaks[18]. While there are laws in place against some unsustainable practices, there are no governance and enforcement mechanisms in place. One of the lessons learned from UN Environment's successful initiatives in the South has been to work directly through local organizations, cooperatives and community associations, as well as create technical capacity within regional governmental units, where there is no capacity. This has resulted in a greater adherence to norms and protocols and many of these become socialized within communities. This is a strategy that will also be utilized in the proposed project. The results will be far more significant when local organizations/entities are directly responsible for implementation, with support and monitoring, as has been demonstrated through experiences over the last seven years.

*Pests and diseases:* Climate change is known to impact the movement and distribution of pests and diseases worldwide. A strong core of biodiversity can positively reduce the impact of pest and diseases, however, given that Haiti is experiencing biodiversity loss, habitat degradation and ecosystem deterioration, pests and diseases are likely to increase and may exacerbate biodiversity loss. In the coffee plantations of Grand'Anse, coffee cultivators are increasingly finding their crop destroyed by scolyte (insect) or plant rust (fungi). While some are trying to move to higher elevations, the steepness and poor soil quality often make it challenging to successfully cultivate beans. The climate has had a direct impact on the coffee industry, for which Haiti was once a leader. Crops which once thrived, such as banana, have suffered. There are however success stories such as increasing shade for coffee crops through deliberately planned agroforestry (which does not impact the flavour of the coffee), and of more resilient species identified in other islands of the Caribbean, which can be replicated in project sites.

*Lack of environmental awareness and knowledge:* While it is acknowledged that there are increasing seasonal changes, in general, there is a lack of knowledge on how best to adapt to climate change, both at the institutional and local levels. Communities observe that the onsets of the rains are not as expected, and have experienced droughts and hurricanes very late in the season. However, the planting and harvesting seasons are being carried on as they used to despite the fact that dramatic seasonal changes have been observed in the last five years. This project will seek to increase knowledge and capabilities around the unpredictability that will be observed, and introduce practices that can help adapt to climate variation. Lack of environmental awareness has also contributed to deforestation, soil erosion, pollution through poor waste management, overfishing and biodiversity loss, among other environmental impacts. Without adequate environmental awareness, people are unable to see the links between their day-to-day activities and impacts on the environment. Similarly, many decision-makers may arrive to their positions of power without being aware of the far-reaching consequences their decisions can have on the environment. There is also a lack of knowledge on how environmental degradation will in turn negatively impact individual households, and contribute to vulnerability in light of climate change. The lack of environmental awareness means that communities are unaware of the type of adaptation measures they can implement to manage the impacts of climate change. Opportunities are lost to build resilience and to cope with climate change. Environmental awareness and information generation will be a crosscutting activity, which will be applied to all interventions.

*Weak regulatory and institutional capacity:* There are general weaknesses in the legislative apparatus, in the institutional framework, and the enforcement capacities of the state, to apply environmental law. The regulations that exist are weak and poorly understood at the local level. The judicial system is poorly equipped, perceived as biased and unable to ensure application of environmental norms guaranteeing socio-economic and environmental rights of all citizens. The environment ministry has low influence on national decision-making. There is a lack of leadership to implement environmental priorities and projects. While there is some political interest in improving environmental management, as manifested by the demarcation of the protected areas, many challenges remain, including the lack of enforcement capacity. The lack of regulations, awareness and comprehension of existing laws act as an additional impediment given the current context of rapid infrastructural development. One of the main gaps is governance at the local level, which could support and accompany communities in building resilience. UN Environment has the experience of improving governance in other zones in the South, through technical support and training of *departmental* representatives of key ministries (Environment, Agriculture & Fisheries), and through local organizations, cooperatives and associations. This know-how will be applied to the project sites and key institutions, which require support to strengthen governance. The Government of Haiti is currently in the process of developing a draft climate change policy. There are also plans to develop a National Adaptation Plan (NAP) in the coming years. This highlights an interest and recognition on the part of the government to include climate change-related policy-making in its work. However, given the low institutional capacity and the disconnect from the community level, local partners and organizations will have to play an active role in supporting concrete climate adaptation actions on the ground.

### **Root causes**

***Poverty-*** Haiti is the poorest nation in the Western hemisphere; people seek to survive off scarce natural resources. Impoverished individuals have sought to sustain themselves by chopping down large amounts of forests resulting in denuded mountains and high amounts of runoff and floods. In 1980, Haiti still possessed 25 percent of its forests, assisting the country to withstand rain events such as 1979's Category 3 Hurricane David without any loss of life. However, as of 2004 with only 1.5 percent of forests remaining, even strong tropical storms can cause devastating floods, leading to a large loss of life.

Poverty has pushed people to deplete other natural resources such as mangroves, fish stocks, and various species of animals. The lack of alternative livelihoods or vocational employment in the South has restricted people's ability to support themselves. As a result, natural resources are often the only source of revenue for many.

The capacity to cope with climate variability, negative impacts of climate change and extreme weather events is also highly dependent on the level of economic development. In general, livelihood sources of the poor are narrower and more climate-sensitive.<sup>[19]</sup> Extreme weather events often cause greater damage and substantial loss of life in poorer countries. Those that are poverty stricken are particularly vulnerable to impacts such as prolonged drought and to natural disasters such as floods.<sup>[20]</sup>

***Political instability, conflict and corruption-*** Years of political instability and conflicts within the country have nurtured corruption, violence, and lack of confidence in government structures. Transitions have led to a succession of ministerial staff with differing attitudes towards environmental management. For example, in 2006, the government adopted a series of decrees on decentralization. They included a description of local authorities' mandates in the management of natural resources and the environment. These ordinances were put on hold by the next government, which never fully fulfilled them. This has

also reduced the confidence of the people in the state, thereby limiting the enforcement capacity of the state, and increasing communication challenges between the state apparatus and the local citizenry. In the last three years there have been four ministers of environment which creates challenges of continuity at the central level.

The lack of political stability also exacerbates the negative impacts of environmental degradation and climate change. The lack of coordinated and consistent policies means that opportunities are lost to legislate effective adaptation interventions. With competing - and at times conflicting mandates - government institutions are unable to coordinate the actions needed to mitigate the negative impacts of climate change.

### ***A1.2 The baseline scenario and associated baseline projects***

#### **Co-financing and Baseline Projects**

There are two baseline initiatives from which the project will leverage co-financing. This includes (a) a project financed by Agence Francaise de Developpement (AFD) through the Fonds Francais pour l'Environnement Mondial (FFEM), implemented by UN Environment called: "*Appui aux filieres durable et à l'aménagement durable des bassins versants dans le Departement du Sud*", and (b) the *Macaya Grand Sud*, Phase II project funded by the Government of Norway and implemented by UN Environment.

#### ***(a) Appui aux filieres durable et à l'aménagement durable des bassins versants dans le Departement du Sud***

The aim of this project is to strengthen ecosystem management in the *Department du Sud* of Haiti, and in the system of protected areas, by improving the management of watersheds through better water management, combating erosion, and through income generation for sustainable, diversified activities for farm households.

The project has three specific **objectives**:

- (1) To develop viable agricultural commodity value chains for agroforestry products, particularly cacao, to promote the development of forest cover in catchment areas and generate sustainable income for producers
- (2) To contribute to the protection of watersheds in vetiver production areas in order to sustainably combat soil erosion upstream of marine protected areas and contribute to the diversification of the income of vetiver producers
- (3) To strengthen the capacities of stakeholders in watershed management, the use of agro-ecological practices and techniques for the protection of soils and gullies, taking into account economic value and the local social context.

The project addresses three of the four challenges of Haiti's agricultural policy: (i) the creation of rural employment opportunities to curb the exodus to cities; (ii) increased agricultural input in foreign currency; and (iii) reducing environmental vulnerability.

The baseline project will focus on increasing production and cultivation of cacao and vetiver, through improved techniques, equipment, labour, and marketing support. Without adequate climate change planning these sectors will be at risk for failures in the future. The LDCF project will promote adaptive soil conservation measures, which can be built into baseline agroforestry initiatives. The LDCF project will also provide specific climate change adaptation recommendations for key value chains (e.g. cacao, vetiver) to ensure long-term success of baseline initiatives. The LDCF project will also promote pest-resistant, local, resilient species and nurseries which can be utilized by the baseline project.

The baseline project will also support both the strengthening of vetiver cooperatives as well as the development of watersheds. The LDCF project will work with key stakeholders of the region which include producer groups, to disseminate best practices to build climate change resilience. The baseline initiative with cooperatives provides an entry point and backdrop against which climate change adaptation awareness activities can be undertaken. Climate change has been negatively impacting vetiver cultivation due to changes in the rainy season (good quality vetiver is typically harvested once a year). Vetiver is one of the key value chains in the region. With Haiti being the leading exporter of quality vetiver oil in the world (for fragrance), integrating climate change considerations is necessary to ensure that this vital value chain is resilient. The LDCF project, through its value chains study and recommendations, will seek to support this and other key value chains in the region, by identifying specific recommendations.

While the baseline project will develop watersheds, it is essential that adaptation considerations be folded in its approach for long-term sustainability. As such, the LDCF project will pilot water capture and storage interventions so as to demonstrate how climate resilience can be built into improved management of water resources. The EbA and Eco-DRR interventions, including the rehabilitation of ecosystems, can also provide crucial lessons learned that can be integrated into watershed planning in the baseline project.

There is immense complementarity with the proposed LDCF project, although the LDCF project will carry out activities with the aim of building climate resilience, while providing other benefits. The baseline project will be carried out in the *Département du Sud*, with the expectation that it will provide lessons learned for the “Grand Sud” and support national objectives for development of the Southern region as a whole.[21] Due to complementarity, there can be a sharing of resources, exchanges among stakeholders, sharing of best practices and lessons learned, and coherence among approaches. The LDCF project will also seek to ensure that it does not promote value chains that disrupt local economies. For example, if certain value chains are being pursued in the baseline and other projects, the project will not flood the market with the same agroforestry products, and will seek effective coordination to maintain demand for products from Barraderes et Cayemites and Macaya.

*(b) Macaya Grand Sud, Second Phase*

This project has been approved, and its commencement will overlap with the PPG period. The project seeks to increase surveillance within Macaya National Park, which will be integrated into governance structures. The baseline project will identify the key stakeholders, community groups and local populations that need to be engaged for successful management of Macaya. The anticipated results from this baseline project include:

- Improved monitoring and surveillance within the heart of Park Macaya itself. This will involve community-based surveillance plans and protocols, along with reinforcement from enforcement officers from the Ministry of Environment.
- Development of sample templates for contracts with local communities residing in Macaya and the buffer zones for protection of biological resources.
- Information collection on biodiversity values and socioeconomic data, which support a strategic approach for management and governance suited to the local environmental, social and economic context of Port Salut-Abacou and Macaya.
- Development and implementation of a community-based fire safety plan and developing safety protocols, while addressing fire threats related to slash and burn agriculture practices, open grazing, deforestation and charcoal production.
- Clarification of mandates, roles and responsibilities of those working with the Park (ANAP, Direction du Park, partners, communities, local authorities, CBOs and NGOs) through clear programmes of work.

