



REQUEST FOR CEO ENDORSEMENT
PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND: LDCF

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PART I: PROJECT INFORMATION

| | | | |
|--|---|------------------------------|----------------|
| Project Title: Adapting coastal zone management to climate change considering ecosystem and livelihoods | | | |
| Country(ies): | Madagascar | GEF Project ID: ¹ | 4568 |
| GEF Agency(ies): | UNEP | GEF Agency Project ID: | 548 |
| Other Executing Partner(s): | Ministry of Environment and Forests, Regional Administrations | Submission Date: | 1 July 2014 |
| | | Resubmission Date: | 24th July 2014 |
| GEF Focal Area (s): | Climate Change Adaptation | Project Duration (Months) | 60 |
| Name of Parent Program (if applicable): | | Agency Fee (\$): | 533,750 |
| <ul style="list-style-type: none"> ➤ For SFM/REDD+ <input type="checkbox"/> ➤ For SGP <input type="checkbox"/> | | | |

A. FOCAL AREA STRATEGY FRAMEWORK²

| 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 | 666,900 | 2,500,000 |
| 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 | 579,283 | 3,380,000 |
| 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 target groups | 3,744,820 | 5,450,000 |
| Project management cost | | | 213,997 | 680,000 |
| Monitoring and Evaluation costs | | | 132,500 | 40,000 |
| Total project costs | | | 5,337,500 | 12,050,000 |

¹ Project ID number will be assigned by GEFSEC.

² Refer to the [Focal Area/LDCF/SCCF Results Framework](#) when completing Table A.

B. PROJECT FRAMEWORK

| Project Objective: To reduce vulnerability of the coastal zone to climate variability and change through institutional capacity building, concrete coastal adaptation interventions and integration of climate change into policy and planning | | | | | | |
|---|-------------------|---|---|-------------------|--------------------------|-----------------------------------|
| Project Component | Grant Type | Expected Outcomes | Expected Outputs | Trust Fund | Grant Amount (\$) | Confirmed Cofinancing (\$) |
| 1. Institutional capacity development in four project regions | TA | 1.1 Strengthened institutional capacity to address climate change impacts in project sites (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) | <p>1.1.1 Climate change vulnerability and risks for the four coastal regions (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) are identified.</p> <p>1.1.2 A coordinating mechanism for climate change adaptation is established in project sites (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana)</p> <p>1.1.3 Comprehensive adaptation plans developed for four coastal regions (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana).</p> | LDCF | 579,283 | 3,380,000 |
| 2. Coastal rehabilitation and management for long term resilience | INV/TA | 2.1 Restored and protected coastal zone | <p>2.1.1 Shorelines are rehabilitated through restoration of protective ecosystem services</p> <p>2.1.2 Sustainable natural resource use practices and alternative livelihoods introduced in project sites</p> <p>2.1.3 Technologies for protection and rehabilitation of coastal productive assets are demonstrated adjacent to</p> | LDCF | 3,684,220 | 5,450,000 |

| | | | | | | |
|---|----|---|--|------|------------------|-------------------|
| | | | restored ecosystems. | | | |
| 3. Mainstreaming adaptation measures into national ICZM policies and development strategies | TA | 3.1 Climate change adaptation measures are mainstreamed into national and sectoral development strategies, and in non-state stakeholder actions or planning | <p>3.1.1 Training provided to increase institutional capacity of government officials to develop resilient standards, legislative instruments, norms and sectoral plans</p> <p>3.1.2 Training provided to non-state stakeholders to participate in adaptation planning and adaptation actions</p> <p>3.1.3 Existing strategies and laws are modified to integrate climate change adaptation with adequate budgetary allocations for implementation</p> | LDCF | 727,500 | 2,500,000 |
| Subtotal | | | | | 4,991,003 | 11,330,000 |
| Project management Cost (PMC) ³ | | | | LDCF | 213,997 | 680,000 |
| Monitoring and Evaluation costs | | | | LDCF | 132,500 | 40,000 |
| Total project costs | | | | | 5,337,500 | 12,050,000 |

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming cofinancing for the project with this form

| Sources of Co financing | Name of Co financier (source) | Type of Cofinancing | Cofinancing Amount (\$) |
|---------------------------|-------------------------------|---------------------|-------------------------|
| National Government | Government of Madagascar | In Kind | 2,670,000 |
| National Government | Government of Madagascar | Grant | 8,380,000 |
| GEF Agency | UNEP | Grant | 1,000,000 |
| Total Co financing | | | 12,050,000 |

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY

| GEF Agency | Type of Trust Fund | Focal Area | Country Name/ Global | (in \$) | | |
|------------------------------|--------------------|------------|----------------------|------------------|-----------------------------|-------------|
| | | | | Grant Amount (a) | Agency Fee (b) ² | Total c=a+b |
| (select) | (select) | (select) | | | | 0 |
| Total Grant Resources | | | | 0 | 0 | 0 |

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

³ PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

| Component | Grant Amount (\$) | Cofinancing (\$) | Project Total (\$) |
|----------------------------|------------------------------------|-----------------------------------|-------------------------------------|
| International Consultants | 490,813 | 2,750,000 | 3,240,813 |
| National/Local Consultants | 1,069,390 | 3,030,000 | 4,099,390 |

F. DOES THE PROJECT INCLUDE A “NON GRANT” INSTRUMENT? No

(If non grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF⁴

There have been a few changes since the PIF was initially approved, and have been suggested from the stakeholders during the consultations held in the course of the PPG implementation. The main changes are as follows:

Component 1. Output 2 as per the PIF, namely “protected areas and resource managers are trained on the role of ecosystems and the benefits of the ecosystem approach in climate change adaptation” was removed and merged with the new output 2.1.2 which reads “coastal and marine monitoring system is established”. This change was due to the fact that the project will not be operating in protected areas, and to the fact that a new GEF funded project in the Biodiversity Focal Area is going to be dealing with Protected Areas in a more rigorous manner. This output was further modified to become ‘A coordinating mechanism for climate change adaptation is established in project sites (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana)’. Output 3 as per the PIF “institutional capacity to develop resilient standards, legislative instruments and norms relating to coastal zone land use planning is strengthened” was moved to Component 3 as output 3.1.1. The main idea behind these modifications is to focus the logframe towards strengthening regional plans and institutions in Component 1 to lead to mainstreaming into national plan/policy in Component 3.

Outputs under **Component 2** were streamlined and merged into a more manageable and measurable number. The outputs now reflect more thoroughly the scope of activities. The output “climate monitoring infrastructure, including coastal EWS, is operational and technical capacity is strengthened” was removed from the project because it was found that the cost of these activities and the scope of capacity building required at national and regional level would exceed resources available. The output “effectiveness of ecosystem rehabilitation interventions is measured” was merged with the output on ecosystem monitoring and a baseline study was added to the project design, along with a participatory study on cost effectiveness, gender dynamics and resilience of the proposed alternative livelihoods activities.

In Component 3, several outputs were merged together in order to further refine the scope of the component. Major changes include the output “impacts of climate change on coastal urban settlements and urban land use are understood” was removed and replaced with an activity under Component 1 on the development of flood risk maps. This was due to the fact that resources required for this output would exceed available means in this

⁴ For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question

project. The output “adaptation measures are integrated into the existing and new development strategies and laws” was reformulated to reflect mainstreaming.

The table below presents major differences in the project results framework.

| At PIF Stage | | | | Final Project Design | | | |
|--|---|---------------------------------------|-----------------------------|--|--|-------------------|----------------------------|
| Expected Outcomes | Expected Outputs | Indicative Financing from relevant TF | Indicative Cofinancing (\$) | Expected Outcomes | Expected Outputs | Grant Amount (\$) | Confirmed Cofinancing (\$) |
| Strengthened institutional capacity to address climate change impacts on coastal zones | <p>Climate change vulnerability, risks and adaptation measures for the coastal zone are identified and a comprehensive multisectoral coastal adaptation plan is developed</p> <p>Protected areas and resource managers are trained on the role of ecosystems and the benefits of the ecosystem approach in climate change adaptation</p> <p>Institutional capacity to develop resilient standards, legislative instruments and norms relating to coastal zone land use planning is strengthened</p> <p>An effective coordinating mechanism for climate change adaptation is put</p> | 375,000 | 900,000 | 1.1 Strengthened institutional capacity to address climate change impacts in project sites (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) | <p>1.1.1 Climate change vulnerability and risks for the four coastal regions (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) are identified.</p> <p>1.1.2 A coordinating mechanism for climate change adaptation is established in project sites (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana)</p> <p>1.1.3 Comprehensive adaptation plans developed for four coastal regions (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana).</p> | 579,283 | 3,380,000 |

