PROJECT IDENTIFICATION FORM (PIF)
PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND: LEAST DEVELOPED COUNTRIES FUND (LDCF)

PART I: PROJECT IDENTIFICATION

Project Title:	Adapting coastal zone management to climate change in Madagascar considering ecosystem and livelihood improvement		
Country(ies):	Madagascar	GEF Project ID:	4568
GEF Agency(ies):	UNEP	GEF Agency Project ID:	548
Other Executing Partner(s):	Direction of Climate Change, Ministry of Environment and Forests	Resubmission:	06-15-2012
GEF Focal Area (s):	Climate Change	Project Duration(Months)	60 months
Name of parent progra12m (if applicable): ➢ For SFM/REDD+		Agency Fee:	533,750

A. FOCAL AREA STRATEGY FRAMEWORK[1]:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Indicative Financing from relevant TF (GEF/LDCF/SCCF) ($)	Indicative Cofinancing ($)
CCA 1	Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas	Output 1.1.1: Adaptation measures and necessary budget allocations included in relevant frameworks	285,000	750,000
	Outcome 1.2: Reduced vulnerability to climate change in development sectors	Output 1.2.1: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability	2,300,000	7,425,000

[1] It is very important to consult the PIF preparation guidelines when completing this template.

CCA 2	Outcome 2.1: Increased knowledge and understanding of climate variability and change-induced threats at country level and in targeted vulnerable areas	Output 2.1.1: Risk and vulnerability assessments conducted and updated	175,000	200,000
	Outcome 2.2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses	Output 2.2.1: Adaptive capacity of national and regional centers and networks strengthened to rapidly respond to extreme weather events	200,000	650,000
	Outcome 2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	Output 2.3.1: Targeted population groups participating in adaptation and risk reduction awareness activities	145,000	350,000
CCA 3	Outcome 3.1: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas	Output 3.1.1: Relevant adaptation technology transferred to targeted groups	1,740,000	1,750,000
	Outcome 3.2: Enhanced enabling environment to support adaptation-related technology transfer	Output 3.2.1: Skills increased for relevant individuals in transfer of adaptation technology	125,000	200,000
Project management cost			262,500	500,000
Monitoring and Evaluation Plan			105,000	140,000
Total project costs			5,337,500	11,965,000

B. PROJECT FRAMEWORK

Project Objective: To reduce vulnerability of the coastal zone to climate change and climate variability in order to increase its contribution to national economic development and poverty reduction.					
Project Component	**Grant Type (TA/INV)**	**Expected Outcomes**	**Expected Outputs**	**Indicative Financing from relevant TF (GEF/LDCF/SCCF) ($)**	**Indicative Cofinancing ($)**
1. Institutional capacity development	TA	Strengthened institutional capacity to address climate change impacsts on coastal zones	Climate change vulnerability, risks and adaptation measures for the coastal zone are identified and a comprehensive multisectoral coastal adaptation plan is developed Protected areas and resource managers are trained on the role of ecosystems and the benefits of the ecosystem approach in climate change adaptation Institutional capacity to develop resilient standards, legislative instruments and norms relating to coastal zone land use planning is strengthened An effective coordinating mechanism for climate change adaptation is put in place	375,000	900,000

2. Coastal rehabilitation and management for long-term resilience	INV/TA	Restored, resilient and protected coastal zone managed through an effective participatory management system	Coastal ecosystems and buffer areas are rehabilitated and are resilient Mangroves, marshes, shorelines, beaches and reefs provide protective ecosystem services Barriers to coastal resilience are removed through promotion of sustainable natural resource use practices and introduction of alternative livelihoods Technologies for resilient protection and rehabilitation of coastal productive assets are demonstrated (e.g. sea walls adjacent to mangroves) Climate monitoring infrastructure, including coastal EWS, is operational and technical capacity is strengthened Management system with effective implication of trained local communities on climate change risks in coastal zone is created and operational Coastal and marine ecosystem monitoring systems, are established, effective and accessible Effectiveness of ecosystem rehabilitation interventions is measured	4,040,000	9,175,000

3. Mainstreaming adaptation measures into national policies and development strategies	TA	National and sectoral policies that integrate adaptation measures to climate change	Impacts of climate change on coastal urban settlements and urban land use are understood Awareness and knowledge of adaptation good practice at all level are increased Tools and methodologies for integrating adaptation measures into national policies and development strategies are adopted Capacity of responsible technical staff to incorporate adaptation measures in their respective sectors is strengthened Adaptation measures are integrated into the existing and new development strategies and laws ((MECIE, Charter of Environment, Code of Environment etc..., building codes) along with adequate budgetary allocations for implementation A national strategy for the role of coastal ecosystems and marine protected areas in climate change adaptation is prepared	555,000	1,250 000
Project management Cost				262,500	500, 000
Monitoring and Evaluation				105,000	140,000
Total project costs				5,337,500	11,965,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

Sources of Cofinancing for baseline project	Name of Cofinancier	Type of Cofinancing	Amount ($)
National Government	Government of Madagascar	Grant (TBC)	1,500,000
National Government	Government of Madagascar	In-kind	840,000
Bilateral Aid Agency(ies)	JICA	Grant	2,650,000

Bilateral Aid Agency(ies)	SDC (Swiss Development Cooperation)	Grant	1,000,000
Multilateral Agency	UNEP	Grant	2,925,000
Multilateral Agency	IFAD	Grant	3,050,000
Total Cofinancing			11,965,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

- N-A

GEF Agency	Type of Trust Fund	Focal area	Country name/Global	Project amount (a)	Agency Fee (b)[2]	Total c=a+b
						0
						0
						0
						0
						0
						0
						0
						0
						0
Total Grant Resources				0	0	0

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide
information for this table

[2] Please indicate fees related to this project.

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 the /LDCF/SCCF strategies:

Madagascar's government seeks LDCF funding for a Full-Sized Project to implement priority activities as outlined in the National Adaptation Programme of Action (henceforth referred to as NAPA). This project addresses NAPA priorities 1, 4, 5, 7 and 11, as well as builds the foundational institutional capacity for the implementation of other NAPA priorities. NAPA priorities that are being addressed directly by this project include:

- Priority 1. Rehabilitation and or construction of protective dams and dikes
- Priority 4. Adoption of anti-erosion measures, soil rehabilitation and dune stabilization
- Priority 5. Installation of light climate monitoring infrastructure and strengthening of decentralized climate services
- Priority 7. Rehabilitation of degraded coastal areas, including through reforestation of filaos, mangrove plantation, stone dikes and shoreline management, and tide or wave breaks.
- Priority 11. Development of information, engagement and communication systems.

The project is consistent with the Revised Programming Strategy on Adaptation to Climate Change for the LDCF and SCCF and follows the Results-Based Management Framework (RBM). As seen in Table A, the project contributes to all three Climate Change Adaptation (CCA) objectives: Reducing Vulnerability, Increasing Adaptive Capacity and Adaptation Technology Transfer.