The LDCF project will benefit from the investments made under the baseline project, such as research on biodiversity values and enhanced clarity on stakeholders and the roles and responsibilities they have over Macaya.

Furthermore, under the Macaya Grand Sud project, UNEP is supporting the establishment of the Haitian Biodiversity Fund (FHB). The FHB aims at facilitating funding in the medium and long term for initiatives and actions carried out by local stakeholders for the conservation and preservation of biodiversity in Haiti. On 3 May 2019, the FHB was legally created and recognized by Haitian law. As such, it is a major milestone reached through the technical/legal assistance from the Macaya Grand Sud project.

Based on this first step, the French Development Agency has pledged for a financial commitment amounting to 13 million USD to the FHB ([link](#)), in addition to 10 million USD pledged by the German Development Bank (KfW) ([link](#)). In terms of next steps, World Bank will now be supporting staffing and operations of the legally established entity, and UNEP will continue its assistance in capacity building, strategic planning and resource mobilization through the Macaya Grand Sud project.

The creation of the Haitian Biodiversity Fund will be key to bridging the financial gap to support the sustainable development in the Baraderes & Cayemites as well as the Macaya sites targeted by this LDCF project. It is a major advancement in moving from project-based, discontinuous and fragmented approaches to funding for protected areas towards a more integrated and consistent approach, and will facilitate the development of a common and concerted vision for protected areas in Haiti.

With regards to building on the baseline, while within the baseline project surveillance and monitoring will be conducted in more traditional terms of use and movement, the LDCF project will contribute the notion of adaptation monitoring. With the high levels of vulnerability that populations face in Macaya, the project can support ways in which adaptation and resilience can be monitored, and integrated into monitoring of people and biodiversity values. The LDCF project can also support the application of Eco-DRR and EbA approaches as critical elements of fire safety plans and other disaster reduction plans.

The LDCF project, through improving knowledge of stakeholders on climate change adaptation, can integrate adaptation measures into biodiversity protection. The nexus of climate change and biodiversity can be explored and addressed to demonstrate how protection of critical biodiversity can support long term resilience. Climate change vulnerability studies planned under the LDCF project can also supplement the biodiversity-related data available and support in designing effective policy recommendations.

The LDCF project, through its own interventions in promoting the development of resilient management plans, can also support the allocation of responsibilities related to climate change adaptation to specific parties, making them more accountable, and reinforcing the mandates identified in the baseline.

Furthermore, the proposed LDCF project's outputs such as awareness raising and training to fishing associations on coral reef preservation are anticipated to further enhance the protection of the biodiversity resources of Macaya Park and its buffer zones. One of the major problems in Macaya Park and its buffer zones is that biological resources are exploited for human use without any clear alternatives. The report on the construction material alternatives to coral and other natural resources to be developed by the LDCF project is an enabling activity that can catalyze the uptake of alternative construction materials. This would further contribute to the protection of the biological resources being depleted. This LDCF output will thus support the plans and protections enacted by Macaya Grand Sud, Phase II, by building capacity and providing practices that can be applied to meet the aims identified in the baseline project.

### **Key Linkages**

In response to the numerous natural disasters, which have affected the country over recent years, and in recognition of the country's extreme vulnerability to climate disasters, international projects have established a baseline of investments. However, the implementation sites selected are zones where adaptation interventions are either not active, or have not successfully addressed urgent climate adaptation needs, or where there has not been sufficient investment on the part of international agencies in enhancing climate-resilience. Haiti's history is filled with haphazard international projects, however there is an emerging understanding among key actors to target different and adjacent areas, so as to work with complementarity to achieve greater coverage and prevent the duplication of activities. This coordination has been led by UN Environment and has visibly increased in the South of the country. The projects that are currently underway in the South, with which this project will seek complementarities include:

"Measuring and Monitoring Ecosystem Services in the Protected Areas of the Southern Peninsula"- funded by IADB for USD 250 million. This project began implementation a year ago, and although is focused on the South, targets a different protected area and zone (Les Anglais), and does not have a climate change adaptation focus.

"Exchange of Experiences Between Belize and Haiti"- funded by IDB for USD 20 million. This project began implementation in 2016 and looks at possibilities of sharing best practices and making fishing more resilient. While there is not a focus on climate change adaptation, there are some best practices, aspects of resilient fisheries that can be learned from.

Co-financed by IDB and Swiss Cooperation Catholic Relief Service (CRS), a project in Grand'Anse 2015-2017 for USD 5,020,000. This project seeks to increase income of 7,000 cacao producers in Haiti. The specific objective is to strengthen the capacity of producers to supply cacao in high value markets. The project seeks to improve the participation of cacao farmers and cooperatives in the cacao value chain through a four-pronged approach: (a) market access, (b) technical training and new technologies, (c) access to finance, and (d) access to collaborative networks. As this project is ending, the proposed LDCF project can build on lessons learned, use some of the networks and value chains that have been studied, and apply these while promoting a climate change adaptation angle.

"Strengthening Hydro-Meteorological Services" - a World Bank project that has recently commenced and will run until 2020, with the objective to strengthen the country's institutional capacity to provide hydrometeorological and climate data. In particular, the project will seek to provide more data for the agricultural sector to help with planning. The project is based on three main aspects: (i) Institutional strengthening of the hydrometeorological services and development of data management tools to focus on the integration of existing hydromet data into one national platform, (ii) Identification of hydrometeorological and climate services' requirements to support end users, and (iii) Supporting the Ministry of Agriculture in building capacity for application of climate data obtained. The project will yield results that will be useful for the implementation of the LDCF project. In particular, if it is able to provide accurate climate data and projections, some of that information can be downscaled and used for adaptation planning purposes, as well as for disseminating early warnings, in the two pilot sites. The project will provide USD 500,000 of co-finance to the proposed LDCF project.

International Labor Organization (ILO), with funding from Norway in partnership with the National Institute for Vocational Training (INFP), initiated a training program for agricultural producers in 2016. The project will tackle training on the cacao, vetiver and fishing sectors in the department of the South and Grand'Anse. For each sector, two to three cooperatives will be strengthened and trained. The INFP in partnership with the actors of the sectors will develop curricula on the identified paths (training of trainers, publication of pedagogical booklets). Young people from cooperative areas will be prioritized as target beneficiaries. In addition to training, the project will be able to finance equipment (e.g. fermentation boxes for cacao cultivation). The focus of this project is strengthening employment of youth and agricultural producers. The proposed LDCF project can both glean knowledge from investments made in various value chains and how these performed in supporting livelihoods, and contribute a climate change adaptation angle.

Furthermore, UN Environment is currently initiating the development of a Regional Integrated Monitoring System for ecosystem health, resilience and management. Haitian authorities and partners are facing a major governance and monitoring challenge related to ecosystems management. In order to improve governance systems, the project will assist authorities and communities with integrated land use planning and management tools and processes at commune and department levels. However, there is also a clear gap in terms of monitoring capacities, particularly to move from activity-level to impact-level monitoring at landscape scale. The project will aim at establishing an integrated monitoring system covering the targeted areas, which include the Macaya site targeted by the proposed LDCF project. This M&E system will bring together both statistical and spatial data covering all aspects of the transition towards resilience and sustainability, including environmental restoration and protection, food production, livelihood improvement and inclusive socioeconomic development. It will work as a practical and powerful dashboard allowing authorities at departmental, commune and protected area levels to effectively manage the transition towards resilience and to comply with related safeguards. The M&E framework will draw on and link the various existing data sources that are scattered across administrative entities and levels of government. The monitoring system will also directly contribute to strengthening conditions for effective governance and enforcement of management plans, including forest protection and traceability of commodity value chains. This project will be highly complementary to the proposed LDCF project, in that it will support the establishment and effectiveness of the protected area governance mechanisms, and the development and enforcement of climate-resilient management plans, as well as providing data to support the implementation and monitoring of the ecosystem-based adaptation interventions. USD 550,000 is currently secured for the implementation of the project, of which USD 350,000 will be allocated as co-finance to the proposed LDCF project. It is likely that another USD 500,000 will be secured as co-finance during the project lifetime.



Finally, the Global Adaptation Network (GAN), which is a UN Environment-coordinated knowledge management initiative, will be instrumental in collecting and making available relevant experiences and lessons learnt that can inform the project. It will also facilitate the dissemination of results from the project across the region (through the REGATTA platform), as well as globally. The GAN will provide USD 100,000 of co-finance to the proposed LDCF project.

### ***A1.3. The proposed alternative scenario, with a brief description of expected outcomes and components of the project***

The *departements* of *Grand'Anse*, *Nippes* and *du Sud* have faced near complete crop damage, destruction of infrastructure and households, shortage and diversion of water sources, and extreme food insecurity, in the aftermath of severe climate events. In the business-as-usual scenario, maladaptive practices at the community and government levels will continue to take place, thereby increasing people's vulnerability in the face of climate events. With limited resources, there is a high risk that communities will undertake maladaptive measures for short-term sustenance, which will be followed by haphazard development as has been witnessed in the aftermath of other climate events in Haiti. Given the extent of food and water insecurity, competition for scarce resources could also lead to social issues such as conflict and displacement. With increased frequency and intensity of tropical storms, floods and droughts, these underserved regions of Haiti will therefore continue to suffer the devastating impacts of climate change on agriculture, infrastructure, water resources and food security, resulting in greater levels of poverty and social tensions.

This project proposes to disrupt the negative feedback loop by strengthening adaptive planning capacities, including ownership of the need for adaptation planning, both at the government and local level. The devastation in the project sites offers an opportunity for building adaptive measures into development so that there is coordination among management of natural resources, development of livelihoods, and rehabilitation of ecosystems with resilience-building as a central unifying theme.

With GEF financing, in the alternative scenario, this project proposes to apply UN Environment's expertise and value-added in the field to build adaptive capacity in Barraderes et Cayemites and Macaya sites. In order to build resilience in these devastated communities and to ensure that the development process takes adaptation into account, the project will focus on three axes: (1) Strengthening Climate-resilient Governance and Planning; (2) Supporting Ecosystem-Based Adaptation and Disaster Risk Reduction; and (3) Investing in the Green Economy Approach for Resilient Ecosystem-Based Livelihoods. The Theory of Change for the project is included as Appendix 1.

Given the combination of coastal zones, mountains and hills, the project will implement a ridge-to-reef approach which takes into account the impacts and flows that activities have on the varying ecosystems. Focusing on one ecosystem per site would limit impact that one can have on climate stressors, and on potential adaptive practices.