| | | | | | | | |
|---|--|-----------|-----------|---|--|-----------|-----------|
| | in place | | | | | | |
| Restored, resilient and protected coastal zone managed through an effective participatory management system | <p>Coastal ecosystems and buffer areas are rehabilitated and are resilient</p> <p>Mangroves, marshes, shorelines, beaches and reefs provide protective ecosystem services</p> <p>Barriers to coastal resilience are removed through promotion of sustainable natural resource use practices and introduction of alternative livelihoods</p> <p>Technologies for resilient protection and rehabilitation of coastal productive assets are demonstrated (e.g. sea walls adjacent to mangroves)</p> <p>Climate monitoring infrastructure, including coastal EWS, is operational and technical capacity is strengthened</p> <p>Management system with effective implication of trained local communities on climate change</p> | 4,040,000 | 9,175,000 | 2.1 Restored and protected coastal zone | <p>2.1.1 Shorelines are rehabilitated through restoration of protective ecosystem services</p> <p>2.1.2 Sustainable natural resource use practices and alternative livelihoods introduced in project sites</p> <p>2.1.3 Technologies for protection and rehabilitation of coastal productive assets are demonstrated</p> | 3,684,220 | 5,450,000 |

| | | | | | | | |
|--|---|---------|-----------|--|--|---------|-----------|
| | <p>risks in coastal zone is created and operational</p> <p>Coastal and marine ecosystem monitoring systems, are established, effective and accessible</p> <p>Effectiveness of ecosystem rehabilitation interventions is measured</p> | | | | | | |
| <p>National and sectoral policies that integrate adaptation measures to climate change</p> | <p>Impacts of climate change on coastal urban settlements and urban land use are understood</p> <p>Awareness and knowledge of adaptation good practice at all level are increased</p> <p>Tools and methodologies for integrating adaptation measures into national policies and development strategies are adopted</p> <p>Capacity of responsible technical staff to incorporate adaptation measures in their respective sectors is strengthened</p> <p>Adaptation measures are</p> | 555,000 | 1,250,000 | <p>3.1 Climate change adaptation measures are mainstreamed into national and sectoral development strategies, and in non-state stakeholder actions or planning</p> | <p>3.1.1 Training provided to increase institutional capacity of government officials to develop resilient standards, legislative instruments, norms and sectoral plans</p> <p>3.1.2 Training provided to non-state stakeholders to participate in adaptation planning and adaptation actions</p> <p>3.1.3 Existing strategies and laws are modified to integrate climate change adaptation with adequate budgetary allocations for implementation</p> | 727,500 | 2,550,000 |

| | | | | | | |
|--|---|--|--|--|--|--|
| | <p>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</p> <p>A national strategy for the role of coastal ecosystems and marine protected areas in climate change adaptation is prepared</p> | | | | | |
|--|---|--|--|--|--|--|

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

1. The project addresses the 1st, 6th and 7th priorities⁵ identified under the NAPA related to coastal protective infrastructure and ecosystems (dikes, protective walls, groynes, mangroves, dunes), as well as priority 3 on the development of resilient agricultural options in each region’s comparative advantage.
2. This project is in line with the Madagascar Vision 2030 statement. The Vision is being addressed by successive MDG based PRSPs and sectoral plans. The third and current PRSP – the Madagascar Action Plan (MAP) – which covers the period 2007-2012, describes the commitments, strategies and actions that will ignite rapid growth, lead to the reduction of poverty, and ensure that the country develops in response to the challenges of globalization and in accordance with the national vision “Madagascar *Naturellement*” and the UN Millennium Development Goals.⁶ The MAP includes 8 commitments declined in 54 challenges, which are priority actions and projects. The 8 commitments are: (1) Responsible governance; (2) Connected infrastructure, (3) Educational transformation; (4) Rural development and a green revolution; (5) Health, family planning and the fight against HIV/AIDS; (6) High growth economy; (7) Cherish the environment; and (8) National solidarity.

⁵ These are, respectively : « rehabilitation and/or construction of protective dikes », « setting up of infrastructures such as sea walls, dikes and groynes, to fight sea level rise », and « Reclamation of areas degraded by deflation due to the reprofiling of the coastal ridge, installation of shelterbelts by reforestation of filaos, plantations of mangrove, rock barriers at the edge of the shoreline and installation of breakwaters ».

⁶ Government of Madagascar. 2007. *Madagascar Action Plan 2007 2012*, 115 p.

3. In addition, the project is also consistent with the objectives for development expressed in each region's Regional Rural Development Program. At the regional level, the project is also consistent with the priorities enunciated in each region's Regional Rural Development Plan, as follows:
4. The RRDP in Menabe is based on one global priority, the reduction of poverty in rural areas, declined in three specific objectives. The first objective is to improve food security through the diversification of food crops and the increase of processing units at the artisanal scale. The second is to increase household income by diversifying income resources in rural areas, promoting initiatives in rural entrepreneurship, and structuring and strengthening existing value chains. The third objective is to develop production and productivity by making quality seeds and inputs available to producers, as well as improving the dissemination of technical capacities.
5. The RRDP in Vatovavy Fitovinany focuses on six priorities: 1) the implementation of rural infrastructures necessary for the increase of production and improving agricultural productivity; 2) land tenure; 3) the development and sustainable management of natural resources; 4) the reduction of food insecurity; and 5) the promotion of rural entrepreneurship.
6. The Boeny RRDP's priority is to stimulate the rural world and effectively reduce poverty in the context of a green revolution and a thriving agricultural production. To achieve it, the RRDP defines four specific objectives. The first one is the development of five areas of economic potential in order to better exploit the differences, similarities and interdependencies between districts and/or municipalities. The second is the promotion of development centers to generate rapid and sustainable ripple effects in other towns, and secondary centers with specific major potential to reduce rural poverty. The third one is the increase of regional investments in sectors with high added value servicing potential areas and the establishment of institutional incentives. The fourth objective is to promote rural market oriented economy through the promotion of promising sectors.
7. The RRDP in Atsinanana is based on two main priorities. The first priority is to exploit the economic potential of the region and open up municipalities by improving agricultural practices, promoting value chains (litchi, banana, sugar cane, coffee, pepper and pineapple) and creating and developing economic infrastructures (water, land, rail and air transport, telecommunications). The second priority is to reform the management of public administration by decentralization and deconcentration of powers and public services.
8. The project is also consistent with the objectives set out in the national Environmental Action Plan (NEAP). The NEAP was designed to protect and improve the environment while striving for sustainable development. Its four specific objectives are to: preserve and manage the heritage of biological diversity; promote sustainable development through better management of natural resources; improve living conditions in rural and urban areas; and develop human resources and institutional capacity. The NEAP constitutes the implementation of the National Environmental Policy set out in the Environmental Charter adopted by the Law 90 033.
9. Moreover, the project addresses Priority Area 4 of the UNDAF: "living conditions and productivity of populations is improved", in particular through contributions to expected result 4.2 "the environment is protected in an around targeted protection areas". The project also contributes directly to intended result 1.6 "socioeconomic decisions are based on improved information systems and effective planning, monitoring and evaluation frameworks" and expected result 2.2: "populations, in particular vulnerable groups, have access to sustainable income generating activities and employment".

A.2 GEF focal area and/or fund(s) strategies, eligibility criteria and priorities

10. In line with guidance and eligibility criteria for the Least Developed Countries Fund (LDCF), this proposal is requesting LDCF funding for a Full Sized Project (FSP) in order to implement the priorities identified in the NAPA as they relate to the coastal zones. Madagascar ratified the UNFCCC in 1999 and the Kyoto Protocol in 2003, and is classified among the non-Annex I Parties and as a Least Developed Country. Madagascar submitted its NAPA in 2007 and is therefore entitled to benefit from the LDC Fund for the implementation of priority measures identified in its NAPA, all of which comply with the LDCF eligibility criteria. This will be Madagascar's first LDCF funded project to support the implementation of its NAPA.
11. The project was developed in line with the current LDCF and UNEP guidelines, and fits within the framework of the Programming Paper for Funding the Implementation of NAPAs approved by the GEF Council. Moreover, it conforms with the three principles of the LDCF in the following manner:
12. **Country driven-ness:** the project falls within the framework of the MAP and the ICZM Action Program. In addition, it is in line with the goals and needs of several Ministries such as the Ministry of Environment and Forests, the Ministry of Agriculture, the Ministry of Water as well as the priorities highlighted in the Regional Rural Development Programs for each targeted region.
13. **Implementing NAPA priorities:** The NAPA was prepared in conformity with the guidelines prepared by the Least Developed Countries Groups of Experts (LEG). It identifies 15 priority projects classified as urgent and immediate, of which 3 have a direct bearing on the coastal zone, and another 3 are related to sectors of relevance in the coastal zone. The coastal zone is identified in the NAPA as well as in the National Communication as a particularly vulnerable area. This project seeks to implement at least 4 of the NAPA priority projects.
14. **Supporting a learning by doing approach:** The project will use pilot activities to show how interventions that combine infrastructural investments with ecological and socioeconomic investments can create a critical mass of behavioural change in the coastal zone that can help reduce vulnerability. The project will also help build scientific and technical capacity through a learning by doing approach, combining training with the delivery of specific products or work programs. The project is designed to complement other ongoing and planned projects and programmes without duplicating them and to build on the existing systems in place.
15. The project has been designed and will be implemented to meet GEF requirements in terms of:
16. **Sustainability:** The project has been designed to have a sustainable impact, at community, and at national level. The impacts will include ecological restoration as well as the rehabilitation or construction of protective infrastructure, combined with measures designed to provide sustainable livelihoods, to reduce pressure on environmental services, and to restore said environmental services in a durable way;
17. **Replicability:** The project is to be implemented in four varied regions of the country, so that lessons learned can be extrapolated for future application in other coastal areas. Demonstrations and training will be implemented so as to deliver durable increments in capacity that can be used in the same regions or elsewhere to upscale adaptation measures. Furthermore, the project includes the development of a knowledge and policy building strategy so that adaptation lessons and knowledge can be further integrated into the development planning processes.
18. **Monitoring and Evaluation:** The project has an in-built, effective and well-resourced M&E framework, that will not only ensure that project implementation is as planned, but also provide information through regular progress reports for necessary corrective actions and adaptive management decisions to be taken, and for lesson learning to take place.
19. **Stakeholder involvement:** The project was designed in a participatory manner to ensure significant stakeholder inputs, and will be implemented in a way to ensure their full participation in all implementation