This project will implement climate change adaptation measures that can protect and enhance human populations and natural ecosystem resilience in coastal regions previously identified in Madagascar's NAPA as the most vulnerable to climate change: Morondava (Menabe), Mahajanga (Boeny), and Toamasina (Antsinanana). The project will consist of three components: (1) institutional capacity development that concern institutional and technical aspects; (2) coastal rehabilitation and management; and (3) mainstreaming adaptation measures into national and sectoral policies, development strategies. As a result the vulnerability of coastal communities and infrastructure will be be decreased, and the institutional capacity to address climate variability will be enhanced. Findings and outcomes from the project will be upscaled to develop local and national approaches to climate change adaptation measures.

A.1.2. FOR PROJECTS FUNDED FROM LDCF/SCCF: THE LDCF/SCCF ELIGIBILITY CRITERIA AND PRIORITIES:

Madagascar, as an LDC who has completed its NAPA, is eligible to receive support from the LDCF for implementation of urgent and immediate adaptation measures.

This project aims to implement climate change adaptation measures that can protect and enhance human populations and natural ecosystem resilience in coastal regions previously identified in Madagascar's NAPA as the most vulnerable to climate change: Morondava, Mahajanga, and Toamasina. The proposal has been developed in compliance with LDCF procedures and best practice and represents the response to immediate and long-term adaptation needs, demonstrating program conformity. The ecosystem approach ensures sustainibility over the long-term while stakeholder involvement at the local, community, regional and national levels encourage wider participation and capacity building for adaptation activities, while promoting a learning-by doing approach through pilot actions. The project will thus promote a participatory approach wherein coastal community members are engaged, consulted and exercise ownership. The project will also ensure complementarity by identifying key adaptation projects and activities, for coordination so as to ensure synergies, value-added, cost-effectiveness and eliminate any duplication of effort.

As demonstrated in Table A, the project will be:

***Reducing Vulnerability*:** The project will reduce vulnerability by implementing urgent and immediate coastal adaptation measures in vulnerable areas and by strengthening the capacity of key institutions associated with coastal planning and management.

***Increasing Adaptive Capacity*:** The project will increase adaptive capacity to respond to the impacts of climate change at the local and central institutional levels while promoting the ecosystem rehabilitation and community-based measures necessary to achieve resilience. The project will promote vulnerability and risk assessments, climate change impact monitoring and data collection / management; expansion and rehabilitation of existing infrastructures related to climate monitoring, with particular emphasis on coastal monitoring; and development of institutional capacity to develop standards, legislative intruments, and norms related to coastal zone land use planning.

***Carrying out Adaptation Technology Transfer*:** The project will promote transfer and adoption of adaptation technology, particularly to ensure rehabilitation of key coastal productive assets, climate and vulnerability monitoring capabilities as well as the demonstration best practices in integrated coastal zone management and adaptation through ecosystem restoration. By promoting pilot interventions, the project will promote learning and increase the adaptive capacity of stakeholders to manage, monitor and utilize new technologies.

A.2. NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS, IF APPLICABLE, I.E. NAPAS, NAPS, NBSAPS, NATIONAL COMMUNICATIONS, TNAS, NIPS, PRSPS, NPFE, ETC.:

This project is consistent with and supports national orientations, and takes into account the country needs stated in national planning and strategy documents. These orientations and priorities have been embodied particularly in the Madagascar Action Plan (MAP), the National Environmental Action Plan (PAE), NAPA, the Initial and Second National Communications, the National Rural Development Action Plan (PADR), and regional development plans. Currently, these projects/plans/programmes are being implemented on the national territory. However, underestimation of climate change risks and impacts, as well as other important non-climatic factors, could jeopardize some of the benefits provided by these national actions. The present project will make significant contributions towards the achievement and sustainability of the stated objectives of these strategy documents, by taking into account climate change risks.

This is consistent with the MAP's fourth commitment on "rural development". Madagascar coastal areas remain notably rural; and all activities within this project are targeted to rural development. It is also consistent with the following PADR orientations: "preparation for natural disaster urgencies", "application of appropriated techniques and technologies", "amelioration of habitation conditions". The project is consistent with MAP's seventh commitment "cherish the environment", PAE's objective "Preserve and valorize environmental resources", and the Initial and Second National Communications water resources adaptive measure concerning coastal zones: "strengthening the protection of coastal zone to erosion and sea-level rise".

As highlighted in A.1.1, the project is expected to make direct contributions to the implementation of priorities identified in the NAPA, including priorities 1, 5, 7 and 11, as well a building the foundational institutional capacity for the implementation of other NAPA priorities.

PROJECT OVERVIEW:

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

B.1.1 Baseline Situation

Madagascar is a 587 041 sq km island located 400 km off the east coast of Africa, with approximately 19 million inhabitants. National economy depends essentially on natural resource based sectors including agriculture, mineral extraction, tourism, and fishing/aquaculture. Current GNP is estimated at US$ 300 per capita; and more than 70 % of the population (13.5 million inhabitants) lives permanently below the poverty line of US$ 1 per day. Approximately 70 % of the total population lives in rural areas, depending directly on subsistence agriculture. About 1.5 million inhabitants face seasonal food insecurity during the hunger (rainy) season. The island is hit almost annually by natural disasters such as droughts, cyclones and associated inundations, which severely affect agricultural production and livelihood. On the other hand, combined effects of rapid population growth, lack of appropriate techniques, and poor administrative controls have significant impacts on natural resources. Slash-and-burn techniques remain largely practiced particularly in remote forested areas, causing drastic forest cover reduction during the last 50 years, and jeopardizing the unique biological diversity of the island. It is estimated that Madagascar's forest cover has been reduced by 85 %, 80% of which can be attributed to slash and burn techniques. Deforestation in Madagascar continues at a rate of about 0.5 % per annum. Associated extensive soil erosion lead to the formation of *lavakas* (sink holes), which are the main geo-morphologic feature of Madagascar Central Highland. These erosions have consequent impacts on coastal fluvial, marine, and terrestrial ecosystems; affecting therefore local activities, subsistence, and overall livelihoods.

In Madagascar the national economy depends essentially on natural resource based sectors including agriculture, mineral extraction, tourism, and fishing/aquaculture. It is widely acknowledged that the negative impacts of climate change will strike the poorest in any community. Since women constitute the majority of the poor and are often more dependent on natural resources, they are likely to be disproportionately vulnerable to the effects of climate change.

Important parts of the population including some urban centers and other economic development activities are distributed in coastal administrative provinces. Climate events have severely impacted agricultural output and negatively affected livelihoods on the sector (See section B.2.1 for details) .

Environmental degradation is of significant concern, as the main rivers have high-elevation waterheads. Extensive soil erosion caused by massive deforestation has caused rivers to carry high sediment loads, and as a result coastal water resources have begun to be less accessible particularly at the end of the austral winter. Current farming systems have also contributed to further degradation. Currently many of the agricultural practices make unsustainable use of forests, rivers, and oceans. Some of the projects highlighted in forthcoming section B.1.2 have been established to address these baseline issues. In addition, there is a particularly high level of population growth in coastal regions, which has negative implications on associated resources and ecosystems. UNFPA has recognized this challenge and in the past year invested in an innovative conservation project linking the threatened marine environment with clinical reproductive health services to 24 coastal villages.