### **Component 1**

The **first component** focuses on climate-resilient governance, as the project recognizes that without effective governance structures the business-as-usual scenario will ensue. In the current context, there is no national or decentralized leadership explicitly supporting climate change adaptation at the local level (i.e. in the context of municipal governments, mayors, CASECs and ASECs)<sup>[22]</sup>. Without effective governance there is a lack of guidance, support and

enforcement of adaptive practices in zones that are highly vulnerable to climate impacts and extreme events. Currently, there are numerous international donors/NGOs whose activities are uncoordinated, and people in rural areas are not involved in their own adaptation planning. This leaves these communities more vulnerable to climate events.

There is **one outcome** planned under this component:

#### 1.1 Institutional governance and capacity strengthened to reduce vulnerability of physical assets, natural systems and livelihoods in Macaya and Barraderes & Cayemites

Under Component 1, the project will carry out a climate risk and vulnerability assessment to measure the impacts of climate change on food security, water, energy, security and livelihoods, including a gender gap analysis. The study will provide insights into the extent to which the communities in the two sites are susceptible to or unable to cope with the adverse impacts of climate change. Ecological and social indicators will be developed to provide data on how communities are responding to change, what their exposure to risk is, and what are the most pressing risks. The outcomes of the assessment will help develop management actions that can be implemented to reduce vulnerability and to identify best adaptation interventions according to each site.

The project will seek to support the establishment of multistakeholder protected area governance mechanisms on climate change risks, vulnerability and adaptation (including ecosystem-based adaptation approaches) in Barraderes et Cayemites, and support the baseline efforts in this regard in Macaya. The governance mechanisms will be composed of governments, CASECs, ASECs, local communities and civil society organizations and associations, and build their capacities with regards to climate change adaptation.

This component will support the development of participatory and community-based climate-resilient protected area management plans, which will be generated through the governance structures themselves, so that stakeholders can test their governance structures through learning-by-doing. Activities will be tied with *Agence Nationale des Aires Protegees (ANAP)*'s mandate to ensure that work is anchored in Haiti's government structures for sustainability. ANAP will play a key leadership role in managing this process, while working closely with the Ministry of Agriculture and Fisheries (MARNDR). Civil society organizations and municipal entities, and village-level structures, will be involved in fact-finding, stakeholder analyses and formulation processes for the management plan.

The UN Environment Haiti Country Programme has expertise in bridging gaps between departmental line ministries and village-level constituents, and providing capacity-building to line ministries to address issues on the ground. As such, through fact-finding, management plan development, and implementation of the plan processes, UN Environment Haiti will bring these various stakeholders together to design management plans that suit the needs of beneficiaries residing in these high risk areas.

One of the opportunities of working in protected areas is to galvanize the momentum around them and support the formation of coordinating structures, with a view to ensuring that they will integrate climate change and adaptation considerations in protected area management, and promote ecosystem-based adaptation approaches. The momentum around protected areas allows project implementation to target areas, leverage resources, coordinate interventions of partner organizations, and key stakeholders under one umbrella. Most importantly, protected areas provide the opportunity to establish improved governance to ensure that adaptation actions can actually be executed on the ground in a coherent manner, with endorsement from the government and local communities.

This Component is structured based on the lessons learned from UN Environment's activities in Haiti. As was noted in an evaluation of the Haiti Country Programme (2017) "Using MPAs<sup>[23]</sup> as a strategic entry point has allowed the UN Environment Country Programme to galvanise significant resources, interest, activity, communication and commitment around protection of ecosystem services, biodiversity, and livelihoods, in subsequent approved projects. The Protected Areas are now used as a rationale for on-going work in the South."<sup>[24]</sup>

This lesson learned is crucial as Haiti is filled with accounts of projects that were unsuccessful. In order to successfully promote the adoption of adaptation actions and address the pressing needs of vulnerable communities, initiatives have to be anchored in governance structures. The approach around protected areas has now consolidated the efforts of many international donors (IADB, UNDP, FAO, EU), line ministries (MARNDR, MDE, CIAT, Tourisme) and civil society organizations. In fact, ANAP is in the process of establishing an "ANAP Sud" office to directly manage the new protected areas, whereas before there was little on-the-ground activities in the South. The investments to create a presence in the South demonstrate the political will, the capacity that has been fostered in the last five years to increase an understanding of the vulnerabilities in the South, and the coherence of programming and funding that is taking place in the Southern region of the country.

In addition to climate-resilience planning, to ensure that local communities, farmers and those living with scarce and vulnerable natural resources know how to adapt to changing climate circumstances, interventions under this component will also promote capacity-building in Ecosystem-based Adaptation (EbA) and Ecosystem-based Disaster Risk Reduction (Eco-DRR) within institutional frameworks. The project recognizes that the level of impact of climate disasters and long-term climate change is largely based on how equipped communities are to manage their environment, how prepared they are for a climate crisis, and what resources they have for recovery. In Haiti, the impacts of climate crises result in greater loss of life than in Cuba, for instance, which has the mechanisms in place for improved disaster risk reduction. For that reason, the project will promote the sustainable management and restoration of ecosystems to provide services that contribute to climate change adaptation and reduce disaster risk by mitigating hazards and increasing livelihood resilience.

EbA and Eco-DRR initiatives will be integrated into strengthening governance at the departmental and national levels<sup>[25]</sup>. EbA and Eco-DRR methodologies and protocols will be identified, collected and integrated tangibly into the programmes of work of the ministries of Environment, Agriculture and Fisheries and the Ministry of Environment, and Directorate of Civil Protection both at the departmental and national levels. EbA and Eco-DRR training will be provided to key ministerial staff, as well as to communities to decrease the severity of impacts caused by climate events.

Strengthening climate-resilient governance and planning addresses urgent and pressing needs. With scarce natural resources, and shortages of water and livelihoods, the needs of local populations are dire. Without adequate planning measures, effective implementation and enforcement, the vulnerability to climate unpredictability will continue. Through improved climate-resilient management, the project will support ecosystem services that are essential for day-to-day survival of communities, and promote their sustainable use for the long-term. Further, without adequate planning and management, it is likely that ad-hoc development/construction and practices may further stress existing resources. Strengthening governance will also ensure that activities planned under Components 2 and 3 can be carried out effectively.

The number of beneficiaries targeted by this component will be identified at the PPG stage. At PIF stage it is foreseen that there will be at least two multi-stakeholder governance mechanisms established (one per site), serving at least 5,000 beneficiaries each, totaling 10,000.

Under Component 1, the project will also seek to establish a strong science policy interface in order to demonstrate the cost-effectiveness and benefits of ecosystem-based adaptation. This will be carried out through information-sharing and peer learning opportunities, as well as through evidence-based interventions. A survey will be distributed to sample communities in two protected areas during the PPG phase to establish a baseline. During the project duration, the sample communities will be consulted to measure the progress of project interventions in each year of the project duration, and to assess whether exposure to risks, and improvements of livelihoods have indeed taken place. The indicators developed during the PPG will also specifically assess evidence-based outcomes that can inform policy-making.

## Component 2

The **second component** of this project will focus on promoting ecosystem-based adaptation and disaster risk reduction at the local level through downscaled environmental rehabilitation interventions. While the first component seeks to build capacity for integrating EbA and Eco-DRR at the institutional level, the second component will focus on environmental rehabilitation and adaptive interventions on the ground that can support communities to respond to urgent needs.

The state of Haiti's denuded mountains provide clear imagery of the relationship between degraded ecosystems and the devastating impacts that local communities have to bear following even minor climate events. For instance, in 2004, 18 inches of rain caused floods that killed over 2,500 people. Given the intensity of Hurricane Matthew, and the scale of destruction with some communities listed as being 90 percent destroyed, the project will take on ecosystem rehabilitation in the coastal zones of Barraderes et Cayemites, and in the buffer zones of Macaya. This will include planting of agroforestry and mangroves, increasing access to water, and addressing unsustainable soil conservation practices which have contributed to flooding and erosion.

There is **one outcome** on ecosystem rehabilitation under Component 2:

### 2.1 Enhanced climate-resilient land management, environmental protection and rehabilitation practiced by local authorities and communities

Based on the disastrous impacts of the hurricane, earthquake and other tropical storms, it can be assumed that current disaster risk reduction initiatives do not suffice in mobilizing populations and safeguarding them from the loss of life and livelihoods. The rehabilitation of these zones will include an ecosystem-based approach to disaster risk reduction, which will promote ecosystem-based solutions that improve local livelihoods while integrating disaster reduction and climate change. The key goals of the environmental rehabilitation activities piloted under this component will be to:

- Reduce vulnerability to food insecurity and water shortages,
- Build resilience to climate disasters to reduce loss of life, livelihoods, and infrastructure, and
- Engage communities and support community-based adaptation to promote the wider adoption of the resilience-building practices.

The activities proposed for rehabilitation, in the alternative scenario, respond directly to the vulnerability being experienced by local populations. Examples of the pilot interventions will include:

- Promoting climate-smart agriculture, including adaptive soil conservation practices (such as contour hedgerows, rehabilitating ravines, intercropping), use of short-range and seasonal weather forecasts, and integrated pest management;
- increasing access to water through local irrigation pilots (canalisation) which resist erosion, ground water recharge pilots, rainwater harvesting and reservoirs, and floodwater storage and capture; and
- rehabilitating coastlines and rivers (from the source to the mouth) through targeted reforestation with climate-resilient coastal and riparian species and establishment of associated nurseries.

Initiatives under this component will seek to build resilience with the rationale that resilient communities are better placed to manage hazards and risks. These activities will be fine-tuned according to the findings of the vulnerability assessment conducted under Component 1, to ensure that specific risks are being addressed by the interventions proposed. With the experience of drought from 2013-2015, it is clear, however, that any rehabilitation measures will have to include considerations for improved access to and management of water resources. A survey will be carried out during the PPG to identify sample communities' current exposure to risk, identify current disaster-preparedness measures, and to provide the baseline data against which progress can be measured during project duration.

The piloting of climate-resilient management and rehabilitation activities under Component 1 will be undertaken with the full participation of communities, including municipal representatives, coastal and fishing community representatives, key community-based producer organizations, local contacts and representatives of the DPC, and women and youth. The implementation of the pilots will include community participation in the identification of specific climate risks and hazards, current failures in managing them, and possible strategies to address them, as well as training (including on the benefits of the rehabilitation activities), awareness-raising and learning-by-doing approaches, to encourage the wider uptake and up-scaling of these practices. The PPG phase will determine the most effective way of engaging and convening communities to the planning and implementation components of the project.

Recent tragedies have created some awareness that agroforestry and thriving ecosystems can reduce the risks that people face. Small local organizations have begun, through support from UN Environment, reforesting ravines and gullies so as to protect coastal communities, which directly experience sedimentation and runoff given the rains or winds. This interest provides an opportunity for successful stakeholder engagement.