aspects including monitoring and evaluation. Consultations and participatory exercises are planned to take place throughout the project so as to ensure continued buy in and feedback from local populations and stakeholders. The project will implement a gender integration and equality strategy through all its activities, including by ensuring adequate participation by women at all levels in the project. At local level, the project will ensure that at least 50% of the project beneficiaries are women and project targets and indicators are disaggregated by gender when relevant. In most regions concerned, the female population represents more than 50% of the total, and female headed households are particularly vulnerable. The project will ensure that these groups are explicitly targeted throughout the project.

A.3 The GEF Agency's comparative advantage

20. 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. One of the main focus of UNEP's adaptation work is the EbA flagship programme which aims to build climate resilience through the restoration of key ecosystems (such as river basins, mountains, coastal zones and drylands). The activities proposed under this project cut across areas of UNEP's work on climate change adaptation.
21. 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.
22. UNEP is uniquely positioned to undertake this innovative project. Importantly, the adaptation interventions of this LDCF project hinge around knowledge of a wide range of ecosystem services 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 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 also be important for translating the information generated into appropriate policy, strategy and legislative documents which will be key in obtaining institutional capacity development and sustainability of the project.
23. UNEP is also uniquely positioned to facilitate dialogue between sectors to ensure that environmental management is taken into account with regard to the full range of societal needs. The philosophy adopted by UNEP of minimizing tradeoffs and maximizing synergies between sectors will importantly increase the sustainability of the project's interventions.

A.4 The baseline project and the problem that it seeks to address

24. Madagascar is a low income country with a national economy depending essentially on natural resource based sectors including agriculture, mineral extraction, tourism, and fishing/aquaculture. The country is renowned for its wealth of natural resources. However, the country is also plagued by environmental degradation, low agricultural productivity and poverty.

25. The baseline projects seek to address the following underlying baseline problems summarized below:

- Excessive reliance on rainfed agriculture – agriculture is the main source of income in Madagascar representing 27% of the GDP (2000) and employing 70% of the population. Production systems are reliant on rainfall patterns which are unpredictable especially with current climate change trends.
- Poor use of natural resources from unsustainable agricultural practices, coupled with a limited use of unsustainable agricultural technologies has resulted in degradation and vulnerability of the coastal zone in particular. Examples of such natural resource management techniques that increase land vulnerability to climate change events include: deforestation, land clearing and *slash and burn* agriculture, tree cutting that results in land erosion and even depletion of water resources; and unsustainable exploitation of mangroves.
- Poverty, high population growth and rapid urbanisation in the coastal regions combined with the lack of coastal protection infrastructure has increased the unsustainable use of resources as demand for resources grows.
- Government and communities lack the capacity, knowledge and access to methods and information on environmentally sound technologies.

26. These underlying baseline problems tend to be more severe in the four coastal regions namely Menabe, Boeny, Antsinanana, and Vatovavy Fitovinany selected by project proponents as project interventions sites (see Section 2.5 of the Project Documents for details).

27. Major ongoing relevant initiatives that are addressing the baseline problem include the following initiatives that are providing co-financing to this proposed LDCF intervention:

28. The International Fund for Agricultural Development (IFAD) is also support the Programme of Support to the Development of Menabe and Menaky (AD2M). This programme, started in 2006 and slated to end in 2014 has a total budget of US\$ 21 million. 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. The AD2M program has worked to develop capacity on land tenure, land titling and tenure security through technical assistance and training. Furthermore, the program assisted the Menabe region in developing and implementing its Regional Development Plan (PRD) as well as communal development plans (PCD) in light of the Madagascar Action Plan. In its second component, the program provided investments to reduce Fokontany (village) isolation by creating access roads, and to provide increased access to water for irrigation. This was accompanied by investments in the rehabilitation of watersheds, such as soil restoration and erosion control, agro-forestry, rangeland rehabilitation, and reforestation. This program addresses key baseline issues such as watershed degradation and rural poverty in areas situated just above the coastal districts where the proposed LDCF project will intervene (Belo Tsiribihina). The program also provides direct support for regional level capacity on which this project will build. It does not, however consider aspects related to climate change and the Regional and Communal Development Plans it has contributed to develop run the risk of being jeopardized by climate change and climate variability. The LDCF project will therefore add a resilience component to this program. The AD2M program is providing \$500,000 in co-financing to this LDCF initiative.

29. On the east coast, IFAD, along with other partners (e.g. FAO), is supporting another initiative, the Rural Income Promotion Programme (PPRR), which has the aims of improving small producers' access to markets by strengthening commodity chains, and helping them to capitalize on their produce through partnership contracts. The program creates partnership poles between producers/transporters/processors and traders, and seeks to increase the income and food security of the rural inhabitants of Antsinanana Region (Toamasina area), 87.9% of whom are poor, and to enhance the ability of communities to take charge of

their own development. The program, implemented through a loan of \$14.5 million, and an OPEC contribution of \$7.7 million, was set to end in 2013. The program focused on the value chains of capsicum, honey, rice, maize, fish and litchi, working to create producer partnership poles to enhance market access. This program has contributed to creating a baseline of market organization on which the LDCF project can build, particularly as regards the commercialization of products derived from improved or alternative livelihoods.

30. Finally, IFAD is also supporting another key baseline intervention which is active, among others, in Vatovavy Fitovinany region and which provides a baseline of agricultural production capacity on which this LDCF project can build. The program, which costs \$46.6 million, is scheduled to end in 2014, with a new phase tentatively planned thereafter. The PROSPERER program works with the Ministry of Agriculture and the agricultural private sector to assist in the creation and emergence of sound business development services that respond to the needs of small and micro-rural enterprises. The program works with individual producers and businesses to identify their individual requirements. The programme also assists in structuring traditional clusters into modern value chains – by line of business, to enable long-term sustainability and market expansion – with linkages to regional growth poles. The program works with 27 500 rural micro-enterprises, including in four districts of the province, one of which is directly concerned by the LDCF intervention (Manakara, Mananjara, Ifanadiana, Vohipeno). Therefore the program creates basic production capacity on which the LDCF project can build for its work with local communities, as well as a body of knowledge and expertise among the agricultural stakeholders on the most effective and economically profitable livelihoods. The program does not, however, include elements of climate change or climate variability. The PROSPERER program is providing \$1 million in co-financing to this LDCF initiative. Depending on the outcome of future programming frameworks within IFAD, additional co-financing may be mobilized during the implementation of the project.
31. This project also builds on a solid baseline of ongoing initiatives implemented by the Ministry of Environment and Forests, at the national as well as regional levels. These include the following programs, that make up the MEF's co-financing contribution to this project:
32. Management and Conservation of Biodiversity. The MEF works actively, through national and international financing, to protect Madagascar's unique biodiversity. Efforts led by the MEF in this regard include the categorization of at-risk biodiversity, and the management of ecosystems and species through the establishment and management of National parks and Protected Areas. This aspect also includes conservation awareness raising, the development of ecotourism and the monitoring of ecosystem services on which this project will build in the four targeted regions. Specifically, the monitoring of ecosystem services and ecological integrity will provide a useful basis at the regional level, on which this project will build in Component 2. Existing data and information on biodiversity will also be valuable information on which to conduct the study on cost effectiveness of proposed alternative livelihoods, and will also support the monitoring of ecosystem resilience. While the project will not work in or around protected areas, it will develop practices for co-management that are in line with those put in place through the Protected Areas system in Madagascar. Through interventions at national and regional levels, this program provides US\$ 480 000 in baseline co-financing to the proposed ACZM initiative.
33. Forest Management, Protection and Inventory. The MEF's Direction Générale des Forêts works to provide census information on the types of forests in Madagascar, mapping services, characteristics of their species and use, measures rates of deforestation, and seeks to develop initiatives with local communities on the conservation of forests on which this project will build in the selected sites, by using MEF established methodologies for co-management. The DGF participates actively in the development of REDD efforts in the country. Through its ongoing efforts to monitor and conserve forests in coastal areas, the Forestry Program contributes an estimated US\$ 1 000 000 in co-financing to the proposed ACZM initiative. The project will build on practices and mechanisms established by the DGF for the community-based management of forests in order to devise appropriate forest conservation, mangrove conservation and management arrangements in project sites. Ongoing DGF efforts to monitor and track deforestation also create a baseline of information on which to measure project benefits. In addition, the Fire Alert System

implemented by the Ministry will also contribute an additional US\$ 200 000 in co-financing to ensure that coastal forest management takes fire risk into consideration.