While 50 % of land is arable in Madagascar, less than 10 % is cultivated due to lack of roads, infrastructure, irrigation, farm equipment and available financing. This has some serious implications for food security for the local populations and for rural development. Different indigenous groups utilize differing agricultural methods. For instance the Betsilao of the central highlands utilize highly efficient rice paddies, using an irrigation method that utilizes water in canals that travel for several distances. However, in the forested regions of the eastern coast, the dominant practice is that of slash and burn referred to as '*tavy*'. After three or so years of cultivation the fields are gradually covered by a second vegetation referred to as '*savoka*', where a decade or so later the area can be cultivated again. Although *tavy* has been declared illegal, it is still practiced widely as it has a shorter cultivation cycle and uses less water than irrigation techniques. The water issue is central to the continuation of *tavy*, as every three years

or so (sometimes at even shorter intervals) the country suffers from extreme droughts, and slash and burn techniques provide more reliable food supply than irrigation driven production. Moreover, subsistence farming is constantly threatened by natural disasters. Over the last 35 years there have been at least 50 major natural disasters including cyclones, drought, floods, famines, locust infestations, affecting a reported 11 million people, and preventing infrastructure development and the establishment of newer more sustainable agricultural practices.

Food security is of huge concern to the Malagasy population. 70 % of the population lives under the poverty line and 50 % of children under the age of three suffer from stunted growth due to a chronically inadequate diet. 8 % of the population suffers from chronic food insecurity while another 50 % experience transitional food insecurity during the lean months of the year, described above as the hungry season. The eastern coast and the southern regions are the most food insecure in the country.

Although fishing is practiced widely, the cost of bringing fish from the coast to other regions increases the price of food commodities making it difficult for most of the population to afford. Purchasing power has decreased widely, particularly in rural areas. Political transitions and instability has further exacerbated socioeconomic concerns. In addition, many international donors have reduced their aid commitments as well as interrupted their projects while political transitions occur. Shrimp industries located in the Mahajanga and Morondava provinces already have a negative environmental impact in the coastal regions, affecting the ecosystems and groundwater, but provide a source of livelihoods and resources for exportation. However, offshore oil reserves are in the same region and there are plans for oil extraction. Shrimp is Madagascar's leading industry. In addition to causing environmental degradation, oil extraction may hurt the shrimp industry, affecting the main industry of the country.

Nearly a third (30%) of the population resides in urban centres. These centres are beginning to expand and are encroaching on productive and agricultural lands. The impacts of urban growth, which occurs at a rate of 3.9% in Madagascar according to 2010 statistics, include an increase of solid waste. Much of this waste is dumped on beaches, in rivers and in the sea adding to environmental degradation and health problems. Madagascar cities enjoys an improved access to water than many other African states; in urban centres 85% of the population has access to water supply and 70 % to some form of sanitation. However, the rural areas still suffer from poor access and periodic droughts. Water is a central theme in Madagascar's NAPA: top priority is given to improving freshwater structures and water management resources. Despite there being extensive water resources, management is poor and huge disparities exist. The Southern and Eastern regions suffer from shortages and drought.

In terms of health, malaria is still the most serious tropical disease in the country. Although this problem has decreased in the central highlands, it is still a significant issue for coastal communities particularly on the eastern coast. Although public health initiatives have been mobilized, the majority of the population still resides at a distance from a health care facility and the ratio of doctors to patients is highly unbalanced. For many unable to access care, traditional medicine is still a popular avenue for care. Sanitation concerns, particularly in coastal regions have exacerbated health problems, particularly contagious illnesses.

Until 2009, a range of programmes were in place to address some of the socioeconomic challenges in Madagascar, with support from the international community. Eco-tourism was being promoted heavily as a means to diversify livelihood. Innovative plans such as establishing the Foundation for Protected Areas and Biodiversity and an exchange with the French government wherein Malagasy debt would be waived if the equivalent were invested in forest protection was underway. However, due to political reshuffling and transitions, many of these programmes have been halted, and in some cases, lost support. Thus the

baseline context is one where there is dire need for various types of interventions to support socio-economic and sustainable development, and in particular resilience.

As regards the coastal zone, much like the rest of Madagascar, coastal ecosystems present a high degree of diversity, and each region contains its own specificity. Coastal forests, that play a key role in erosion and flood prevention, are subject to increased pressures from sea level rise, as well as baseline pressures such as slash and burn agriculture. It is estimated in Madagascar's first national communication that five types of forest formations cover 13 260 000 ha. "Dense arid forests" occupy the majority of the western coast, whereas mangroves are said to represent 3% of total forested area.

Mangroves – over 3000 km^2 comprised of nine mangrove tree species - are found primarily along the western coast (with an estimated 50km2 on the eastern coast), where they are often associated with coral reefs, which protect the mangroves from ocean swells. The mangroves, in turn, capture sediment from the interior lands that threatens both reefs and seagrass beds, forming a comprehensive package of ecosystem services that protect from shoreline erosion, saltwater intrusion and inundation. Mangroves are threatened by development of urban areas, overfishing, and erosion caused by tree-cutting in the highlands. Some mangrove areas have been converted to rice farming and salt production; however, direct harvesting of mangroves for wood products is relatively lower than in other areas (though increases in fuel prices could drive demand up).

Madagascar also hosts a number of coastal wetlands of significant importance (531 000 Km^2). Madagascar waters are home to high levels of fish diversity (829 species), that rely on mangroves and reefs for habitat. Although many of the reefs have been seen to suffer from degradation due to climate change (bleaching), some of Madagascar's reefs have demonstrated resilience, a characteristic that could deliver some valuable insights on reef management and rehabilitation for future resilience. In addition to bleaching events due to higher temperatures (as seen in 1998, 2002 and 2005), reefs are subject to pressures from unsustainable or excessive fisheries, as well as siltation from the accumulation of excess sediment in bays (due to upstream erosion, in some cases).

B1.2 Projects addressing the baseline situation

There are a number of international projects established in Madagascar over the last decade addressing sustainable development, rural development, and environmental degradation, although it should be noted that many of the larger initiatives have been suspended following the unrest in 2009; Since then, there are no major new projects and programmes in the targeted regions, and the few projects that were not suspended are now gradually nearing their end dates. Many of the remaining projects currently underway are limited to those directly supporting vulnerable populations' livelihoods. Many of the projects deal with biodiversity conservation, protection of the marine environment (establishing new Marine Protected Areas), deforestation and land degradation. Many of the outcomes from these ventures can provide a development baseline for this LDCF project including the useful data relevant to the LDCF project, and provide entry points from where the LDCF project can take on. Where appropriate, linkages, coordination and synergies will be identified and sought during the PPG to avoid duplication of efforts, ensure cost effectiveness and donor coordination. It is important to note however, that most do not address climate change and its negative impacts as a central component of their projects creating an institutional, infrastructure and policy gap which can be used as baseline co financing for the project.