### Component 3

With GEF financing, the **third component** will focus on the development of a Green Economy for resilient ecosystem-based livelihood opportunities in the project areas. For resilient livelihood alternatives to be successfully implemented and adopted, it is necessary for them to result in tangible socioeconomic benefits for local populations—especially in a context where livelihoods are shrinking.

The **two outcomes** anticipated under this Component 3 are:

3.1 Strengthened climate-resilient agricultural value chains with improved access to markets in Macaya and Barraderes & Cayemites

3.2 Increased sustainability and climate-resilience of ecosystem-based livelihoods

In the “Study on the Agricultural Sector and the Greening of the Economy in the Department of the South” published by UN Environment in 2016, resilient green economy value chains (e.g. castor oil, honey, cacao, cashews, mangoes) suitable for the Southwestern Haiti context have been identified. The project will undertake an in-depth assessment of these value chains in the two project areas under **Outcome 3.1**.

In order to yield adaptation benefits, the project will seek to promote the identified green livelihoods, while introducing resilient practices in their cultivation and development (e.g. intercropping, planting resilient species, grafting, etc). Other livelihood opportunities that will be explored include apiculture, dried fruit, and horticulture. These will be further studied and selected during the PPG phase.

Training and technical support will be provided for strengthening selected value chains in the project areas, with the view of improving land management practices and access to markets. The project will also work all along the value chain to ensure that resilient practices are incorporated at all levels. In order to further increase opportunities for people with limited options, the project will pilot production of by-products that can be used and transformed along the value chain (e.g. cacao, coffee, castor oil transformation). The intervention strategy under this outcome will be to provide green economy opportunities for communities to develop not just immediate agricultural markets, but also to promote transformation of by-products to yield higher returns, providing an incentive to manage and sustain natural resources. This will respond to the urgent need for livelihood opportunities, decreasing levels of poverty, and reducing pressures on natural resources.

The project will establish partnerships and financing schemes necessary for the strengthening of the selected resilient value chains and market access. Private sector will be engaged in the above activities in a phased approach. Participation with private sector actors will be value chain-specific, and will involve an inclusive strategy of intervention where the role of the private sector, producer organizations, and community-based organizations will be identified and coordinated at various stages of production, according to their expertise. Initial consultations have already taken place with private sector actors in the vetiver and cacao value chains to identify their interests and needs. These will be further explored during project implementation. While the focus of UN Environment will be on reinforcing cooperatives and associations, efforts will be made to cover the overall value chain by facilitating the development of private sector partnerships for sustainable production and consumption schemes.

Moreover, the Chamber of Commerce and Industry of Haiti (CCIH) and the Private Sector Economic Forum have demonstrated an interest in supporting sustainable development through the support of specific value chains. The project will liaise with them in the implementation phases to seek opportunities for private-sector investments in supporting post-harvest supply chains, specifically in the areas of collection, transportation and distribution to markets.

Under **Outcome 3.2**, the project will improve the sustainability and climate-resilience of existing ecosystem-based livelihoods, while reducing their negative impact on the environment and ecosystem services. The project will tackle the issue of charcoal production, which is at the heart of deforestation and increasing people's physical vulnerability to climate events. To date, attempts to cope with chaotic and unregulated forest energy supply chains, especially charcoal, often include strict legal directives aimed at banning charcoal production and trade without supporting alternatives. These are unenforced and do little to impact the volume of charcoal produced or the pressure that it puts on Haiti's natural resources. Intervening effectively in this area requires an understanding of both the supply and demand side of charcoal and the need for very different strategies to effectively address each one.[\[26\]](#)

The main markets for charcoal are in Les Cayes and Port-au-Prince; while local consumption exists, it is not the primary driver of deforestation in the project sites, which is driven by demand from the larger cities. New roads leading to Barraderes et Cayemites present greater access to markets in Port-au-Prince and pose the risk of increasing deforestation. Charcoal production represents an important source of income for rural populations who have few other livelihoods alternatives. Past international projects have demonstrated people's resistance in changing fuel sources, and that demand for charcoal remains relatively inelastic despite the threats posed by deforestation.

To address this problem, the project will target interventions at several stages of the value chain. Recognizing the continued demand for charcoal, one of the interventions will establish community-managed woodlots for sustainable charcoal production by planting fast-growing, climate-resilient native trees on deforested land. This type of initiative has been piloted by a local NGO (OREB) and producers' association in Maniche at a small-scale level with great success, and by the Organization for the Rehabilitation of the Environment (ORE) in Port-a-Piment. It is through analysis of this model by UN Environment, who have monitored this for over three years, and investigation of its possible replication at a larger scale, that this intervention is being proposed. The local knowledge, experience and potential skills do exist for necessary capacity building and training within the region of the South.

In keeping with the understanding that demand and supply of charcoal remains high in Haiti, the project will also seek to develop a protocol of use, planting schedules and cutting and replenishment of plots by communities. This will ensure that although people may continue to harvest wood, they can do so at a slower rate while continuously replenishing the woodlots. This intervention, coupled with public awareness on the value of ecosystem services by maintaining woodlots, is intended to achieve desired outcomes. The project will also seek to explore alternative sources of charcoal in order to decrease the overall demand for wood.

It is necessary to point out as well that while charcoal is produced actively in the project sites, it is sold to Port-au-Prince, which drives the demand for charcoal. This is why this problem cannot be tackled by providing alternative stoves in pilot sites, which will go unused as has been demonstrated elsewhere in Haiti. The project will coordinate with other projects that are attempting to target the demand of charcoal in urban centres, identifying those that have had some success, to ensure complementarity.

There is a strong gender component to issues related to charcoal. Generally, women are responsible for selling charcoal in small retail quantities for daily consumption. Women may also be heavily involved in the production and wholesale of charcoal, including trade to depots and coordination of sales amongst multiple producers. These women tend to rely heavily on charcoal as their main source of income. Through the establishment of woodlots and support for alternative livelihoods in the target areas, the project intends to improve their economic options and direct them towards alternative livelihoods where possible, as well as to provide a sustainable option for involvement in the charcoal supply chain. During the implementation of the wood lots, 50 percent participation of women will be targeted during the nursery, planting, maintenance and harvesting phases.

Because fishing is such a central livelihood activity in both project sites, and because it is impacted by climatic changes, it is an area that the project will also address to build resilience. The project will ensure that sustainable fisheries are integrated into the climate-resilient protected area management plans to be developed under Component 1. No-take zones and mangrove restoration may also yield adaptive results through buffering coastal communities from storm surges and coastal erosion. Mangroves provide important habitat for aquatic species, contributing to biodiversity and increased food availability for household consumption and resources for local markets, as well as providing water filtration services. For capture fisheries, adaptation involves adjusting fishing pressure to sustainable levels, setting catch limits based on changes in recruitment, growth, survival and reproductive success through adaptive management, monitoring and precautionary principles.

Given that fishing associations are the main stressors and users of the marine environment, they can play a key role in limiting the destruction of reef rock, coral reef extraction and sand mining. The key action under this project will be to demonstrate the socioeconomic benefits of preservation, and how this can support communities that are under duress from climate change, and contribute to livelihoods related to fishing. Under Outcome 3.2, awareness raising and trainings with fishing cooperatives and associations will be organized to build capacity for coral reef and natural buffer preservation and sustainable catches/livelihoods. UN Environment has conducted such trainings in Port Salut-Pointe Abacou where Reef Check Haiti provides instructional training on the living marine environment. This can be adapted to Barraderes et Cayemites.



Awareness raising and training programmes will also include aspects related to sand mining and reef rock extractions to support local management of marine ecosystems, and to demonstrate how their conservation can help to buffer the impacts of severe climate events. A study looking at possible alternatives to coral and sand mining for construction will be undertaken, including a review of global experiences and best practices, and identifying promising technologies in Haiti. The fast-growing trees used in sustainable woodlots can also be used as alternatives for construction.

Finally, as Barraderes et Cayemites are surrounded by coral reef, the PPG phase will explore initiatives related to gardening and protecting coral reef, and livelihood activities that can be generated from these practices, especially given the species of the coral, which are endangered and disappearing elsewhere. The PPG phase will explore other lessons from Caribbean countries by exploring demand, expertise to initiate a first nursery of its kind.

In summary, the project will seek to reduce the vulnerability of livelihoods, and access to ecosystem services and food security by targeting two areas under which resilience can be improved. The cost of adaptation will continue to go up, and given Haiti's geographic position it will continue to face climate risks. The "ground zero" of the targeted project sites provides the opportunity to build resilience into future development and livelihood practices in an area, which has been devastated. Following severe climate events there is a window of time to implement practices that can shape a more resilient future, while addressing urgent needs of livelihoods, food security and effective natural resource management.

The following are some key approaches and principles underpinning this project:

- **Ecosystem-Based Adaptation:** Use of biodiversity and ecosystem services to help people and communities adapt to the adverse effects of climate change
- **Ecosystem-Based Disaster Risk Reduction:** Sustainable management, conservation and restoration of ecosystems intended to reduce disaster risk, including in the face of extreme climate events, with the aim to achieve sustainable and resilient development
- **Sustainability:** Creating mechanisms and institutions that survive political change and last beyond project duration, thus contributing to the achievement of the project's long-term impact
- **Participation:** Ensuring the effective participation of those most affected by project interventions and key stakeholders; Focus on integrating gender considerations into project activities
- **Livelihoods:** People are at the heart of this project; ensuring that interventions contribute to tangible, improved livelihoods that build people's resilience to the impacts of climate change
- **Coordination:** Maintaining ongoing coordination, seeking complementarity and synergies with other projects and initiatives to avoid duplication, and ensuring the added value and most efficient use of resources
- **Decentralization:** Respecting the principles of decentralization and co-management with communities, while retaining a power of control for the government

- **Learning-by-doing:** As much as possible, pilots, demonstrations, trainings will be conducted by local citizens and CSOs to build local capacity through accompaniment
- **Science-Policy Interface:** To make the case to policy makers about the cost-effectiveness and benefits of ecosystem-based adaptation

#### ***A1.4. Alignment with GEF focal area strategy***

The LDCF project is aligned with the GEF Programming Strategy on Climate Change Adaptation for the LDCF and SCCF (2018-2022). The following Objectives and Outcomes are addressed in the project in particular:

*Programming Strategy Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation;*

*Outcome 1.1 Technologies and innovative solutions piloted or deployed to reduce climate-related risks and/or enhance resilience.*

*Key outputs: 1.1.2 Livelihoods and sources of income diversified and strengthened; 1.1.4 Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts*

The proposed project plans to pilot improved EbA, Eco-DRR, and water management interventions to increase the resilience of vulnerable communities in areas prone to climate disasters. It seeks to upscale innovative approaches such as developing sustainable fast-growing wood production for charcoal consumption to counter deforestation. It will also establish native nurseries, the first of their kind in the target zones, and explore the possibilities of establishing coral nurseries, the first in the Caribbean (Component 2).