34. Natural Resources Knowledge Management. The Ministry of Environment, through its Direction of Environmental Integration, is working actively to gather and disseminate knowledge, data and information on natural resources in the country. To this effect, the Ministry has created a service of databases and a dedicated documentation service. This initiative will provide support to the efforts of the ACZM project to create ICZM committees regionally, by equipping them with adequate information, and by proposing mechanisms for regional-national linkages. This knowledge management function is also at the heart of mainstreaming efforts, and will serve as a support function to efforts to integrate adaptation in ongoing development planning at national and regional levels. The co-financing contribution from this initiative is US\$ 300 000.
35. Management and Control of Pollutions. The Ministry works through its regional directorates and at central level to monitor and control pollution at all levels. This includes marine pollution, in particular through the administration of the Law on Pollution by Hydro-Carbons, as well as land-based marine pollution in accordance with prevailing laws. The Ministry also works to control the management of chemical substances through the Strategic Approach to International Chemicals Management (SAICM) initiative, and also works on waste management issues in conjunction with regional administrations. This program provides a baseline on which the ACZM initiative will build, namely by ensuring that rehabilitated ecosystems remain pollution-free, for a more sustainable maintenance of ecosystem services. The co-financing from this program is estimated at US\$ 600 000.
36. Environmental DashBoards. Through the Office National de l'Environnement (ONE), the Ministry is working on the development of environmental dashboard, which are comprehensive environmental information systems that are published periodically for each region. These dashboards provide data and information on key environmental indicators, to enable the monitoring of progress on environmental services and conditions. The Environmental Dashboards developed by the ONE for each region will provide raw data and information to support the development of ICZM adaptation plans, as well as for the establishment of a coastal monitoring system foreseen by this proposed ACZM initiative. Environmental Dashboards are renewed periodically, and so will make a valuable baseline contribution to the monitoring of environmental resilience as it progresses throughout the project. The co-financing contribution from this initiative is US\$ 800 000 in the four regions for the duration of the project.
37. 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 area issues, such as the Land Use Directorate, or the Ministries in charge of agriculture, water, energy and transport. For 2013, the combined operational and investment budget of the Ministry of Environment and Forests was set at US\$ 25 million, and expected to remain similar in 2014. Of this amount, the Ministry of Environment and Forests and Ministry of Agriculture is providing \$ 2.67 million in in-kind co-financing, which corresponds to infrastructure and assets at regional level and staff time contributions to the project at regional and national levels.
38. At the regional level, this project also builds on other ongoing baseline initiatives supported by UNEP. UNEP will bring US\$ 500 000 in co-financing from the UNEP-European Commission ENTRP Project on 'Building Capacity for Coastal Ecosystem-based Adaptation in Small Island Developing States (SIDS)'. This project seeks to assist countries and regions develop and apply ecosystem-based adaptation approaches to maintain and enhance the resilience of tropical coastal ecosystems and the services they provide to coastal communities in SIDS. Through the project's geographical focus on SIDS in Africa and the Caribbean, the project contribute parallel co-financing through some of the planning and ecosystem management tools and technical guidance to assist decision-making, as well as through regional capacity-building and global transfer of good practices and experiences gained, particularly where mangrove management is concerned.

39. The project can also build on US\$ 500 000 of co-financing from the ICZM protocols under the Nairobi Convention. The development of ICZM Protocol to the Nairobi Convention aims to promote the use of ICZM approaches for long-term sustainable development of the coastal and marine environment in the WIO region, and to strengthen the application of ICZM tools. The support received by Madagascar in this context includes the development of pilot projects on ecotourism as well as support for participation in the protocol negotiations.
40. Climate change is currently affecting and is very likely to further affect the country's development and in particular the development of the coastal zone due to increased frequency and intensity of climate hazards such as droughts, episodes of heavy rain fall and flooding as well as sea level rise and coastal erosion. Climate change will also affect the baseline projects described above by jeopardizing the expected results unless measures are put in place to build resilience of their interventions.
41. Despite some ad hoc attempts to adapt, the capacity to address climate change impacts in Madagascar is still limited. The national and local administrations have limited systematic knowledge of climate change risks, adaptation needs and options, and individual, institutional and systemic capacities to address such impacts remain low. At the local level, communities have little knowledge or means to implement resilient development and livelihoods, and the ongoing degradation of the ecosystems on which they base their survival places coastal communities in particular jeopardy.
42. The PPG phase has led towards a better understanding of the barriers that limit capacity at both regional and national levels to cope with, and manage climate change impacts as well as implement the above mentioned solutions. These barriers include:

Limited knowledge and capacity to effectively identify climate change and assess potential impacts on coastal zones.

43. The scientific and technical capacities required to identify climate change vulnerability, risks and potential adaptation measures are currently weak in Madagascar, and constitutes an important barrier to coping with and managing climate change impacts. Indeed, knowledge about climate change vulnerability and risks in the coastal regions is weak because of the lack of technologies and instruments as well as human resources capacities required for using, interpreting and processing them. In addition, there are no coordination mechanisms or coastal adaptation plans in place, which prevents comprehensive adaptation measures to be taken. In other words, scientific and technical abilities required for the identification of climate change vulnerabilities, risks and adaptations is not up to par, and this an important barrier that needs to be addressed.
44. This barrier will be addressed through Component 1, by producing scientific knowledge, capacity to analyze and disseminate data and information about vulnerability, as well as tools to support decision-making. Component 1 will address this barrier by providing training on CCA and VA in Coastal Zones and by assisting in the development of participatory vulnerability studies which will support the identification of potential adaptation measures. The component will also provide tools such as downscaled climate models, agricultural production outlooks and risk maps. The component will also address the barrier by assisting regional authorities in integrating climate change adaptation issues into regional planning, in particular around ICZM coordinating platforms.

Degraded coastal ecosystems and unsustainable coastal resources management

45. The purpose of an effective coastal zone management adaptation project is to assure the sustainable use of natural resources and to protect the numerous services provided by ecosystems. However, many of the coastal ecosystems of Madagascar, including mangroves, watersheds and shorelines, are currently degraded and cannot deliver as many services as before. The limited financial resources don't allow for any significant or efficient replanting, rehabilitating, revegetation, stabilization of shores, or for the installation of protective technologies in the sites that are the most vulnerable to climate change impacts. The coastal

and marine ecosystem monitoring system, which is partly covered in two regions through the Environmental Dashboard exercise, is inadequate, which leads to a misunderstanding of ecosystem services. Awareness of coastal deforestation and sustainable land management is fairly low in Madagascar, resulting in the unsustainable use and of the coastal zone ecosystem, which has led to the further degradation of coastal ecosystems. This constitutes an important barrier that needs to be addressed.

46. This barrier will be addressed through Component 2, where an ecosystem-based approach to adaptation will be demonstrated. This will include rehabilitation of ecosystemic buffer zones and ecosystem's productive services for increased resilience and coastal protection. In addition, the project will also support local communities in their effort to adopt more sustainable natural resource use practices to ensure long term sustainability. The ecosystem-based approach, which will be implemented through a combination of mangrove and shoreline rehabilitation, coastal forest rehabilitation and management, combined with measures to assist local communities to develop better natural resources management practices, will help restore protective and productive environmental services. This component will address the barrier by supporting replanting, rehabilitating, revegetation of shores, and by installing protective technologies in vulnerable sites. By providing direct support to local communities, the component will remove barriers to the sustainable use of ecological buffer zones and fragile coastal ecosystems.