The main baseline project on which this initiative builds is the Support Programme for Rural Development, supported by the Swiss Government since 2000. Otherwise known as SAHA, this program aims to enhance the living conditions of rural communities though interventions in the rural zones of Imerina, Betsileo and Menabe (coastal) which is targeted by the project. The programme's total cost is over 9.5 million CHF. In its third phase, the programme seeks to promote activities designed to create economic productivity and employment around the major economic avenues and product chains, promote the creation of local groups and social safety nests, and the sustainable exploitation of natural resources as a basis for economic growth. The programme also promotes the strengthening of local institutions,

namely the communal services in their work on land tenure and property reform, tax collection and decentralization. The programme also provides core support to the Direction d'Aménagement du Territore (land use planning directorate).

Another baseline program active in the LDCF project sites to which this project can be expected to make a contribution is supported by the International Fund for Agricultural Development (IFAD), the Program of Support to the Development of Menabe and Menaky (AD2M). This program, started in 2006 and slated to end in 2014 has a total budget of 21 million US$. Its aim is to strengthen the policy and institutional and regulatory processes regarding land tenure security and rights to land at national level and in the two targeted provinces. It also promotes the sustainable use of natural resources, capacity building for local governance including the development of regional, communal and local development plans as well as the emergence of local-level capacities and entrepreneurship.

Other partners are also supporting key baseline development needs, as expressed in the Government's annual Investment plan, namely for the programmes of key government ministries. As such, this LDCF project can also build on a number of baseline projects supported by the Japanese International Cooperation Agency in coastal zones in Madagascar including those targeted by the project , namely for the development of rural water and sanitation infrastructure in the southwestern region of Atsimo Andrefana or for the development of tilapia aquaculture in two project sites, the northwest region of Mahajanga, as well as some technical assistance for infrastructure planning in the area of Toamasina.

Finally, this project will naturally build on the Government of Madagascar's own national development baseline investments, namely on the operations and programmes of the Ministry of Environment and Forests, and other sectoral ministries who are called upon to intervene in coastal areas issues such as the Land Use Directorate, or the Ministries in charge of agriculture, water, energy and transport. For 2012, the combined operational and investment budget of the Ministry of Environment and Forests was set at over 119,700 million US$.

B.2. INCREMENTAL /ADDITIONAL COST REASONING: DESCRIBE THE INCREMENTAL (GEF TRUST FUND) OR ADDITIONAL (LDCF/SCCF) ACTIVITIES REQUESTED FOR GEF/LDCF/SCCF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS (GEF TRUST FUND) OR ASSOCIATED ADA PTATION BENEFITS (LDCF/SCCF) TO BE DELIVERED BY THE PROJECT:

B.2.1 The Climate Change Challenge

Coastal zone vulnerability

The island has more than 5,600 km of coastline, representing more than a third of the national territory. Important parts of the population including some urban centers and other economic development activities are distributed in coastal administrative provinces. In addition, many coastal areas have some sectorial specificities and potentialities, which are among the main support of the national economy. For example, most of the vanilla and coffee plantations, as well as almost the whole fishing/aquaculture industries are found there. These areas are among the most vulnerables part of Madagascar facing climate change, and agricultural production has already begun to decrease in many areas. Climate events, combined with use of rudimentary technology, meant that only 7 % of the GNI of Madagascar was obtained by fishing activities in 2003, and the observed reduction of vanilla and rice yields are correlated to climate change impacts on humidity and water resources.

More than 1,070,000, people live in coastal administrative districts, and are directly concerned by sea-level rise. Coastal areas are among the most vulnerable portion of the island from cyclones, inundation, or drought; and other global warming associated effects such as coral bleaching, seawater acidification or mangrove retreat will exacerbate the vulnerabilities of coastal populations that depend on seafood and

natural ecosystems. For instance, the coral bleaching and algae invasion of the Tulear reef, the third largest of its kind in the world, has threatened the livelihoods of thousands of traditional fisherfolk.

More than 80 % of Madagascar's plants, flora and fauna, mammals reptiles and amphibians are unique to the country itself, making it one of the most unique biodiversity hotspots in the world. However, climate change will have a negative impact on this biodiversity. Models suggest that Madagascar will lose 17-50 % of its forest habitat due to climate change if plants and animals are unable to disperse or migrate to suitable areas. Moreover, at least three species of Malagasy reptiles and amphibians are likely to go extinct between 2050 an d 2100 due to habitat loss incurred by rising temperatures.

According to a World Bank study, in the last half century Madagascar has witnessed temperature rises of 10 % and 10 % decrease in rainfall. Madagascar ranks third on the World Bank's list of countries most vulnerable to the rising frequency and intensity of storms predicted by global warming. Although the NAPA projects are costed at $4 million, it is estimated that the cost of each cyclone can be valued in millions of dollars. It is thus necessary to include disaster management into climate change adaptation planning. In terms of dramatic decrease in rainfall, it is unclear whether this can be directly attributed to climate change or to the change in micro-climate cause by Madagascar losing more than 80% of its forest cover.

Global climate models predict changes in temperature: Southern Madagascar is predicted as having the largest increase 2.6 degrees Celsius by 2055 and the coastal areas and the North will suffer from 1.1 degree increase. Changes in precipitation according to global climate models predict that the Southern and Eastern half of the country will be much drier by 2050. This is significant as the Southern region is already the driest part of the country and suffers from drought.

The expected impacts of climate change in Madagascar arise from anticipated temperature increases, including sea-level temperatures, which will have implications for agriculture and livelihoods in general. In addition, modification to the precipitation regime and increased variability and uncertainty are expected to lead to increased floods and droughts. Sea level rise is also likely to have a significant impact on coastal resources, livelihoods and systems. Texpected impacts of climate change can be summarized as follows:

	Increased Temperature	**Floods**	**Droughts**	**Cyclones**
Water	- Less water for agriculture (insufficient water to improve rice farming techniques in the South) - Disappearance of some water points - Swamps and rivers drain in dry season	- Contamination of drinking water - Ingress of groundwater into pipes	- Water shortages and rivers dry up in the South - No water for irrigation or livestock - Deteriorating water quality - Antananarivo plains will not have sufficient water to meet demand in 2050-2100	- Degrade water resources - Flooding

Livelihoods	- Cropping seasons no longer routine - Reduction in soil fertility - Decrease in rice paddy productivity and less income	- Soil erosion - Decrease in soil cover and fertility in highlands (soil moved downstream) - No access to schools - Crop damage/loss, leading to food scarcity and hunger	- Famine - Locust swarms - Crop failure e.g. lower rice production (also caused by decreased rainfall) - Disruption of agricultural calendar - Decrease in plants available for handicrafts - Increased vulnerability to fires	- Increased soil erosion - Flooding of crops and damage to plantations - Injured livestock - Crop failure - Sedimentation - Decreased revenue from crops if production is reduced Disrupted education and jobs
Health	- Food shortages - Malaria risk extends over whole country - Other disease risk zones extend	- Cholera epidemics - Loss of life - Increase in water borne diseases	- Loss of life - Water borne diseases increasing - Less water for hygiene and cleaning	- Increased risk of epidemics - Loss of life - Damage to shelter
Biodiversity	- Loss of habitat - Loss of endemic species - Increase in vulnerability - Reduction of forest areas of all types	- Damage to biodiversity and habitat	Forest loss aggravated	Biodiversity destroyed

Other external factors exacerbate coastal socioeconomic and environmental vulnerabilities. First among them is environmental degradation. Many important rivers, on which depend many coastal populations, have high-elevation waterheads. Extensive soil erosion caused by massive deforestation has caused rivers to carry high sediment loads, and as a result coastal water resources have begun to be less accessible particularly at the end of austral winter. The second factor exacerbating vulnerability is the traditional use of resources. Farming systems currently depend on an extensive and unsustainable use of forests (shifting cultivations that threat endangered ecosystems and species), rivers (mainly fishing that does not take into account reproductive season), and oceans. In addition, income-generating mechanisms and livelihoods are generally not diversified. However, population growth in coastal regions is particularly high and generates increasing ecological footprint.