Investments in green economy initiatives seek to bolster people's livelihoods through sustainable means. The goal is to enhance people's incomes so that they do not have to rely on deterioration of resources to survive. Investments in green economy also seek to increase the value of ecosystems and what they provide, providing incentives to communities to protect them (Component 3).

Strengthened marine and terrestrial ecosystems as supported by sustainable agriculture, improved soil management and fishing practices seek to bolster natural resource assets so that they may be more resilient to climate change impacts, and recover more quickly from devastating climate events (Components 2 & 3).

*Programming Strategy Objective 2: Mainstream climate change adaptation and resilience for systemic impacts*

*Outcome 2.1: Mainstream climate change adaptation and resilience for systemic impact*

### *Output 2.1.1: Development of sector policies and plans integrate adaptation considerations*

This project seeks to ensure that activities are anchored into governance structures to ensure sustainability. In order to do this, Component 1 will support the development of community-based management plans for the protected areas, which will be drafted in collaboration with MDE and ANAP, and will integrate adaptation considerations. These interventions will also be geared to capacitate the fledgling Protected Areas agency so that they may replicate practices across different areas in the country, and harmonize approaches within their own activities.

Management plan development will include cross-government parties such as MDE, MARNDR, DPC, MDT, as well as municipal and departmental representatives, to promote climate-adaptive planning as part of their work and initiatives. Component 1 will support the integration of climate risk reduction practices in the work programmes of these government agencies, and provide training on EbA and Eco-DRR to key staff.

#### ***A1.5. Additional cost reasoning***

A description of the additional cost reasoning for each Component of the project follows in the table below:

#### ***A1.6. Adaptation benefits (LDCF/SCCF)***

<b>Component</b>	<b>Business-as Usual Scenario</b>	<b>GEF Alternative Scenario and Adaptation Benefits</b>	<b>Incremental Cost (US\$)</b>
1. Climate Resilient Governance and Planning	The zones have been devastated by Hurricane Matthew and communities are relying on scarce natural resources for their survival. Maladaptive practices such as cutting down of mangroves, coral and sand removal are common. Governance mechanisms are very weak. No effective enforcement mechanisms are in place for implementing environmental laws or adaptive practices.	Multistakeholder governance mechanisms and climate-resilient management plans are in place in two protected areas. Government staff have an understanding of climate change risks, and ministry work programmes integrate climate resilient practices. Community members are aware of adaptive measures that can help them cope with future climate events, and put in place measures that make their livelihoods and natural resources more resilient. Communities understand how ecosystem services can be sustainably used for	865,571

		adaptation purposes, and play a leadership role in their adaptation processes.	
2. Ecosystem-Based Adaptation and Disaster Risk-Reduction in Response to Climate Risks	The project sites suffer from destruction, depleting mangroves, coral reefs, and beaches, and deforestation. Emergency protocols are in place for climate disasters, but fail to resonate with population. Risk reduction measures do not include adequate adaptation measures. Communities experience loss of assets, lives and food security following climate crises.	Disaster risk-reduction measures are improved and include adaptation measures that render communities more resilient. People become aware of how they can utilize ecosystem services to better buffer themselves from future events. Coping strategies and securing livelihoods is integrated into adaptation planning. Climate-smart agriculture is carried out in two pilot communities on 300 hectares of steep terrain. Rehabilitation of coastal zones, riverbanks and mangrove forests are carried out (30 kilometers of coastline and 50 kilometers of riverbanks are rehabilitated through targeted reforestation). Two climate-resilient, pest-resistant, native nurseries are established; improved adaptive soil management, and water management is carried out, including the establishment of small-scale water capture and storage infrastructure in each of the targeted communities.	1,817,700
3. Green Economy Approach for Resilient Ecosystem-Based Livelihoods	Livelihoods are extremely vulnerable in the targeted project sites. Natural resources are scarce and unsustainably harvested. Raw materials are mostly sold and there are little-to-no transformation/processing capabilities. Communities cannot leverage higher prices due to lack of organization, transportation, knowledge of quality. Private sector partners cannot obtain the quality of product they need. Alternative livelihoods are lacking and recent climate events have created severe economic challenges.	Community-members are aware of which agricultural value-chains are more resilient to climate change and are able to cultivate them more sustainably, and maintain their quality. They have greater access to markets and can transform agricultural and fisheries products to increase livelihoods and move away from mere raw materials management. Communities can enjoy greater economic security in times of climate insecurity and this provides the incentive to continue with sustainable livelihood practices and to discontinue destructive practices which undermine resilience.	1,428,192

	<p>nges. Community members do not know of the potential of certain value chains and how to protect them from increasing droughts.</p>	<p>e to climate change. Two pilot sustainable woodlots are established and managed at community-level (to reduce destruction of mangroves and native trees for charcoal production), with business plans developed through technical support from the project.</p>	
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The number of project beneficiaries will be defined at the PPG phase, but is at this stage approximated as 100,000. This figure considers the population in the project intervention areas and their immediate vicinity, that can be expected to directly benefit from the restoration of ecosystem services resulting from the project interventions. It also accounts for the wider direct benefits accruing from, in particular, the establishment of climate-resilient protected area governance mechanisms and management plans, and the integration of climate resilient risk reduction practices, methodologies and procedures in the national and departmental work programmes of key government agencies.

In the context of the COVID-19 pandemic, the project will capitalize on the following opportunities for the delivery of its adaptation benefits, and to contribute toward green recovery and building back better. These opportunities will be further analyzed during the PPG phase, and fully integrated in the project intervention strategy and activities.

The emergence of zoonotic diseases is often associated with environmental changes or ecological disturbances such as agricultural intensification and human settlement or encroachments into forests and other natural habitats. The project will contribute to an enhanced understanding of the linkages between ecosystem and human health, and related risks in the context of zoonotic diseases. In particular, the climate change risk and vulnerability assessments to be undertaken under project Output 1.1.1 can be designed to include a focus on health impacts and zoonoses risk. This analysis can also contribute to integrating climate change-environment-health linkages in the development of national and department-level government policy tools and procedures under project Outputs 1.1.5 and 1.1.6, thus helping to put in place a policy environment that enables green recovery and building back better.

The project's climate-resilient land management, ecosystem protection and rehabilitation interventions (under Outcome 2.1) will help to demonstrate how ecosystem-based adaptation approaches can contribute to increasing resilience, including to zoonotic threats. Through its capacity building and training activities, the project will contribute to raising awareness and understanding of government and other stakeholders on the linkages between ecosystem degradation and the emergence of zoonotic diseases, and thus build momentum for green recovery that fully recognizes the connection between ecosystem and human health. The project interventions will also contribute to improved access to water through ground water recharge pilots, rainwater harvesting and floodwater capture, which will have hygiene and sanitation-related benefits of relevance for COVID-19 recovery.

The project will enhance ecosystem connectivity and integrity through the establishment of multi-stakeholder protected area governance mechanisms and participatory climate-resilient management plans (Outputs 1.1.2 and 1.1.4), as well as the implementation of sustainable land management and ecosystem rehabilitation interventions under Outcome 2.1. This can contribute to ensure improved safety and security in the pathways of wildlife and wildlife products, to proactively prevent the emergence of new and shorter pathogen pathways.

The focus of project Component 3 on strengthening climate-resilient agricultural value chains and increasing the sustainability of ecosystem-based livelihoods offers multiple opportunities for the project to contribute to a transformational green recovery. COVID recovery stimulus packages offer an opportunity for building back better, and the project interventions will demonstrate how investments in sustainable and climate-resilient income-generating

activities can stimulate local economies, create employment opportunities, and increase resilience to a recurrent zoonotic threat.

The project's contributions to green recovery, outlined above, will be firmly rooted in the national post COVID-19 recovery plan. In July 2020, the Government of Haiti initiated a multi-sector COVID-19 socioeconomic impact assessment process, with coordinated support from the United Nations, the World Bank and the European Union. This process will culminate in December 2020 with the adoption of an integrated recovery work plan for 2021-2023. UNEP is actively contributing to the impact assessment and planning process. In collaboration with the Centre National de Sécurité Alimentaire, UNEP is carrying out a large-scale environmental impact assessment through household surveys and expert consultations, including with representative panel in the area of this project in Grand'Anse. The survey will allow to assess the various dimensions of environmental impacts, including on shifting agricultural practices, possible expansion on natural land, increased pressure on wood and other natural resources, and various forms of pollution. It will also highlights opportunities for robust advocacy towards building back better and leaving no one behind through nature-based risk reduction and resilience.

In summary, COVID-19 has contributed to increase the attention of communities and decision-makers in Haiti on the importance of ecosystem-based adaptation to climate change and other natural disasters, and UNEP is actively contributing to translating this increased awareness into national and subnational planning and responses. Through its three main components, this project is fully aligned with these directions.

#### ***A.1.7. Innovation, sustainability and potential for scaling up***

##### **Innovation**

The project will pilot some innovative approaches in the chosen sites with the goal of increasing climate resilience. For instance, the project will pilot sustainable woodlots for harvesting charcoal in areas where this has not been tested. This will decrease pressures on existing forests and mangroves, while targeting the pressing needs related to livelihoods.

Similarly, the project will seek to establish protected area governance mechanisms in Barraderes et Cayemites, which do not have such structures. The project will use these mechanisms as a means to mainstream adaptation and strengthen climate resilience through participatory means.

The project will also explore new market linkages and agricultural practices for green value chains that promote climate resilience and address food insecurity. Upon carrying out a value chain assessment, new breeds may be piloted.

##### **Sustainability**

The project includes considerations that promote the continued achievement of its objectives and outcomes long after direct implementation. One of the challenges of many international development projects in Haiti is the lack of continuity once the project concludes. In order to ensure that the investments of the project do not meet the same challenges, several key principles that support sustainability will be espoused:

- Country ownership, which will include:

- o Partnering with public institutions including national, departmental and local governments and structures,
  - o Working with community-based organizations, associations and cooperatives and supporting them to establish their own effective management structures during implementation,
  - o Supporting interventions that reinforce government plans and activities, and that can be integrated into government policies, which will make project interventions and consequences more relevant to government institutions. For instance, the project promotes the management of protected areas; this is in conjunction with the recent laws demarcating the protected areas. The national government is currently considering management/enforcement options and interventions under this project will help inform long-term plans for protected areas.
- Promoting a learning-by-doing approach. This will allow beneficiaries of the project to put into practice the activities and strategies proposed in the project (e.g. alternative agricultural or fisheries practices, sustainable woodlots).
  - The project will be adaptive: to identify the activities that are most sustainable and beneficial leading to improved livelihoods, which community members will have an incentive to maintain.
  - Sharing new knowledge: e.g. on coral gardening/protection, improved cultivation techniques of green value chains; pest management strategies. The uptake of these techniques is anticipated, if these yield visible benefits during project duration.
  - Training programs for government ministries will be conducted with the expectations that some of the capacity built will be retained in institutions' corporate memory and reflected in policymaking.