Inadequate consideration of climate change adaptation measures into sectoral and development policies

47. An effective coastal zone management adaptation project must combine scientific and technical capabilities for the identification of climate change vulnerabilities, risks and adaptation measures, and rehabilitation of ecosystems to restore their protective services. In order to complete the picture, these fundamentals must be complemented with relevant national and sectoral policy instruments and an active participation of local communities. Knowledge of the impact of climate change on the various economic sectors as well as on climate change adaptation and ecosystem-based adaptation has not been disseminated yet. Climate change is thus becoming an increasingly important issue to implement in climate change-related initiatives and projects in Madagascar.
48. However, these are not being carried out properly yet. State budget allocations for communication, awareness raising and public education are rather inconsequential, no dedicated mechanism exists for sharing lessons learned from related pilot projects and experiences, and tentative efforts to mainstream climate change into sectoral and development policies are just beginning. Policy decisions made to mainstream climate change would alleviate this barrier, provided that credible evidence is presented on the actual and potential impact of climate events on important sectors of the economy, and provided that locally appropriate adaptation measures are known.
49. This barrier will be addressed through Components 1 and 3, which foresee activities to assist regional and local administrations in developing more resilient coastal management plans and development plans that take into consideration climate change impacts and adaptation options. The components will support training for regional decision-makers and planners and the direct revision of legislative and regulatory frameworks in order to ensure that these are inclusive of climate change. They will also support the revision of regional development plans and the development of an improved ICZM policy that is inclusive of climate change. These components will also provide support to non-State actors such as NGOs and the private sector, to enhance their informed participation in these regional and national planning exercises.

A. 5 Incremental/Additional cost reasoning: *describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project*

50. Climate change has currently affected (and is very likely to further affect) the country's development and in particular the development of the coastal zone due to increased frequency and intensity of climate hazards such as droughts, episodes of heavy rain fall and flooding as well as sea level rise and coastal erosion.

51. Therefore, the preferred response is to create adaptive capacity among all social groups, whether government or communities, from the local to the central administration level, while ensuring that the local environment can be protected and managed in a way that allows it to withstand climate change impacts and to provide continued livelihoods
52. In the absence of immediate intervention to ensure coastal resilience in these four highly vulnerable regions, communities and settlements will be at increased risk of degradation and disappearance. The combination of environmental degradation, infrastructure degradation or lack of protective systems, with the increasing human pressures placed on coastal resources, creates an untenable situation in the coastal zone. The additional burden posed by climate change and its manifestations (erratic rainfall, increased sea level and tidal activity, coral bleaching, temperature increases and cyclones) are likely to further exacerbate the already precarious nature of coastal livelihoods.
53. This project will address these combined pressures by intervening at three levels: by building the capacity of local institutions, governments and civil society, to understand and plan for adaptation in a proactive way; by providing urgent investment support in the rehabilitation of degraded buffering ecosystems and in the establishment of adequate coastal protection infrastructure; and by supporting the emergence of livelihoods that are respectful of the natural limits while allowing for increased income and safer settlements.
54. These aims will be realized through the achievement of the following components:

Component 1: Institutional capacity development in four project regions

Outcome 1.1 Strengthened institutional capacity to address climate change impacts in project sites (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana)

LDCF Financing: \$579,283 Co-financing from baseline initiatives: \$3,380,000

55. Under the business as usual scenario, regions would continue to develop according to unsustainable and non-resilient pathways, because they lack the knowledge and the understanding of their specific climate change vulnerability. The breadth of the country would mean that each region would be applying a method or an approach to climate resilience that would be based on false assumptions and national averages which may or may not prove useful at regional level. In addition, without the empowerment of regional and local authorities to understand, analyze and plan for climate change, the country will continue to rely on central government to promote adaptation. This could prove unsustainable if the current political situation continues and if the lack of means of the central government forces it to select among other priorities.
56. There is currently no ICZM framework on which to build a proper regional platform for adaptation in three of the project's targeted regions, while in the fourth, the ICZM structure functions without any consideration of the potential impacts of climate change on key sectors of the regional economy. Left unaddressed this situation will mean that interventions on the coastal zone will continue to be ad hoc and opportunistic, and that adaptation concerns will remain unaddressed until they are too urgent to be ignored. Already, many of the key cities and settlements in coastal regions are facing harsh conditions, rapid infrastructural degradation, and difficult livelihoods.
57. Under the *adaptation alternative*, the project will support the four regions in undertaking a comprehensive and science-based vulnerability assessment according to the methods proposed by Programme of Research on climate change Vulnerability Impacts and Assessments (PROVIA) and Dynamic Interactive Vulnerability Assessment (DIVA) Coast. These methods provide integrated assessment frameworks to determine specific physical, economic and social vulnerabilities and to select adaptation measures that are locally adapted. To support these assessments, the project will also provide support to the downscaling of climate models so that regional climate specificities (east vs. west) can be further detailed and can serve to inform decision-making. To further support decision-making at regional level, the project will support the

development of crop systems outlooks for 2050, which will provide a portrait of anticipated agricultural conditions, prospective crop growth models, and areas of crop vulnerability in all regions. These crop model outlooks will be performed for the top non-rice crop in each region (or cassava, peanuts, banana), as well as the major fisheries.

58. On the basis of these assessments and models, the regions will then be able to identify a list of adaptation measures (reactive and proactive). To support this exercise, the project will support the establishment of ICZM committees in three regions, whose terms of reference will include climate change considerations. In Menabe, the project will support the integration of climate change issues into the existing mandate and work of the existing ICZM structure. These four ICZM structures will then be empowered to develop regional coastal adaptation plans, which will then be further synthesized into a national coastal adaptation plan, in Component 3, under the aegis of the National ICZM committee.

59. These capacity building efforts will build on the baseline of existing regional planning capacity and where available, ICZM capacity at regional level. The table below summarizes the difference between business as usual and the proposed adaptation alternative.

| Business as usual | Adaptation Alternative |
|--|---|
| General knowledge of climate change impacts, vulnerability on key sectors and assets | Locally specific and science-based understanding of vulnerability and impacts of climate change on ecosystems and communities |
| Only 1 ICZM coordination mechanism that doesn't take adaptation or climate change into consideration | Each region has its own ICZM coordination mechanism that takes climate change and adaptation into consideration |
| No locally specific adaptation options identified or planned | Locally specific adaptation options identified and integrated into regional planning through the development of four regional plans |

60. Tentative activities under component 1 are as follows:

| Outcomes | Outputs | Activities |
|--|---|---|
| 1.1 Strengthened institutional capacity to address climate change impacts in project sites (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) | 1.1.1 Climate change vulnerability and risks for the four coastal regions (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) are identified. | 1. Training for local government authorities on CCA and VA in Coastal Zones and perform 4 CC VRA studies using participatory vulnerability assessment tool DIVA (DINAS Coast) and VIA guidelines (PROVIA), including the identification of potential adaptation measures. |
| | | 1b. Complete an assessment of CC impacts to coastal ecosystems and their services for the four regions. |
| | | 2. Perform downscaled climate scenarios using data available from the National Communications and National Met service, for the east and western coastal zones. |

| | | |
|--|---|---|
| | | 3. Establish a map of inundatable zones in 4 coastal regions. |
| | | 4. In service training on and development of a production systems outlook for 2050 for the top non-rice agricultural value-chains in each region: fisheries, cassava, peanuts, banana. |
| | 1.1.2 A coordinating mechanism for climate change adaptation is established in project sites (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) | 5. Create a coordination mechanism (in Boeny, Vatovavy Fitovinany and Atsinanana) for adaptation and ICZM at the regional level building on existing coordination platforms (including national ICZM platform); integrate adaptation issues into the existing coordination mechanism in Menabe. |
| | 1.1.3 Comprehensive adaptation plans developed for four coastal regions (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana). | 6. Identify recommended adaptation actions at regional level on the basis of activities 1, 2, 3 and 4. |
| | | 7. Develop 4 regional ICZM strategies, inclusive of coastal adaptation plans, in a participatory manner through the coordination mechanisms established in activity 5. |

Component 2: Coastal rehabilitation and management for long-term resilience

Outcome 2.1: Restored and protected coastal zone

LDCF Financing: \$3,684,220 Co-financing from baseline initiatives: \$5,450,000

61. Under the business as usual scenario, the coastal protection infrastructures in major cities of each region will continue to degrade, leading to disruptions, inundations and potential losses of property and life. This will be further exacerbated as the key ecological buffering systems, such as mangroves, dunes, and estuaries, degrade due to natural and human pressures. Communities in coastal communes will continue to live in poverty and to resort to environmental degradation to derive their livelihoods, such as overfishing, mangrove depletion, deforestation, and tavy agriculture. Not only will communities be faced with increasing climate pressures with which they will not be able to cope, but they will continue to degrade the environmental services that provide them with the basic levels of protection and livelihoods. This could result in massive losses of life, migration, and destruction of property, environment and biodiversity loss at large scales.
62. Under the adaptation alternative, the project will work with key communes to address urgent and immediate adaptation needs, while demonstrating livelihoods practices that help maintain the ecological basis for survival. Interventions will be coordinated as much as possible, so as to provide a comprehensive package of investments, and to create a set of mutually reinforcing measures. Environmental buffers such as dunes, shorelines and mangroves, will be rehabilitated, and communities will be encouraged to conserve these areas through the provision of alternate sources of food and energy, where relevant. In parallel, priority investments in degraded protective infrastructures will also be supported, so that key economic assets of the region do not fall into irreparable damage.