B.2.2. Problem the LDCF Project seeks to address and Expected Results

This project aims to implement climate change adaptation measures that can protect and enhance human populations and natural ecosystem resilience in coastal regions previously identified in Madagascar's NAPA as the most vulnerable to climate change: Morondava, Mahajanga, and Toamasina. The project will consist of three components: (1) institutional capacity development that address institutional and technical aspects; (2) coastal rehabilitation and management; and (3) mainstreaming adaptation measures into national and sectoral policies, development strategies.

This particular project is seeking to address the vulnerabilities that are posed by climate change in the coastal zone. The issues being addressed by the project are:

(1) Weakness of the institutional capacity to address climate change and to integrate it into coastal planning processes, particularly:
    - Lack of climate change risk assessment and impacts monitoring,
    - Weaknesses in coastal and marine ecosystem management systems,
    - Poor conditions of existing climate monitoring infrastructure, which needs urgently to be expanded and rehabilitated;

(2) Advanced degradation of the coastal infrastructures and coastal and marine ecosystems, which need to be restored;

(3) The need to integrate adaptation measures into national policies, development strategies, and sectorial activities, for a sustainable management and development of coastal regions. There is thus no baseline project and the LDCF funds will finance the full cost of adaptation measures included this project while supporting other Malagasy policy initiatives.

Project expected results include:

- people and governments' awareness of climate change vulnerability, impacts and adaptation solutions;
- sustainable, diversified and resilient livelihoods for local populations in coastal zones;
- technology transfer and the demonstration of adequate, cost-effective and resilient technologies for coastal zone adaptation; and
- contribution to national sustainable development.

For additional socioeconomic benefits, please refer to Section B3.

Project approach

The project proposes to build on three components designed to address key gaps in capacity and investment for resilience and adaptation in Madagascar. The largest investment component is based on the ecological services restoration , that uses ecological services restoration as a means to achieve human resilience and adaptation. In this case, the project in Component 2 will combine infrastructure rehabilitation where necessary with ecological rehabilitation and alternative livelihoods to achieve a balanced and integrated package of protective and productive services in coastal areas.

The approach considers ecological health as a factor of resilience and as a means of strengthening adaptive capacity within communities. The project proposes to use a community-based approach, to provide communities with stronger adaptive capacities while ensuring that natural ecosystems are protected. Healthy ecosystems, such as intact forests and wetlands, are beneficial to local populations for the many livelihood benefits that they provide: firewood, clean water, fibres, medicines, shelter and food. They can also form physical barriers against some extreme weather event such (such as storm surges).

Project Components to address negative climate change impacts and barriers to adaptation

Component 1- Institutional capacity development. Malagasy institutional capacities in terms of climate change, particularly in the adaptation strategies are still in the initial stages of development. The following issues are identified as urgent and priority: (1) Capacity building of specialized institutions associated with vulnerability and risk assessments, climate change impacts monitoring and data collection / management; and (2) Development of institutional capacity to develop standards, legislative intruments, and norms related to coastal zone land use planning.

Standards, legislative instruments and norms related to coastal zone land use are important considering the vulnerabilities of coastal areas facing extreme climatic events. Relevant laws, particularly on habitation construction in flooding zones, exist in Madagascar, but do not include standard and norm design facing climate change risks. This project contains capacity development targeted to improve habitation design and land use planning in flooding areas. Enforcement of existing regulations will be addressed by improving regional administration capacity and organization.

Baseline: There is a lack of capacity among various levels of administration to understand and assess climate change impacts and this is due in part to lacking data. Madagascar currently does not have adequate systems in place to gather measurements and information or conduct risk assessments to gauge the threats and vulnerability to which the population is susceptible. There is no comprehensive assessment of coastal vulnerability, partly due to the difficulties in reconciling regional diversity. Moreover, current regulatory structures such as legislation, standards, and norms governing local behavior, have not integrated ways in which to address climate change risks. As part of baseline efforts, the national government and donors, such as through the Switzerland supported SAHA programme, are working to support decentralization, the core development capacity of decentralized governance actors and authorities to deliver baseline mandates, such as land tenure and property reform, or finance management, as well as key institutions such as the Land Use Planning Directory (country-wide). This component will also build on the ongoing UNEP's work in support to its adaptation sub-programe which is focused on adaptation through ecosystem restoration and specifically of coastal ecosystems. It consists on vulnerability scenarios and cost-benefit analysis for adaptation planning, capacity building for the development and implementation of integrated adaptation in coastal and marine ecosystems, site-specific adaptation technology demonstrations and tools, and the development of approaches to support the integration of adaptation through ecosystem restoration into national planning frameworks

Additional Cost: Additional funding of 375,000 USD will strengthen the institutional capacity to address climate change impacts in coastal zones. The financing will support the development of a multi-sectoral coastal adaptation plan and build up ecosystems monitoring systems. Training of managers, administrators, technicians, policymakers will be carried out at various levels so as to build capacity in the ecosystems approach. Mechanisms to develop resilient standards, legislative instruments, and an effective coordinating system to address climate change adaptation strategies will be established.

Component 2 – Coastal and marine ecosystem rehabilitation and management for resilience. In Madagascar, irrational utilization of natural resources has led to the advanced degradation of coastal and marine ecosystems. Irrational seafishing has resulted in loss of biodiversity in some marine ecosystems. Pollution from upstream activities are carried into marine and coastal ecosystems. In addition, an annual coastline retreat of 4-6 meters was observed in some parts of the coastline since 1997, and many cities are currently experiencing partial destruction of some of their road infrastructures.

This component comprises of key priority adaptation investments, as well as demonstration of adaptation technologies and approaches to support country-wide resilience. This wil include (1) demonstrating technologies for rehabilitation of the most damaged coastal infrastructures in the pilot regions, in a cost-effective and no-regrets manner (e.g. rehabilitation of short sections of degraded sea walls as a supplement to the ecological buffer zones); (2) rehabiliation of ecosystems that provide key protective services such as: mangrove plantation and restoration, reef protection and rehabilitation, beach nourishment, shoreline reforestation, as well as threat monitoring, forest connectivity maintenance and enhancement, and watershed protection where necessary; (3) rehabilitation of climate monitoring infrastructure for early warning and risk management in coastal areas and (4) developing a system that integrates local communities in the management of coastal zones: property-right definition, community-based ecosystem management, zoning. As part of activity (2), this component will also seek to develop opportunities for livelihoods that remove barriers to resilience posed by perpetuating ecosystem degradation. This is based on a recognition that restored ecosystems and infrastructure can allow

communities to diversify their income generating capabilities (and hence contribute to resilience) and that sustainable livelihoods can in turn contribute to the maintenance of productive and protective ecological services.