The main drivers under this project, which will support positive feedback loops and sustainability of the project include:

- raised awareness and ownership through improved information, practical strategies and planning capacity development both at the local and government levels;
- increased returns from land (through climate-smart agriculture) increase incentives for better stewardship of the land; and
- alternative livelihoods will decrease pressure on ecosystem degradation processes.

### Scaling-up

The project has been designed to be replicated and scaled up, so as to mainstream an understanding of climate change adaptation. Several aspects lend themselves to replication of the project:

- **Piloting of climate-resilient management and rehabilitation practices**, which will include training, awareness-raising and learning-by-doing approaches to encourage the wider uptake, and up-scaling of these practices.

- The project **intervenes on value chains** which could bring socioeconomic benefits that others may replicate, and upscale and a national level for greater production and market development.
- **Integration of adaptation and resilience into disaster management**; such training and capacity building is anticipated to be replicated in other coastal regions, and become a part of the national disaster management agency
- **Capacity** will be created at the **central government** level to apply trainings and knowledge to other parts of the country. Trainings on EbA and Eco-DRR, enhanced public awareness on climate change adaptation, effective dissemination of information on environmental threats and strategies to manage these through sustainable interventions will be provided to both central level units and departmental officers. Relationships between departmental entities and the central government will be supported so as to model effective information flows and management.
- There will be **connectedness among different Protected Areas** and sharing of experiences with other projects and the National Agency for Protected Areas (ANAP) working on similar issues. Institutional structures such as the Table Sectorielle de l'Environnement will be used to share information and successes which then can be taken on by other members and partners, in their projects and geographic areas of operation. The use of Protected Areas and how ecosystem goods and services are managed to build resilience, will be scaled up to support national conservation efforts and avert the continued degradation of the coastal environment. Activities in Haiti also offer the potential for scaling up in the broader Caribbean region (managing pests, EbA and Eco-DRR, coral harvesting). Factors such as similar climate and oceanographic conditions, units of connectivity, similar fisheries and geographic proximity lend themselves well to regional scaling up.

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[1] World Bank. *GDP per capita (current US\$)*. Online. <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

[2] Index Mundi, [http://www.indexmundi.com/haiti/population\\_below\\_poverty\\_line.html](http://www.indexmundi.com/haiti/population_below_poverty_line.html), 2003 estimates.

[3] FAO. "Hurricane Matthew: Floods and Loss of Crops Raise Food Security Concerns for Over A Million People in Haiti". *GIEWS Update*, 2016. Available online at: <http://www.fao.org/3/a-i6266e.pdf> . Accessed March 6, 2017.

[4] UNDP, <http://hdr.undp.org/en/2018-update>

[5] FAO, CPP 2013-2016, available online at: <http://www.fao.org/3/a-bp534f.pdf>

[6] Ibid.

[7] World Bank Climate Change Knowledge Portal. 2020

[8] World Bank: Vulnerability, Risk Reduction and Adaptation to Climate Change in *Climate Risk and Adaptation Country Profile*. 2011



[9] USAID: Climate Risk Profile, Haiti. 2017

[10] Haiti is divided administratively into ten départements. The departments are further divided into 42 arrondissements, 145 communes and then 571 communal sections.

[11] WWF: Fishing for Proteins: How Marine Fisheries Impact Global Food Security up to 2050. A Global Prognosis. October, 2016. Available online at: [https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF-Report\\_Fishing\\_for\\_Proteins\\_English\\_Version.pdf](https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF-Report_Fishing_for_Proteins_English_Version.pdf)

[12] Reef Check

[13] <http://globalfloodmap.org/Haiti>

[14] UN Environment

[15] UN Environment

[16] UNEP: "Promoting Ecosystems for Disaster Risk Reduction and Climate Change Adaptation: Opportunities for Integration". Discussion Paper (2015)

[17] World Bank figures. Available online at: <http://data.worldbank.org/indicator/AG.LND.FRST.ZS>

[18] FAO: FAO. "Hurricane Matthew: Floods and Loss of Crops Raise Food Security Concerns for Over A Million People in Haiti". *GIEWS Update*, 2016. Available online at: <http://www.fao.org/3/a-i6266e.pdf> . Accessed March 6, 2017.

[19] OECD: Poverty & Climate Change: Reducing the Vulnerability of the Poor through Adaptation, page 7. Online at: <http://www.oecd.org/env/cc/2502872.pdf>

[20] Ibid.

[21] In its 2012 development plan (Plan Stratégique de Développement d'Haïti : Vision 2030) the Government of Haiti selected key regional development poles considered as investment priorities to boost the regional development and economic growth of the country and hence reduce the concentration of efforts and demographic pressure in the capital of Port-au-Prince. One of these decentralized "regional development poles" is the "South Pole" which comprises the three Departments located at the southwesternmost region of the country: *Départements du Sud, de Grand'Anse and de Nippes*

[22] Communes are headed by an executive body named CASEC: Board of Communal Section, and a deliberative body named ASEC: Assembly of the Communal Section. These two institutions are supported by a CDSC: Development Council of the Communal Section.

[23] Marine Protected Areas

[24] Terre Sud, Mer Sud Final Evaluation

[25] The municipal structures are subject to extreme political instability and have very little capacity. By investing in the departmental levels, regional structures are strengthened for the municipal structures to rely on, as needed. It is essential for UN Environment Haiti to make strategic decisions of partners to ensure sustainability and optimize resources, and to invest in structures that will exist beyond the project duration. Regional structures have been identified as an optimal partner that can both strengthen the government at the national level and deliver to communities at the local level.

[26] Ibid.

## 1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

PROGRAM/PROJECT MAP AND GEOGRAPHIC COORDINATES



## 2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

The project stakeholders will include:

· Government partners: These partners will provide institutional support and receive capacity building training to support project implementation. They will also receive information on lessons learned during project implementation so that they may include adaptation-related considerations in their own projects and activities. These include:

- o *Ministere de l'Environnement (MDE)* (Ministry of Environment)
- o *Ministere de l'Agriculture des Ressources Naturelles et du Developpement Rurale (MARNDR)* (Ministry of Agriculture, Natural Resources and Rural Development)
- o *Agence Nationale des Aires Protegees (ANAP--part of MDE)* (National Agency of Protected Areas)
- o *Comite Interministeriel d'amenagement du Territoire (CIAT)*, (Interministerial Committee on Land Management)
- o *Direction de la Protection Civile (DPC)*, (Civil Protection Directorate)
- o *Ministère du Tourisme et des Industries Creative (MDT)*, (Ministry of Tourism and Creative Industries)
- o *Ministère de l'Interieur et des Collectivites Territoriales (MICT)*, (Ministry of the Interior and of Territorial Collectivities)
- o *Ministère des Affaires Sociales et du Travail (MAST)*, (Ministry of Social Affairs and Employment)
- o *Ministère des Travaux Publics, Transport, Communications et Energie (MTPC)*, (Ministry of Public Works, Transport, Communications and Energy)

· Local Stakeholders: these communities will be the beneficiaries of project interventions and contribute to the implementation of activities in Barraderes & Cayemites and Macaya. This will include women and other vulnerable groups as well as coffee, cacao, charcoal producers, and fishing cooperatives and associations.

· Civil Society and non-governmental partners: These organizations will play a key role in sharing lessons learned, helping local communities to pilot their own interventions and will act as vehicle for information dissemination. Some of these organizations include:

- o Organization for the Rehabilitation of the Environment (ORE)
- o *Amelioration de la peche artisanale et du developpement integre (PADI)* (Improvement and Integrated Development of Artisanal Fisheries)
- o *Organization pour la Rehabilitation de Bouffard (OREB)* (Organization for the Rehabilitation of Bouffard)
- o *Agronomes et Veterinaires Sans Frontieres (AVSF)* (Agronomists and Veterinarians Without Borders)
- o *SOS Enfants* (SOS Children)

All UN Environment Projects in the South have a very strong component of local inclusion and engagement in implementation, and this project is designed in line with this approach. As was noted in the Evaluation of the *Terre Sud* and *Mer Sud* projects, as part of the portfolio of UN Environment activities in Haiti:

“Local partnerships for project delivery was one of the great strengths of these projects as they leveraged the experience, expertise and dedication of local partners. Instead of hiring partners based in the capital, local organisations were mobilised to work with communities. This resulted in what appear to be three main achievements: (i) local organisations received professional development through working with UNEP; (ii) they gained legitimacy and trust with beneficiaries; (iii) the project had a feel of local ownership, despite being funded by Norway and developed/managed by UNEP. On the ground, people perceived Haitians working with, and for, Haitians, which is significant in a country that is full of international projects, consultants and donors. In fact some of the beneficiaries of UNEP projects are not even aware that they are so, due to their day-to-day dealings with local partners and intermediaries.”

The project will engage local Haitians in its implementation. In terms of “indigenous populations”, the Classic Taino who were the indigenous inhabitants of Haiti, became nearly extinct in the early 1500s. The majority of the population of Haiti today is primarily the descendents of African slavery and Mulattos. The remaining population are descendants of Europeans, Levantine or Semitic communities. The project targets zones that are composed of local, (socio-economically) vulnerable Haitian communities, descendants from African communities. The project is targeting the most vulnerable that are highly dependent on natural resources and reside in zones most impacted by climate change. They will be fully engaged in project implementation, as the civil society organizations listed above are composed of local community members. In the case of ORE (mentioned above), for instance, local villagers and technicians are selected to provide capacity building and technical assistance for their fellow villagers. This means that every community engaged with the project, receives ongoing technical support and know-how to help implement project activities within their communities. The expertise is fostered at the local levels (rather than having experts come in), which will contribute to local ownership and long-term sustainability of project interventions. Similarly, PADI (mentioned above), works directly with local fisherfolk in the communities it is operating in. While there may be exchanges with other communities to share best practices or lessons learned, the activities are carried out by local community members.

This project will thus continue the tradition of UN Environment projects of implementing activities through local organizations that have representation from the villages in which they are operating. UN Environment provides the oversight, management and strategic advice, but works in tandem with local peoples to encourage learning-by-doing and to yield more sustainable results

### 3. Gender Equality and Women's Empowerment

**Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

Gender issues in Haiti are complex and closely tied to socioeconomic class. In the rural areas of the *Département du Sud* and Grand'Anse and Nippes, women are often visibly involved in economic activities, but lack opportunities to grow their businesses. Often they are merchants- they buy agricultural products and re-sell them on the market. In the fisheries value chain, women, as part of an association of vendors, are responsible for the transformation and commercialization of fresh fish, as well as the drying and salting of fish. With regards to charcoal, women are responsible for selling charcoal in small retail quantities for daily consumption. Women are also heavily involved in the production and wholesale of charcoal, including trade to depots and coordination of sales amongst multiple producers in geographic zones. These women tend to rely heavily on charcoal as their main source of income.