63. The investments proposed for each region are highlighted in the table below. Each investment is the result of in-depth consultation and prioritization undertaken with the regional authorities and communities, along with discussions on cost effectiveness. Options were selected from amongst the most urgent and most cost efficient from a list of proposed interventions put forward by the regions, which are detailed in the technical studies (see Annex 15 of the project document). The physical measures highlighted below are subject to final technical design following environmental impact assessments. In addition, the project intends to undertake a participatory study on cost effectiveness, gender dynamics and resilience of proposed alternative livelihoods activities, to ensure that the benefits to local communities will exceed the risks they are taking in adopting these methods.

| Business as usual | Adaptation Alternative |
|---|---|
| Coastal ecosystems in each region continue to degrade at a rapid pace: Mangroves disappear due to deforestation, fish stocks dwindle due to over exploitation, coastal forests gradually diminish due to over logging, agricultural land become unsuitable. | 1200 ha of mangroves rehabilitated, leading to an increase in productivity of fisheries and increased coastal protection Coastal forests are placed under collaborative management systems and woodlots are established to relieve pressures on fragile coastal forests and mangroves Shorelines are stabilized through vegetation to increase stability and protection of major productive assets. |
| There is no knowledge or understanding of the value of coastal ecosystems. Environmental Dashboards continue to ignore climate change pressures and do not consider the adaptive value of ecosystems | A system is established, building on the Environmental Dashboards, that helps monitor coastal ecosystem services. |
| Local communities, driven by increasing poverty, continue to use natural resources in an haphazard, unrestrained and unsustainable manner, further contributing to their own impoverishment. | New fishing calendars are negotiated with communities to limit over fishing and degradation of stocks Alternative and resilient sources of livelihoods are promoted and demonstrated to relieve pressures on fragile ecosystems and declining natural resources Communities manage forests and woodlots, agricultural lands and biodiversity sustainably |
| Coastal protection infrastructures are degraded due to severe events, lack of funding for maintenance and inadequate non resilient design. Cities and settlements are jeopardized by sea level rise. | 1 km of sea wall is rehabilitated in Manakara and the groynes and dike system in Toamasina is rehabilitated. Environmental rehabilitation (mangroves and shorelines) provide added efficiency and effectiveness to protective infrastructures. |

64. Activities planned under this component include:

| Outcomes | Outputs | Activities |
|------------------------------------|--|---|
| 2.1 Restored and protected coastal | 2.1.1 Shorelines are rehabilitated through | 8. Conduct a participatory study on the cost-effectiveness, gender dynamics and resilience of |

| | | |
|--|---|---|
| zone | restoration of protective ecosystem services | proposed alternative livelihoods activities. |
| | | 9. Replant and rehabilitate a total of 1200 ha of mangroves in Boeny and Menabe (including the cost of preliminary studies). |
| | | 10. Undertake shoreline stabilization in a total area of 300 ha along major protection infrastructure and coastal assets (2 km in Toamasina and 1 km in Manakara) (including cost of EIA). |
| | 2.1.2 Sustainable natural resource use practices and alternative livelihoods introduced in project sites | 11. Develop new fisheries calendars with local fishing communities and industries (incl. shrimping) on a pilot basis in two western regions. |
| | | 12. Develop community-based natural forest regeneration, including community woodlots, and conservation plans. |
| | | 13. Awareness raising among coastal communities on coastal deforestation and sustainable land management. |
| | | 14. Introduce improved fish & crab production and techniques (e.g. mariculture) in Mahanjanga II, Belo sur Tsiribihina, Mahanoro and Vatomandry Communes of Boeny, Menabe and Antsinanana. |
| | | 15. Introduce technologies and assets for promotion of beekeeping in and around mangroves in Bemanonga & Tsimafana communes (Menabe) and Mangatsiotra and Antsary communes (Vatovavy Fitovinany). |
| | | 16. Promote diversification of crops and climate-smart agriculture, such as vegetable production, improved crop varieties, improved cultivation techniques in 8 communes in the four regions. |
| | | 17. Work with local communities in Boeny, Menabe and Vatovavy Fitovinany to develop investment plans to promote mangrove-based ecotourism, including identification of potential sources of funding for their implementation. |
| 2.1.3 Technologies for protection and rehabilitation of coastal productive assets are demonstrated adjacent to restored ecosystems | 18. Construction and rehabilitation of 1 km sea wall in Manakara be (Vatovavy Fitovinany) including feasibility study and EIA. | |
| | 19. Restore and complete the existing system of protection combining groyne and sea walls in City of Toamasina (1.1 km), including feasibility and EIA. | |

65. In order to better target the activities at community level and to learn from available evidence in terms of economic potential, practicability and in order to further build community engagement, the project will support in its first year, the deployment of a targeted participatory study on cost effectiveness, gender dynamics and resilience of alternative livelihoods activities in each coastal region.
66. The proposed infrastructure works will be subject to detailed technical design, feasibility and environmental impact assessments which will be sub-contracted to the private sector, under the supervision of the Ministry of Environment and Forests, who will ensure that legal requirements regarding EIA are adhered to. These studies are to be completed within the first or second year of the project.
67. The project will also support the deployment of awareness raising campaigns, highlighting the challenges of environmental degradation, climate change and the possible adaptation responses available to coastal area communities. The campaign will highlight in particular the need for maintaining coastal buffers such as mangroves and forests and will also use lessons learned from activities deployed under the component.

Component 3: Mainstreaming adaptation measures into national ICZM policies and development strategies

Outcome 3.1: Climate change adaptation measures are mainstreamed into national and sectoral development strategies, and in non-state stakeholder actions or planning

LDCF Financing: \$727,500

Co-financing from baseline initiatives: \$2,250,000

68. Under the business as usual scenario, the regional planning frameworks, legislative and institutional instruments available will continue to ignore the realities of environmental degradation and climate change. As a result, maladaptation will ensue, with sectoral planning and development planning at all levels being at odds with the realities of climate change. In a time of difficult transition for Madagascar, scarce development resources need to be invested the most efficiently possible, towards investments that provide sustainability and resilience as well as rapid opportunities for socioeconomic development.
69. There exists some capacity to address climate change at a central level, but sectoral planners and decision-makers at regional level are still unable to fully address the challenges posed by climate change. Regional development plans, commune development plans remain unaware of the potential obstacles or opportunities posed by a changing climate and climate variability.
70. Under the adaptation alternative, the project will support the development of policy capacity by implementing a training programme on integrating environmental and climate change concerns into legislation and regulation for national and regional parliamentarians and district/regional administrations. This will be supplemented by a series of sectoral trainings on climate change adaptation (agriculture, tourism, infrastructure, water, fisheries and forestry) to be deployed for decentralized sectoral planners. This will build on activities implemented through Component 1 on the development of scientific and technical capacities.
71. In addition, in order to engage civil society, and ensure that non-state actors can also effectively engage in resilience issues, the project will implement an awareness raising strategy dedicated to NGOs and the private sector. For NGOs, the project will support capacity building on climate change and coastal adaptation issues, whereas for the private sector, the project will provide targeted training on resilience building in investments, be they construction, tourism, or agro-food.
72. To further secure the resilience of investments in coastal regions and elsewhere, the project will also support the Ministry of Environment and Forests in its efforts to update and revise the EIA procedures, so as to ensure that they contain a mechanism by which to consider the impacts of climate change on proposed

investments and works. This modification to the EIA regime could provide a pragmatic and far reaching tool for ensuring the resilience of investments throughout the country, as well as for ensuring that the said investments do not damage ecosystem services that are necessary for resilience.