Risk assessments, impacts monitoring and data collection / management play central role to addressing climate change issues, and these aspects need to be urgently tackled for many parts of Madagascar, especially in coastal areas. In this project, the risk assessment issue will be addressed with the implementation of a regional early warning system that will consider the associated risk of climate change including flooding and drought. Issues related to impacts monitoring will be addressed by implementing a regional monitoring system of climate events on the local population particularly, food security, health, and hygiene. Database collection and management issues will be addressed through the establishment of regional teams, under the supervision of the Ministry of Environment (Direction of Climate Change), who has responsibility for adaptation to climate change, and those concerned with database collection and management need to receive appropriate capacity building to ensure the realisation of this component.

Baseline: Ecosystems have been badly damaged in Madagascar. In addition to losing over 80% of its natural forest cover, coastal and marine ecosystems are at risk due to human behaviour and environmental factors, and decline of international interventions. Often times, a tension exists between preserving ecosystems and promoting poverty reduction given that a large segment of the population lives below the poverty line and relies on natural resources for its subsistence. This is also symptomatic of the fact that livelihoods are not diversified and rely on natural resource exploitation. In Madagascar, only 20 climate monitoring stations are operational; most of them are currently in poor condition due to the lack of necessary funds; and need urgently to be rehabilitated. Some baseline programming in ongoing in the country's coastal areas through national and development partner funding, such as for example road and port rehabilitation, or the development of water infrastructure and treatment systems in affected areasas well as infrastructure planning in Toamasina (Boeny) (JICA). This project will also build on ongoing national and international investments in the areas of Mahajanga and Monrodava supported by WWF and IFAD.

Additional Cost: With funding of 4.04 million USD from the LDCF, targeted coastal zones will be better protected and managed. This will be carried out through a participatory management system ensuring community support and buy-in for long-term sustainability. This funding will also support sustainable natural resource practices and introduce communities to alternative livelihoods so as to remove the barriers to resilience and ecosystem health. Communities will also be trained and introduced to new technologies for protection and rehabilitation of coastal productive assets. Including various stakeholders in the process will ensure commitment to project approaches as well as support mechanisms for alternative livelihoods where ecosystem presevation are not viewed as a threat to subsistence or poverty reduction.

Component 3 - Integrating adaptation measures into national and sectoral policies, development strategies. The need to take into account adaptation measures throughout the whole socioeconomic development of the country is a must for the sustainable development of Madagascar. However, the awareness of the population and administration on climate change risks and impacts remains very poor. This can have a serious impact on sectoral activities and population livelihoods for the reason that appropriate solutions to climate change are unknown or not addressed. In this project, these issues will be addressed by (1) disseminating as much information as possible concerning climate change risks and impacts, particularly by developing an Information-Education-Communication system for the populations and local authorities that will improve populations and authorities awareness; (2) developing a set of tools and methodologies that integrate adaptation measures into policies and development strategies; (3) improving and strenghtening the capacity of responsible technical staff to integrate adaptation measures in their respective sectors; (4) revising legislative instruments and laws (including *MECIE, Charte de*

l'Environment, and *Code de l'Environement*, building code, etc.) to consider adaptation measures; and (5) strenghtening the implementation of adaptation measures into existing and new development strategies.

Baseline: Although Madagascar is a signatory to the UNFCCC and its Kyoto Protocol, and has already begun suffering the repercussions climate change impacts including on its crop production, the awareness of the general population and administration to the vulnerabilities of climate change remain very poor. Without knowledge of the risks posed by climate change, communities can potentially suffer grave losses, be unprepared for future threats and may be engaging in unsustainable practices which will negatively impact livelihoods into the future. Despite the integration of a climate change team within the Ministry of Environment and Forests' ranks, and despit the integration of Environmental Units in many sectoral ministries, the operations of the Ministry, as well as those of other sectoral players in the coastal areas and those of decentralized government authorities, have yet to fully consider the impacts of climate change on development priorities and sectoral plans and programmes. Ongoing baseline programming in the targeted regions includes community-based reforestation and combat against forest fires, supported from the resources of the Ministry of Environment and Forests, as well as ongoing operations for environmental impact assessments, and the managment of protected areas and species. Additionally, the project will build on the coordination with the UNEP-Mangroves for the Future (MFF) Partnership which focuses on small island states (SIDS) whose work on natural resources governance in coastal and island context can provide avenues for addressing coastal governance issues through decentralization processes in Madagascar.

Additional Cost: Additional funding of 555,000 USD from the LDCF will support the development of national and sectoral policies that integrate adaptation measures to climate change. To achieve this goal, knowledge and data regarding the impacts of climate change on coastal urban settlements will be shared with various stakeholders. Best practices, tools, methods, and capacity building activities will be carried out to ensure that national climate change adaptation policies and strategies are adopted.

Without adaptation measures

As mentioned previously, devastating weather events mark Madagascar often and are anticipated to worsen. Given the need to include disaster prevention in climate change activities, it is necessary to consider the role that Early Warning Systems can play. Currently, approximately 20 meteorological stations are functioning across the whole island, providing basic climatic data including daily temperature and precipitations. They are in poor conditions, and the only Early Warning System implemented that can be found is localized in the south of the island, and it actually monitors data on food availability and malnutrition risks; the extreme meteorological events' impacts remain more or less underestimated. Furthermore, current and expected climate change impacts on both agricultural and natural (terrestrial and marine) ecosystems are not considered for the reason that agricultural technical staff and protected area management system do not possess the appropriate capacities needed to cope with the actual and projected climatic scenarios.

In the same fashion, there is an important lack of consideration of climate variability and climate change aspects in policies and land use planning in coastal areas. In these vulnerable zones, existing infrastructures (including roads, bridges, hydro-agricultural dams, ports) were constructed with non-resilient technologies and practices. For example, the *Code de l'Eau* stresses current and projected change and difficulties on water resources availability in the island, particularly in many coastal areas that are already experiencing ground-water saltwater intrusion.

Many sectors, including most of the currency-generating economic sectors, are showing decreasing productivity due to increased climate variability. For example in the rice farming system, some farmers have begun to inject important amount of agricultural and financial inputs to achieve their productivity objectives, but the system remains vulnerable and unproductive because it depends largely on the amount of rainfall and the harvesting generally takes place after the rainy (cyclonic) period.

Many sectoral policies and legislations do not take into account climate change aspects, and adaptation measures and facilitations are not mainstreamed. For example, within the *Code des Aires Protégées*, initiatives that improve ecosystem resiliency such as habitat connectivity development and maintenance, and fragmentation limitation are not well emphasized.