The challenge following major climate events is that women no longer have the funds to purchase goods (especially if they need to pay for the restoration of their households) - typically women lose their stock in the devastation, and have less access to products. In general, they face the challenge of having limited access to credit, and this is worsened when they have suffered financial losses due to climate events. Women are instrumental in supporting fishermen and farmers as they provide market access to their products, and as such are key players to invest in when strengthening green economy value chains.

The project will specifically ensure that value chains that benefit women are supported, and that women are recipients of trainings, and included in pilots that promote resilient approaches and planning. Indicators from the project will be disaggregated by gender. During the PPG, a gender gap analysis will be undertaken together with a climate change vulnerability assessment to determine the main climate change vulnerabilities relating to men and women and the main solutions that will benefit both men and women.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes**

**closing gender gaps in access to and control over natural resources; No**

**improving women's participation and decision-making; and/or Yes**

**generating socio-economic benefits or services for women. Yes**

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes

#### 4. Private sector engagement

**Will there be private sector engagement in the project?**

Yes

**Please briefly explain the rationale behind your answer.**

During consultations, it was apparent that there are strong private sector interests and linkages for the success of this project. In particular, private sector actors in the vetiver and cacao industries have expressed their desire for having more reliable, climate-resilient production. Private sector actors have also highlighted the need for more diversified agricultural products that have undergone some processing. This interest provides an opportunity to include private sector participation in sustainable practices.

Private sector will be engaged in a phased approach. During Phase 1, one of the objectives of the green economy assessment will be to map the private sector actors, and identify their strengths, weaknesses, opportunities and constraints, in supporting the proliferation of sustainable value chains. Phase 2 will engage the private sector partners identified in Phase 1. The approach undertaken to engage with the private sector will be value chain-specific, and will involve an inclusive strategy of intervention where the role of the private sector, producer organizations, and community-based organizations will be identified and coordinated at various stages of production, according to their expertise. While the focus of UN Environment will be on reinforcing cooperatives and associations, efforts will be made to cover the overall value chain by facilitating the development of private sector partnerships for sustainable production and consumption schemes.

Moreover, the Chamber of Commerce and Industry of Haiti (CCIH) and the Private Sector Economic Forum have demonstrated an interest in supporting sustainable development through the support of specific value chains. The project will liaise with them in the implementation phases to seek opportunities for private-sector investments in supporting post-harvest supply chains, specifically in the areas of collection, transportation and distribution to markets.



## 5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Risks	Type	Risk: High, Medium, Low  Impact: High, Medium, Low	Possible Mitigation Strategies
<p>COVID-19 pandemic resurgence<sup>[1]</sup> during project design (PPG phase) and/or implementation, resulting in restrictions on congregation of people and on international and national travel. This could hinder project development by hampering stakeholder engagement, and result in implementation delays through impacts on capacity building activities and adaptation interventions.</p>		<p>Risk: High  Impact: Medium</p>	<p>In a resurgence situation, the project will adhere to Government regulations related to COVID-19 at all times. COVID-19 related risks will be closely evaluated during the PPG phase, and the mitigation measures will be integrated in planned project activities and budgets. The following mitigation strategies have been employed successfully by UNEP in 2020.<sup>[2]</sup> They will be maintained as and when relevant, to minimize negative impacts on project design and implementation.</p> <p>To mitigate the impact of restrictions on congregation of people, affecting the organization of capacity building activities and consultations including during PPG phase, UNEP has adopted various arrangements allowing to maintain deployment of activities and projects, while ensuring the protection of beneficiaries and duty of care of implementing partners. Such arrangements include:</p> <ul style="list-style-type: none"> <li>· Meetings and workshops organized outdoors, with strict social distancing and hygiene measures (when possible and permitted).</li> <li>· Meetings and workshops organized in smaller groups (with fewer participants), with a larger number of events to reach the same total number of beneficiaries.</li> </ul>

			<ul style="list-style-type: none"> <li>· Physical meetings replaced or complemented (as necessary) by virtual meetings and consultations, organized through a variety of user-friendly platforms (including e.g. Zoom or Skype, but also WhatsApp and/or telephone calls for one-on-one and small group discussions). Provision of equipment, internet access and training on the use of virtual platforms.</li> <li>· For capacity building activities, physical workshops substituted through the development of online training modules, videos, webinars and/or podcasts.</li> <li>· Implementing partners and beneficiaries provided protective equipment and access to sanitation points.<a href="#">[3]</a></li> </ul> <p>To mitigate the impact of national and/or international travel restrictions, virtual consultations, workshops and training sessions can be organized. In case of international travel restrictions (during project design or implementation), national consultant teams will be strengthened and their work guided remotely by international consultants where needed. The presence of UNEP field office in the project area is instrumental in facilitating the linkages between international consultants, the project team and national consultants.</p>
Climate change risks	Environmental	Risk: Medium  Impact: Medium	<p>The project reforestation and agricultural interventions are potentially vulnerable to the impacts of climate change, including increased average temperatures, reduced rainfall (in particular during the summer months), droughts, floods and hurricanes. The potential adverse impacts from extreme climate events on project activities and the necessary mitigation and monitoring actions will be identified in detail during the PPG phase.</p> <p>The strategic approach to mitigating these risks will consist of factoring the conditions for climate change resilience within the restoration and agricultural models promoted</p>

			<p>by the project. For instance, agroecological infrastructures (e.g. hedges, ponds, systematic soil coverage) will help mitigate the adverse impacts of increased temperatures, reduced rainfall, as well as droughts and floods (increased capacities to absorb and store water in the soil and above-ground ecosystems). Similar techniques will be expanded to restoration of natural ecosystems, for similar results.</p> <p>The species to be planted will be selected carefully to ensure they are suitable to the climate of the specific site, as well as resilient to climate variability. Appropriate planting protocols (including timing of planting activities using meteorological forecasts) will also significantly mitigate impacts of temperature increases, reduced rainfall, and hurricanes on the activities and outputs of the project. Techniques to assist plant growth particularly in the seedling/sapling phase and to reduce risk of damage from extreme climate events will be employed as needed. Seedling survival rates will be closely monitored, so that any issues can be identified early, and corrective actions implemented. These measures will be integrated within the project approaches, rather than added as stand-alone mitigation measures.</p> <p>The technical and institutional capacity in the country to mitigate climate risks remains relatively low. Technical support and expertise to ensure the identification and implementation of appropriate mitigation measures will therefore be provided by the project through the engagement of consultants and/or relevant organizations.</p> <p>At the beginning of project implementation, climate change risk and vulnerability assessments will be undertaken in the two project areas (output 1.1), which will further enhance understanding of the potential impacts of climate change on project outputs and outcomes.</p>
Inadvertent negative consequences on ecosystems	Environmental	Risk: Low Impact: Medium	Care will be taken to base the project's ecosystem rehabilitation and restoration interventions on latest scientific and local knowledge, so that no harm is unintentionally caused in the process.

			<p>The project reforestation activities as well as the community-managed woodlots will use climate-resilient native species, as well as only those alien species that (i) have already been significantly used and are already available in the area, and (ii) show no risk of invasion. The guidebook on restoration and reforestation of riverbanks and coastal areas in Haiti developed with UNEP support will be used to guide the choice of species.</p> <p>Adequate enforcement mechanisms will be put in place to ensure that harvesting of the community-managed woodlots for sustainable charcoal is managed, and that they do not simply result in increased charcoal production with little effect on mangrove and tree use.</p>
Restrictions on land/water use that deny a community the use of resources to which they have use rights	Social	<p>Risk: Medium</p> <p>Impact: Medium</p>	<p>The project will promote sustainable socioeconomic activities. This means that some activities may be impacted. For instance, the project will aim to address unsustainable fishing practices, and the destruction of coral and mangroves. The project is designed with alternative livelihoods to provide an incentive to transition to more sustainable practices. Furthermore, all management plans will be designed through a community-based participatory process to ensure that there is local buy-in and support.</p>
Corruption	Financial/Organizational	<p>Risk: High</p> <p>Impact: High</p>	<p>Given the political turmoil and potential for political change, the risk of corruption is high. However, the project implementation structure will be designed so as to both empower and strengthen the government institutions involved, while providing the necessary oversight and accountability measures. With regards to implementation arrangements, the project management structure will include participation from UN Environment to partner with the project manager and to provide the timely support as needed. UN Environment, through the co-execution model, will also support MDE to foster improved management and accountability practices. The project will also include a wide partnership of various ministries on the Steering Committee. This cross</p>

			s-government oversight will allow greater accountability among institutions, and avoid the problem of one institution not knowing what funds the other is receiving through international projects.
Lack of uptake of project interventions	Implementation	R: Medium I: High	Project interventions have been devised with urgent and pressing needs in mind. Livelihoods are at the heart of this project, thereby providing a socio-economic incentive for participation. It is anticipated that as this project designs strategies to manage and adapt to climate change, and the population has undergone such a severe climate event, people will be engaged.
Political changes and conflict limit project success	Political	R: High I: Medium	At the time of writing, it is unclear what will happen on the political landscape. While it is anticipated that there will be disruptions, the project has been designed to support local level communities and influence the value chains that are some of the most significant in Haiti. It is anticipated that any government will have an interest in engaging in activities that impact these value chains. In the meantime, UN Environment is maintaining positive relations with the various political actors on the environmental front to maintain communication on adaptation concerns and strategies.
Lack of coordination among donor interventions and international projects	Organizational	R: Low I: Medium	Given UN Environment's presence in the field, and its history of collaboration with other organizations (e.g. Cote Sud Initiative, Table Verte sur L'environnement) it is anticipated that there will be collaboration and sharing of resources, but not duplication or overlap with other organizations. UN DP, FAO, EU and IDB were consulted in the drafting of this PIF, and closer consultations will take place during the PP G phase.

[1] As of October 14, 2020, there have been less than 9,000 cases diagnosed in Haiti – a low number for a country of 11M inhabitants -, among which 231 deceased. In Haiti, the pandemic peaked in June 2020, and gradually decreased since then, reaching an average of 10 new cases daily at the end of September, with a 2,6% lethality. Regular updates are provided on [www.mspp.gouv.ht/documentation](http://www.mspp.gouv.ht/documentation).

[2] Many lessons can be drawn from the way UNEP has navigated through COVID-19 outbreak in Haiti in 2020. Despite a national state of emergency, eventually the impact of the pandemic on project implementation has been limited, and all UNEP annual targets in Haiti are being achieved (with the exception of a project relying heavily on equipment imports from abroad).

[3] In addition to facilitating implementing partners' access to protection equipment, UNEP has supported the deployment and maintenance of 1,000 sanitation points to allow beneficiaries and surrounding communities to wash their hands regularly in key areas of communication and transit. It also supported local associations and media to disseminate protection messages through radios, sound trucks and boards. In case of resurgence of the pandemic in Haiti, these actions will be implemented again.