73. Building on the above activities, the project will help the regional authorities and communal authorities in producing or revising Regional and Communal Development Plans that take climate change into consideration. Taking advantage of the next planning cycle in each region, the project will work through the ICZM structures established in Component 1 to provide input on resilient ICZM for integration into RDPs and CDPs.
74. Finally, in order to ensure sustainability in the long-term, the project will support the development of a strategy for upscaling and financing coastal adaptation including through public-private partnership and financing. This study will include the gathering of lessons learned from the project, including lessons from the monitoring of ecosystem services which will provide a platform from which to launch a potential upscaling and financing mobilization strategy.

| Business as usual | Adaptation Alternative |
|--|---|
| Capacity to understand and react to climate change is limited to three or four key sectoral ministries at the national level. Initiatives underway target only agriculture and water ministries. | Capacity to assess, understand, analyze and react to climate change is created at the regional level through training programs. Capacity is also created among non-state actors at the regional level (NGOs and private sector) to create a critical mass of awareness. |
| Existing norms, rules, legislations are inadequate to deal with the impacts of climate change at the national level. Only the Environmental Law takes climate change into consideration. The ICZM policy doesn't take climate change into account. | The EIA procedure is revised to take climate change into consideration The Fisheries and Protected Areas Laws are revised to account for climate change adaptation The ICZM policy is revised to ensure integration of climate change into its provisions for application in all coastal provinces. |
| Regional development plans continue to ignore realities of climate change or adaptation options | Adaptation measures are integrated into a national development plan |

75. Activities planned under Component 3 include:

| Outcomes | Outputs | Activities |
|---|--|---|
| 3.1 Climate change adaptation measures are mainstreamed into national and sectoral development strategies, and in non-state stakeholder actions or planning | 3.1.1 Training provided to increase institutional capacity of government officials to develop resilient standards, legislative instruments, norms and sectoral plans | 20. Develop and implement a training programme on integrating environmental and climate change concerns into legislation and regulation for national and regional parliamentarians and district/regional administrations. |

| | | |
|--|---|--|
| | | 21. Develop and implement a series of sectoral training programmes on climate change adaptation (agriculture, tourism, infrastructure, water, fisheries and forestry). |
| | 3.1.2 Training provided to non-state stakeholders to participate in adaptation planning and adaptation actions | 22. Awareness raising seminars for NGOs on adaptation, ecosystem based adaptation, climate change and development. |
| | | 23. Training workshops for private sector on climate change and investment planning (tourism, fisheries). |
| | 3.1.3 Existing strategies and laws are modified to integrate climate change adaptation with adequate budgetary allocations for implementation | 24. Revise EIA rules and regulations to integrate climate resilience and adaptation concerns. |
| | | 25. Revise the fisheries law and the protected areas law to take into account the results of vulnerability studies and adaptation measures identified in Component 1. |
| | | 26. Revise regional development planning frameworks in 4 coastal regions to integrate climate change resilience and adaptation concerns. |
| | | 27. Review and revise the national ICZM strategy and policy, in light of regional strategies developed in component 1, working with the national ICZM committee. |
| | | 28. Deploy an outreach and awareness raising campaign at regional and national level (for general public). |
| | | 29. Develop a strategy to explore opportunities for upscaling and financing coastal adaptation including through public-private partnership and financing. |

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project from achieving its objectives, and measures that address these risks

76. A summary of potential risks, the potential consequences of such risks and management measures to mitigate the risks is presented in table 7 below:

| Description of risk | Risk category | Potential consequence | Level | Management response and mitigation measures |
|---|---------------|---|--------|--|
| Lack of political will to support project | Political | Project failure and/or limited sustainability | Low | This project has been determined as a priority since the publication of the NAPA and there have been great expectations for investments in the development of coastal zones. Regional authorities, local authorities and national authorities have all bought into the project. |
| Political Instability | Political | Project implementation delays | Medium | There is a risk that due to ongoing political instability, the project could experience delays, particularly if the forthcoming elections lead to further instability at the regional level. The project will carefully monitor the political situation and will ensure that the capacity for delivering the project is built at multiple levels in order to avoid delays. |
| Limited capacity to effectively tackle all project components | Operational | Inadequate attention paid to components lacking required human resource expertise | Medium | Establishing a robust multi-disciplinary project implementation team supported with additional training if necessary will help mitigate against this risk. In addition a Chief Technical Advisor will be hired to provide technical guidance to the team and quality assurance of the project products. Targeted capacity building will be delivered at national, regional and local level at project start. |
| Extreme weather events | Environmental | Disruption of project activities and damage to project infrastructure | Medium | Coordination will be undertaken with other partners in order to ensure the response and relief interventions are directed towards the pilot communities. Meteorological forecasts will be taken into account during the planning of critical construction phases of hard infrastructure |
| Inadequate sensitization of relevant authorities to undertake climate change sensitive policy reforms | Strategic | Limited project impact | Medium | Project activities have been designed to identify information needs and effective sensitization of decision-makers, non-governmental actors and the general public to minimize this risk |

| Description of risk | Risk category | Potential consequence | Level | Management response and mitigation measures |
|---|----------------|----------------------------------|--------|---|
| Poor coordination among the participating stakeholders (government, non government and private) | Organizational | Delays in project implementation | Medium | Clear project management arrangement, participatory and transparent project implementation will mitigate against this risk. A coordination mechanism will be created to bring together all stakeholders at regional and national level. In addition, local technicians will be appointed in each region to act as a focal point and to assist in coordination at local level. |

A.7 Coordination with other relevant GEF financed initiatives

77. During its inception period, the project will undertake renewed consultations at the regional level to identify new or planned initiatives with which to coordinate. It is anticipated that a larger number of development partners and NGOs will begin working in Madagascar again once political situations become more stable. Following are a few of the projects with which this LDCF initiative will seek cooperation:
78. The project will collaborate with planned projects such as the **GEF AFDB “Enabling Climate Resilience in the Agriculture Sector in the Southwest Region of Madagascar”**, which is under preparation at time of writing. This initiative seeks to implement projects related to water management and health and can provide useful avenues regarding resilient livelihoods in the western part of the country. The project will also coordinate with the UNEP/GEF initiative, also under preparation, **“Participatory Sustainable Land Management in the Grassland Plateaus of Western Madagascar”** whose goal is to reverse land degradation and improve living conditions in the Bongolava Region of Western Madagascar through participatory sustainable management of the grasslands. The project will work closely with the new project **“Strengthening the Network of New Protected Areas in Madagascar”**, which is being put forward for GEF financing through UNEP, particularly as regards the modification of the Protected Areas law and regulations and their application in the four targeted regions of this LDCF initiative, as well as the proposed mangrove rehabilitation in Menabe, Boeny and Melaky. Both projects will develop joint plans to address protected area legislation issues, and mangrove rehabilitation plans will also be developed jointly according to physical studies and parameters to ensure complementarity and increased benefits.
79. The project will also seek to build on work to develop a **National Adaptation Plan** in Madagascar, with the support of the GEF funded Global Support Program and Agencies. Work to develop coastal zone management and coastal adaptation plans will feed into the NAP development process. In addition, the project will also contribute towards longer term adaptation planning needs in Madagascar and can liaise with the LDCF-funded Global Support Programme for Assisting LDCs with country-driven processes to advance National Adaptation Plans (NAPs), jointly implemented by UNEP and UNDP.
80. The project will link with the UNEP LIVE <http://www.uneplive.org/> portal, launched in January 2014. It is a UNEP initiative that offers a cutting-edge, dynamic new platform to collect, process and share the world's best environmental science and research. It provides a single gateway to accessing and locating country-level statistics as well as providing access to Satellite/Space Programmes such as GEOSS Portal, Earthnet Online, USGS Earth Explorer, as well as an In Situ Programme called Argo. This portal will provide data access to both the public and policy makers using distributed networks, cloud computing, big data and improved search functions with the objective of filling gaps between data providers and consumers. It includes Communities of Practice that gather experts in various fields relating to the environment and bring them on a common platform that provides access to discussion and exchange. UNEP LIVE will also support streamlining of national monitoring, reporting and verification of data for global and regional environmental

goals. In the further development of UNEP LIVE, this project will collaborate with UNEP LIVE and present it at various trainings as a means of accessing up to date environmental information and statistics.

81. The project will also collaborate with other ongoing initiatives in the targeted regions, such as:
82. **The Tilapia Aquaculture Project in Mahajanga (Boeny).** This project will provide methodology, technical support and information to the LDCF project when considering the development of alternative livelihoods practices in coastal communities (Component 2). The project is set to end in 2014, and efforts will be made to gather lessons learned and best practices from JICA and local partners.
83. **The German Malagasy Environmental Programme.** This program, in its current version, provides support to non-governmental stakeholders from the forestry and environmental sector, including civil society groupings, associations and the private sector. The intention is to strengthen their capacity to contribute to better formulated and better implemented policies for the sustainable use of natural resources. The program also intervenes to build expertise and resources of municipalities and non-governmental stakeholders with respect to the sustainable management of local natural resources. This program, which is scheduled to end in 2014, will also provide useful lessons on decentralised environmental planning and management.
84. Finally, the project will also establish linkages with the Adaptation Fund supported project “**Adapting to Climate Change in the Rice Sector**”, which is under implementation until 2017. The project, which is also implemented through the Ministry of Environment and Forests, will be able to contribute knowledge, data and climate predictions, as well as methodologies that can be of relevance to this proposed LDCF initiative. Capacity for project management and coordination with multi-sectoral partners is being built within MEF through this project, which will be beneficial for this new initiative.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1 Describe how the stakeholders will be engaged in project implementation

85. A wide cross section of Madagascar’s society was consulted during the preparation of the NAPA (see Table 1). For the preparation of this LDCF project, a smaller but representative sub-set of stakeholders was consulted and will participate in its implementation (see Appendix 13 of the project document for summary reports of the consultations in each region and during the project preparation phase). These stakeholders include Ministries; Government Agencies and Technical Institutions; Local Government Structures/Community-based organizations; Non-Governmental Organizations; Private Sector; Development and Technical partners.
86. An initial design workshop was held in March 2013, where stakeholders selected project regions and provided recommendations on project activities, components and outputs. Further consultations took place in Antananarivo with key ministries (Agriculture, Fisheries, Public Works) based on the project concept. The Project design team then went to each region to undertake detailed consultations with the different ministerial and technical services (environment, agriculture, fisheries, water, infrastructure and coastal zone management where available), as well as representatives from local NGOs, donors and ongoing projects. In each region, local communities were consulted during field visits, where the project design team gathered the relevant baseline data on infrastructures, ecosystems and livelihoods. Local sites were determined in consultation with regional administrations, based on a list of adaptation needs and urgent priorities.
87. Recommendations from the in field consultations were integrated into the revised project framework and list of activities, which was then subject to further consultation from capital. Continued consultations with the regions headquarters occurred during the second phase of the project design work, in particular to obtain detailed information on cost estimates for proposed activities, as well as information on local beneficiaries. The project framework and list of activities was circulated to partners, stakeholders and co-financing partners for final comment.