B.3. DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF GLOBAL ENVIRONMENT BENEFITS(GEF TRUST FUND) OR ADAPTATION BENEFITS (LDCF/SCCF). AS A BACKGROUND INFORMATION, READ MAINSTREAMING GENDER AT THE GEF.":

Women's livelihoods and social roles rely directly on forest resources to meet the nutritional, health and cultural needs of families and communities; forest resources are crucial to woman's income generating capacities, while men are involved in timber extraction and the use of non timber forest products for commercial purposes. Due to this division of labour, women living or near the forest are differently and disproportionately harmed by deforestation and have stronger interest in preservation[2].

An overall analysis of the climate change data reveals that women are largely excluded and are under-represented in adaptation activities. This project will include the participation of women stakeholders, particularly those representing vulnerable groups and promote gender mainstreaming. The project will aim to design capacity building, education, and training in a gender sensitive way and enhance women's access to them. The Malagasy context provides favourable conditions for this endeavour as the Constitution of Madagascar prohibits any discrimination on grounds of gender and grants women the same legal status as men.[3]

Expected positive results of the project are respectively (1) people and governments' awareness of climate change vulnerability, impacts and adaptation solutions; (2) sustainable, diversified and resilient livelihoods for local populations in coastal zones (3) technology transfer and the demonstration of adequate, cost-effective and resilient technologies for coastal zone adaptation; and (4) contribution to national sustainable development

Other socioeconomic benefits of the project include:

- capacity development targeted to improve habitation design and land use planning in flooding areas;
- enforcement of existing regulations which will be addressed by improving regional administration capacity and organization;
- demonstrating technologies for rehabilitation of the most damaged coastal infrastructures in the pilot regions, in a cost-effective and no-regrets manner;
- use of ecosystem rehabilitation as an adaptation strategy to protect biodiversity and natural resources: mangrove plantation and restoration, climatic and non-climatic threat monitoring on terrestrial and marine ecosystems, forest connectivity maintenance and enhancement, watershed protection;
- developing a system that integrates local communities in the management of coastal zones: property-right definition, community-based ecosystem management, zoning;
- strengthening coastal communities livelihoods—ecosystem restoration can yield to improved health, access to resources and diversified sources of livelihood.

[2] Source: *Madagascar Climate Change Briefing*, Water & Sanitation for the Urban Poor, Cranfield University

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In addition, an assessment of potential environmental and social impacts of proposed measures will be conducted during PPG which will propose mitigating measures if need be to be included in the project design.

B.4 INDICATE RISKS, INCLUDING CLIMATE CHANGE 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:

IDENTIFIED RISKS	*RISK LEVEL*	*MITIGATION MEASURES*
Risk 1: Governance Administration functioning is slow in Madagascar.	Medium	Mitigation response: Institutional capacity building is an integral part of the project. This concerns central administration staff as well as proximity authorities, regional partners, and local population.
Risk 2: Political change Political changes occur frequently in Madagascar.	High	Mitigation response: Central administration staffs concerned by this project, as well as their regional counterparts will communicate their achievements on the current realization of the project and regular project monitoring will ensure proper documentation at all stages. To the extent possible the project will seek to work with, and through, institutions such as research centers, universities, and para-statal organizations, in order to minimize the potential impact of political changes on project implementation. Careful monitoring and supervision by UNEP will be performed to ensure conformity with UNEP and GEF standards.
Risk 3: Degradation of infrastructure may occur because of lack of maintenance funds	Medium	The project will seek to achieve mainstreaming of maintenance costs for rehabilitated infrastructures, including climate monitoring infrastructure, as an exit strategy.

B.5. IDENTIFY KEY STAKEHOLDERS INVOLVED IN THE PROJECT INCLUDING THE PRIVATE SECTOR, CIVIL SOCIETY ORGANIZATIONS, LOCAL AND INDIGENOUS COMMUNITIES, AND THEIR RESPECTIVE ROLES, AS APPLICABLE:

Key stakeholders in this project include local communities, regional and district administrations as well as decentralized and central government agencies. This project will also create active partnerships with NGOs and CBOs at the local and national level, as well as private sector partners in the project sites. A thorough analysis and description of stakeholders will be finalized before CEO endorsement, as consultations confirm partnerships, phase 1 implementation sites and local buy-in.

Active partnerships with scientific and research organizations and academia, as well as close coordination with other ongoing initiatives and projects (to be identified during the PPG phase) will also be sought. Following is a preliminary list of stakeholders:

- Government officials/policy makers—officials from: Ministry of Environment, Water Forests and Tourism; Ministry of Agriculture; Ministry of Public Works; Meteorology Madagascar; Ministry of Decentralization; Ministry of Finance and district level representatives.
- Fishing organizations and communities including the Malagasy Shrimp Farming and Fishing Organization and the Malagasy Fisheries Administration

- Agricultural organizations and cooperatives
- Representatives from various indigenous groups, especially those with cultural associations with protection of the marine environment
- Women's groups and CBOs
- Municipal representatives
- Private sector representatives with particular emphasis on those in the tourism, fishing, logging, water and construction industries
- Multilateral organizations (such as WB, UNDP) and NGOs (such as WWF, WCS, IUCN, Blue Venture)

B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

One of the main challenges identified during the MAP's consultative process by the government and donors was the lack of coordination between government departments, donors and project implementations. It was highlighted that without clear governmental vision over environmental issues, projects were often implemented with little consultation or coordination among stakeholders. Donor coordination has been improving recently through the establishment of the Structure de Concertation et Coordination (SCC) and the Plan d'Action du Programme Pays between the government of Madagascar and UNDP for the period 2008-2011. Keeping this challenge in mind, the LDCF project will be coordinated with other parties.

Project coordination will be ensured by the Climate Change Direction of the Ministry of Environment and Forest in close collaboration with concerned sectors and local communities.

Other climate change adaptation activities related with this project include the initiative led by WWF-Madagascar. In their projects, WWF's objectives are (1) to assess local communities and marine ecosystem resiliencies and vulnerabilities to climatic and non-climatic factors; (2) to develop sectoral adaptation strategies and methodologies; to assess mangrove ecosystem vulnerability; and (4) to develop capacity on climate change awareness and adaptation strategies. Another relevant project consists to the Malagasy Ministry in charge of Fishing that contributes to reduce extreme poverty in the rural part of Madagascar by promoting sustainable traditional sea-fishing.

The Adaptation Fund recently approved a 5.1 million US$ project for Madagascar, that targets the agriculture sector and more particularly the rice sub-sector for implementation of adaptation measures. This project is to be implemented with support from UNEP as a Multilateral Implementing Entity, and close coordination will be sought with this initiative to ensure consistency of approaches and conceptual models, as well as cost sharings and savings where feasible.