## 6. Coordination

**Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.**

The details of the project execution arrangement will be finalized in the PPG stage, on the basis of a capacity assessment of the Ministry of Environment (MDE), including a fiduciary risk assessment. Given the political instability in Haiti, a partnership arrangement may be proposed in order to ensure the necessary support to MDE in management and accountability practices. A full-time, dedicated Project Manager will be hired to lead a Project Management Unit (PMU) and execute the day-to-day management of the project.

The institutional structure of the project will include a Project Steering Committee (PSC), with a mandate to oversee and guide project implementation, and to review annual workplans and project reports. Task teams will be established, as needed, to focus on particular activities, as per partners' expertise. The project will include a wide partnership of various ministries, as well as two key CBOs on the Project Steering Committee. This cross-government oversight will allow greater accountability and coordination among institutions.

UN Environment (Climate Change Adaptation Unit), as the Implementing Agency (IA) for the project, will oversee the project and provide the technical assistance required to meet the project. UN Environment will be responsible for project supervision to ensure consistency with GEF and UN Environment policies and procedures.

The project will follow UN Environment standard monitoring, reporting and evaluation processes and procedures. An M&E plan consistent with the GEF M&E policy will be developed in the PPG phase. The Project Results Framework to be developed will include SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators will be the main tools for assessing project implementation progress and whether project results are being achieved. Day-to-day project monitoring will be the responsibility of the project management team particularly the Project Manager and an M&E specialist. In addition, other project partners will be responsible to collect specific information to track the indicators.

A number of relevant projects are being undertaken in Haiti. This project will rely on the lessons learned from these initiatives to strengthen activities under this project. UN Environment plays a strategic role as convener in the Table Verte pour l'environnement which brings development actors and donors together to share their interventions. This role is the ideal entry point to gain insights that will be beneficial for this project. Some of the relevant initiatives are the following:

- "Natural Disaster Mitigation Program II" funded by IADB for USD 42 million (2016-2021) is currently under implementation. This program seeks to reduce economic losses through improved climate risk management in selected watersheds. While the selected watersheds are not in the areas targeted by this proposed project, the lessons learned and best practices generated from this program can be incorporated into project activities. A closer assessment of activities and their successes will take place in the PPG.

- “Strengthening Adaptive Capacities of Coastal Communities to Climate Change through Watershed Management Communities” project , for USD 3.5 million (2013-2018) is supported by UNDP and funded by the Government of Canada, as a follow-up and upscaling of an LDCF project of the same name. This project is implemented in the South but in different villages/towns than those targeted by the proposed project. It targets Les Cayes, Port Salut, Tiburon and St. Louis du Sud. While it targets a different area, it does address the issue of climate change adaptation and governance. There are some important lessons that can be drawn from this experience, in particular on how to increase ownership by communities of adaptation.
- “Increasing resilience of ecosystems and vulnerable communities to CC and anthropogenic threats through a ridge to reef approach to BD conservation and watershed management” project is GEF-financed for USD 9.1 million and being implemented by UNDP (2014-2019). It will be in its final phases by the time this project commences. Some of the activities are being conducted in Barraderes-Cayemites, such as environmental/ecosystem and socio-economic studies, awareness raising, and identifying stakeholders that can manage the protected area. The proposed project will build on the lessons learned, work with some of the same partners that have demonstrated effectiveness, and take into account the challenges of implementing a project in that zone and support the implementation of activities identified in the management plan, with a focus on resilience-building. At the time of writing and during consultations with UNDP to develop the PIF, concrete activities have not yet begun under this project in Barraderes et Cayemites.
- “Ecosystems-Based Approach to Haiti’s Cote Sud”, a GEF-financed project of USD 6 million (LDCF, Trust Fund, SFM), implemented by UN Environment, has recently launched (2017-2022). This project seeks to increase resilience to climate change while employing an ecosystems-based approach. The proposed project will rely heavily on the lessons learned of this ongoing GEF project, as it employs similar strategies but is being carried out in different sites which target La Cahouane, Port Salut/Pointe Abacou, and Ile-a-Vache. The proposed project hopes to replicate its successes and pilots in Barraderes and Cayemites and Macaya, and use some of the training resources and lessons learned to make use of investments already made. The proposed project also hopes to connect communities and stakeholders from Barraderes and Cayemites and Macaya, to those in the ongoing GEF project communities for improved coordination and peer learning, particularly on sustainable fisheries, charcoal production and governance.
- A Green Climate Fund project currently under development by the Agence Francaise de Developpement (AFD) has only just submitted an initial concept note, but proposes to improve resilience of coffee and other value chains in the country. There are some initiatives planned for Grand’Anse, but these are not yet finalized. Until the project concept note is approved, the budget and timelines are not available.
- As it is estimated that 6,000 sacs of charcoal (60,000 kg of charcoal) are headed to Port-au-Prince from the Southern region every day<sup>[1]</sup>, the project will also make appropriate linkages with research institutions and universities that seek to target charcoal demand in urban centres, which directly impacts rates of deforestation in the targeted project sites. UNEP has conducted a study on the value chain of charcoal, taking note of the incentives that still exist for using charcoal, the main buyers, and strategies to limit deforestation. The report notes that many projects which target reduction of the use of charcoal directly have failed (USAID, Chemonics International, UNDP). Instead the project will link with initiatives that are either introducing more efficient ways of utilizing charcoal, so that less is consumed, or focusing on economic incentives to move away from charcoal (lower cost solutions). One such initiative is the work carried out by EarthSparks International which seeks to provide alternative energy sources, in collaboration with supporting community development. UN Environment has partnered with them in the past to establish Haiti’s first electric cooperative, operated and managed by Haitians, and given access to 1,600 households to solar-powered electric grids for the first time. UN Haiti will continue to partner with EarthSparks especially on biomass use as a possibility for decreasing charcoal demand.

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[1] UNEP 2016: Chaînes d’approvisionnement du charbon de bois et du bois de feu dans le Département du Sud





## 7. Consistency with National Priorities

### Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions

Yes

**If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc**

National Policy on Climate Change: The vision of the National Policy on Climate Change (PNCC), to be formally adopted, is to significantly reduce by 2030 the vulnerability of Haiti's population to the predicted effects of climate change, by adopting and successfully implementing appropriate and effective climate change adaptation and mitigation measures. The policy is based on the following principles: cross-cutting interventions, good governance, ecological responsibility, equity in resource allocation, public-private partnerships, international cooperation, and effective monitoring and evaluation. The main objective of the policy is to promote climate change adaptation and mitigation for sustainable development through measures that increase levels of knowledge and understanding and improve human well-being and social equity while pursuing economic development that significantly reduces poverty, risks and disasters related to climate change. Based on national consultations, nine policy options were prioritized for adaptation, which include a focus on:

- Agriculture, livestock, fisheries and food security
- Coastal areas
- Water and sanitation resources
- Human settlements and health
- Risk and disaster management and infrastructure
- Energy, transport and urban development
- Gender, employment and human rights
- Tourism and climate change
- Climate change and migration

- National Adaptation Programme of Action (NAPA): Haiti's NAPA identifies climate related hazards (flooding, saltwater intrusion, changes in river morphology, drought and low flows, intense rainfall and cyclones) and the main human vulnerabilities and livelihood impacts (reduced agricultural production, water shortage or groundwater depletion, flooding, food security, water pollution, loss or degradation of land). The proposed project is in line with Haiti's NAPA by developing environmental actions for the local level which will combat negative climate change impacts. In particular, the project will seek to develop climate-adapted management plans for Barraderes et Cayemites, and Macaya protected areas. The project will also support a study on climate stressors, shocks and impacts on water resources, energy scarcity, and supply chain issues, as well as current local solutions and best practices. The project will also promote eco-disaster risk reduction (Eco-DRR) measures. Specifically the project supports four of the NAPA priorities which are:

- Priority 2: Coastal zone management

- Priority 3: Enhancement and Conservation of Natural Resources
- Priority 4: Preserving and Strengthening food security
- Priority 8: Information, Education and Awareness

It is worth noting that the NAPA is being updated and the final update will be available after this PIF has been submitted, and during the PPG. However, the NAPA revision team being led by FAO has consulted the PIF development team, and has noted that DRR and governance-related issues must also be included in the NAPA.

- Second National Communication on Climate Change highlights the vulnerability of water resources and agriculture. This project targets both of those sectors through its interventions on climate management plans, protection of ecosystem services, the proliferation of green economy, and the planting of resilient agro-forestry. It also focuses on rehabilitating rivers to ensure access to water, particularly during periods of drought.

- National Adaptation Plan (NAP) is currently under development. It will include a component on knowledge management of best practices and lessons learned. This project seeks to contribute to knowledge generated on climate change adaptation pilots in the protected areas.

- Intended Nationally Determined Contributions (INDC), GoH has outlined its priorities which include
  - integrated management of water resources and watersheds;
  - integrated management of coastal areas and rehabilitation of infrastructure;
  - the preservation and strengthening of food security, in particular through the development of the bioeconomy;

This project is in line with the INDC and will be impacting all three of these priorities.

## 8. Knowledge Management

**Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.**

The proposed project will include a cross-cutting theme on climate information and knowledge management, which will intersect with all the project areas, and will be added as an activity under each output. This is an essential area for several reasons, but primarily because Haiti has a number of international projects, often conducted in disparate ways, without proper management of lessons learned at the government level. One of the main ways in which the project can build capacity for the government is to centralize and feed back information into Ministries of Environment and Agriculture, through the departmental links, and to inform other key stakeholders through the Table Verte hosted by UN Environment and the *Comite Interministeriel sur l'Aménagement du Territoire* (CIAT), which seeks to consolidate all the donor-led and local initiatives in the South of the country.

There are likely several important South-South adaptation lessons learned that could be applied at the local level, which the project will try to integrate into local planning; the PPG phase will scope out the methodology to achieve this. The focus here will be to generate knowledge, and learn/exchange with other Caribbean countries, which face the same risks but have more resilient measures in places in the face of climate disasters. The project will also seek to develop community-relevant climate change adaptation campaigns, which resonate with the local realities on the ground.

In order to solicit support for project initiatives, the project will develop a strong science-policy interface so as to demonstrate the cost effectiveness and benefits of ecosystem-based adaptation, and provide proof of concept. The project's interventions will impact natural resource management, disaster risk reduction and agroecology. During the PPG, indicators will be structured such as to systematically analyze assembled evidence across these two areas and compare it to a "control" to assess progress and inform policy processes.

## 9. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

**Overall Project/Program Risk Classification\***

PIF

CEO Endorsement/Approval MTR

TE

Medium/Moderate

**Measures to address identified risks and impacts**

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

**Supporting Documents**

Upload available ESS supporting documents.

**Title**

**Submitted**

**Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).**

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Moise Jean-Pierre	GEF Operational Focal Point	Ministry of the Environment	1/21/2019

# ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place