The project is also expected to coordinate closely with – and benefit from - the UNEP Adaptation Sub-progamme ocused on adaptation through ecosystem restoration , which is providing co-financing for this project. Among supported initiatives, the sub-programme is expected to support the completion of vulnerability scenarios and cost-benefit analysis for adaptation planning, capacity building for the development and implementation of integrated adaptation through ecosystem restoration in coastal and marine ecosystems, site-specific adaptation technology demonstrations and tools, and the development of approaches to support the integration of adaptation through ecosystem restoration into national planning frameworks. The anticipated funding for this initiative, over 2012-2015, is 2, 750,000 US$. Additionally, the project will initiate coordination with the UNEP-Mangroves for the Future (MFF) Partnership which focuses on small island states (SIDS) but whose work on natural resources governance in coastal and island context can provide avenues for addressing coastal governance issues through decentralization

processes in Madagascar. The project is valued at 250,000 US$ and also provides co-financing to this LDCF initiative.

Examples of other related and relevant ongoing projects are included below (note that some of these initiatives may have been temporarily suspended or delayed, due to political events in 2009). A more comprehensive list of projects, including their status, will be developed during the project preparation phase.

Title	Partners and funding	Summary objective
Third Environment Programme	IBRD, GEF, Ministry of Environment, Ministry of Water and Forests. 148,850,000 US$	The development objective is to set natural resources management and biodiversity protection in critical ecological regions on an effective and sustainable footing with active participation from local populations and other relevant stakeholders, while at the same time incorporating environmental dimensions in public policy making and investment decisions.
SIP-Stabilizing Rural Populations through Improved Systems for SLM and Local Governance of Lands in Southern Madagascar	UNDP, GEF, GoM, WWF 5,934,490 US$	To enhance capability of resource users to mainstream SLM in development practice and policy at local and national levels for the mutual benefits of local livelihoods and global environment.
Network of Managed Resource Protected Areas	UNDP, GEF, ANAMBY, Ministry of Environment, Waters & Forests, and Tourism (MEEFT),Ministère auprès de la Présidence chargé de la Décentralisation et de l'Aménagement du Territoire (MPrDAT), ASITY 15,225,390 US$	To expand the PA system of Madagascar by developing a sub-network of managed resource protected areas in represented ecological landscapes, co-managed by local government and communities and integrated into regional development frameworks.
Additional Financing for Transport Infrastructure Investment Project	World Bank, Ministry of Tourism and Transport 17.7 million US$	infrastructure services for private sector development
Food security/Food Aid	World Food Programme	food aid distributions target the most vulnerable, including the elderly, orphans and other vulnerable children, pregnant and nursing mothers, underweight children under the age of five, and people living with HIV/AIDS and their households

As with all cases, the project will work to establish close coordination mechanisms with all other UN ongoing initiatives, programming frameworks and fora.

C. DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

UNEP has considerable experience in implementing projects and providing scientific guidance in the field of climate change. To date UNEP has facilitated the completion of 15 NAPAs and has assisted 38 countries in developing National Communications. It has also implemented or is in the process of implementing approximately 80 adaptation projects at global, regional and national levels. The UNEP

role in these projects is predominantly building capacity of stakeholders, particularly in terms of ecosystem management. UNEP's work on climate change adaptation focuses on three main areas: (i) Science and Assessments, (ii) Knowledge and Policy Support, and (iii) Building the Resilience of Ecosystems for Adaptation. UNEP has recently shifted the focus of its adaptation work to adaptation thorough ecosystem restoration. The activities proposed under this proposed project cut across across areas of UNEP 's work on climate change adaptation.

The project is consistent with UNEP's comparative advantage as identified through the GEF Council paper C.31/5. This document delineates UNEP's comparative advantage in providing the GEF with a range of relevant experiences, a proof of concept, the testing of ideas, and the best available science and knowledge upon which it can base its investments. The project also concords with the GEF Council paper C.28/18 that delineates UNEP's comparative advantage areas including: strengthening meteorological and climate early warning systems; and developing and using climate information to effect changes in relevant sectoral policies based on climate science.

UNEP is different from other agencies (e.g. FAO, IFAD, WB) in that its primary focus is environmental management. There are myriad factors affecting ecosystems, and managing this complexity requires a dedicated focus as well as in-depth ecological expertise. Adaptation through ecosystem restoration is particularly challenging in this regard and UNEP can provide both the scientific expertise and technical know-how to meet this challenge.

UNEP is uniquely positioned to undertake this innovative environmental work. Importantly, the adaptation interventions of this LDCF project hinge around knowledge of a wide range of ecosystems. Other parts of the project such as rehabilitating coastal ecosystems in order to restore protective ecosystem services, and strengthening alternative community livelihoods of coastal communities are attached to the central theme of managing ecosystems appropriately. UNEP's core business is providing technical advice on managing environments in a sustainable manner and it thus has a significant comparative advantage in implementing this LDCF project. The technical and scientific knowledge that UNEP brings to the project will be fundamental for its success. UNEP's experience in revising policy will be important for translating the information generated into appropriate policy, strategy and legislative documents which will be key in obtaining institutional capacity development.

The involvement of other sectors such as conservation, agriculture, water, marine protection and tourism adds to the complexity of implementing the project successfully. However, UNEP is also uniquely positioned in this regard, because it routinely facilitates dialogue between sectors to ensure that environmental management is conducted taking into account the full range of societal needs. The philosophy adopted by UNEP of minimizing trade-offs and maximizing synergies between sectors will importantly increase the sustainability of the project's interventions.

C.1 INDICATE THE CO-FINANCING AMOUNT THE GEF AGENCY IS BRINGING TO THE PROJECT:

This project is based on a baseline comprised of ongoing and parallel national and international programmes. These comprise the project's co-financing in the context of NAPA implementation. UNEP is contributing a total of 2,925,000 US$ in cash co-financing to this project, through its Adaptation Sub-programme and the UNEP-WFF Partnership on Natural resources Governance. The total amount of co-financing expected for this project is **11,965,000** USD.

C.2 HOW DOES THE PROJECT FIT INTO THE GEF AGENCY'S PROGRAM (REFLECTED IN DOCUMENTS SUCH AS UNDAF, CAS, ETC.) AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:

The project contributes to the achievement of the three following outcomes of the UNEP's Program of Work for 2010-2011 for Climate Change Adaptation: (a) the generation and mobilization of knowledge for adaptation including through impact and vulnerability assessment, the Global Adaptation Network and a World Research Programme on Impacts, Vulnerability and Adaptation; (b) support for capacity building, policy setting and planning; and (c) support for ecosystem-based adaptation.

Relative proximity to the UNEP headquarters and regular communication with the National Implementing partners provide the means for successful project delivery. UNEP supervision modalities for all its projects are expected to be applied in this case as well, providing for ongoing and regular monitoring and supervision as well as regular technical assistance.

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(s) with this template. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
RALALAHARISOA Christine Edmee	General Director for Environment	Ministry of Environment and Forests	June 2011

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	**Signature**	**DATE** *(MM/dd/yyyy)*	**Project Contact Person**	**Telephone**	**Email Address**
Maryam Niamir-Fuller; Director - UNEP-GEF Coordination Office.		06-15-2012	Ermira Fida, Portfolio Manager; UNEP-GEF Adaptation	+ (254-20) 762 3113	ermira.fida@ Unep.org