TABLE 1: ROLE AND CONTRIBUTION OF THE STAKEHOLDERS

| Organizations | Contribution to the project outputs |
|---|---|
| Ministry of Environment and Forests (MEF) | Project Executing Agency. Improved capacity and opportunity to incorporate climate change into relevant policy instruments at central and decentralized level; will be responsible for coordinating all project activities, but in particular responsible for supervising ecosystem rehabilitation activities and performing EIAs as required. Will contribute too all project outputs. |
| MEF Department of Climate change (DCC) | Will house the project coordination unit and act as Executing Agency. Will contribute to all project outputs. |
| Ministry of Agriculture | Will be responsible for monitoring the activities related to livelihoods and agriculture at the local level, specifically under Output 2.1.2. Will benefit from sectoral training under Output 1.1.1. |
| Ministry of Public Works | Will benefit from sectoral training under Outputs 1.1.1 and 2.1.1, and will be responsible for supervising the activities related to infrastructure rehabilitation or construction in targeted sites under Outputs 2.1.2 and 2.1.3. |
| Ministry of Water | Will benefit from sectoral training under Outputs 1.1.1 and 2.1.1, and will be responsible for supervising the activities related to water in targeted sites, particularly under Output 2.1.2 (alternative livelihoods and sustainable agriculture). |
| Ministry of Health | Will benefit from sectoral training under Outputs 1.1.1 and 2.1.1 and will be invited to participate in activities related to water in targeted sites (Outputs 2.1.3). |
| Ministry of Tourism | Will be responsible for activities related to the development of ecotourism under Output 2.1.2. |
| National Meteorological Office | Will be called upon to provide climate data and to perform downscaled climate models for the east and west region, following training, under Output 1.1.1. |
| Comité National pour la Gestion Intégrée des Zones Côtières (CN GIZC) | Will be a main executing partner for the project. Will participate in PSC as co-chair and will oversee the development of national coastal adaptation plans and regional ICZM Frameworks and plans, particularly under Outputs 1.1.1, 1.1.2 and 1.1.3 |
| Comité Régional pour la Gestion Intégrée des Zones Côtières (CR GIZC) | Will be created in three regions under Outputs 1.1.3. In Menabe will be responsible for monitoring activities of the project at regional level and will benefit from technical assistance for the development of planning frameworks. (Outputs 1.1.1, 1.1.2, and 1.1.3) |
| Vice primature en charge du développement et de l'aménagement du territoire (VPDAT) | Will benefit from targeted training on resilient land use planning under Output 1.1.1. Will participate in the regional coastal zone management committees (Outputs 1.1.3) and will be invited to participate in adaptation planning at regional level (Output 1.1.3). |
| Bureau National pour la Gestion des Risques et des Catastrophes (BNGRC) | Will be invited to participate in adaptation planning at central and regional level and will benefit from training provided by the project under Output 1.1.1, 1.1.2 and 1.1.3. |
| Universite d'Antananarivo and | Participation in regional vulnerability assessments; developing studies for rehabilitation of ecosystems; collecting data and information emanating from project under Output |

| | |
|------------------|-------------------------|
| research centres | 1.1.1, 2.1.1 and 3.1.1. |
|------------------|-------------------------|

88. NGOs and the private sector will also be called upon to participate at national, regional and local level, through trainings, awareness raising campaigns, and local activities in communes. NGOs can provide a useful relay between the project and local communities, and community-based associations will be sought out in project sites to provide the necessary organization for project activities involving the provision of support for enhanced or alternative livelihoods. Private sector operators (mostly existing ones) will also benefit from training on potential economic opportunities, including ecotourism. In this regard the project will benefit from linkages with other baseline projects that have created a set of potential small private sector enterprises who can act as interlocutors in this project.

B.2 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/NPIF) or adaptation benefits (LDCF/SCCF)

89. In coastal areas, livelihoods and social roles rely directly on natural resources to meet the nutritional, health and cultural needs of families and communities; forests, mangroves and marine ecosystems are crucial to generate income and to ensure basic needs are met. Furthermore, an overall analysis of the local context reveals that women are largely excluded and are under-represented in adaptation activities, which are already infrequent in the project's targeted regions.

90. 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. Participatory Vulnerability Assessments conducted under Component 1 will disaggregate impacts by gender and ensure appropriate gender representations. The project also includes a participatory study on cost effectiveness, gender dynamics and resilience of proposed alternative livelihoods activities, which will pay particular attention to the risks and benefits incurred by women during project implementation.

91. Expected positive results of the project are respectively: (1) people and governments' awareness of climate change vulnerability, impacts and adaptation solutions will increase and a cadre of regional expertise will be created; (2) sustainable, diversified and resilient livelihoods for local populations in coastal zones will be deployed, targeting an estimated 20 000 people; (3) technology transfer and the demonstration of adequate, cost effective and resilient technologies for coastal zone adaptation will be deployed, thereby protecting millions of dollars worth of economic and infrastructural assets; and (4) ecosystems will be rehabilitated and will restore their productive and protective services.

92. Other socioeconomic benefits of the project include:

- Capacity development targeted to improve habitation design and land use planning in flooding areas;
- Revision 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.

B.3 Explain how cost effectiveness is reflected in the project design

93. The NAPA process identified and considered various alternatives for adaptation in the key social, economic and environmental sectors of Madagascar. In this process, a cost-benefit ratio was used as one of the criteria to select priority actions. A further selection was done on the basis of adaptation options that were proposed by regional stakeholders during project development. Hence, the actions proposed are not only the most urgent and most pressing, they are also the most cost effective. The approach taken for the development of this project has sought to build on linkages with government policies and programmes, which is expected to generate multiplied benefits nationally. A number of considerations related to cost and benefits were also included in the analyses that informed the final project design.
94. In addition, during project design, four thematic studies were developed that detailed all the adaptation needs in the targeted regions, and that provided a cost and benefit analysis of each proposed adaptation measure. As a result, the project was able to select among the most urgent needs, while implementing the most cost effective measures possible.
95. For Component 1, a number of alternative but more costly options were considered to achieve the project outcomes. For example, it was decided that the project would support only two downscaled climate models instead of one for each region, because the regional specificities would be too difficult to render within the parameters of available climate data, and because the differences would not justify the exercise. However, two downscaled models were maintained in order to account for the differences between the East and West coast, which are subject to different climatic influences. This will also build on available climate downscaled models made available through the first, second and third National Communications. In addition, it was decided, for cost savings measures, that the project would perform only 1 crop model outlook for the major non-rice crops in each region, with an emphasis on crops that are common to more than one region. Since rice models are being developed in the Adaptation Fund supported project (Resilience in the Rice Sector), it was deemed more effective that the project focus on the crops most important in coastal areas.
96. For Component 2, the project decided to focus on those ecosystems that required urgent rehabilitation, where no efforts had been deployed, and where the ecosystems could continue to function as protective and productive systems. In this regard, the project is focusing on mangroves where they are most prevalent (West Coast) and on coastal forests where they are most important (East Coast). In order to identify the most appropriate infrastructure rehabilitation measures, the project focused on areas where degradation would lead to imminent destruction or disappearance of important economic assets, and has opted to limit to the minimum its interventions in the infrastructural domain. These interventions, in order to be made more effective, are reinforced by measures to rehabilitate natural buffering areas in zones immediately co-located with the infrastructure to be rehabilitated. As a result, the project will only be rehabilitating infrastructure in two regions, where it is urgently needed but where ecosystems cannot fulfill this function alone, whereas in the western coast, the project focuses on rehabilitating natural buffers. Some activities that were proposed in the original project concept, such as dredging of estuaries, were foregone due to high costs and low efficiency rates.
97. One option that was foregone due to costs was the option to create a coastal early warning system, which had been proposed in the early project concept. Studies conducted during the project design phase led to the realization that much remained to be set in place in order to achieve a functional EWS in any of the four regions. The project would have had to acquire and install a large number of weather stations, to set up the informatics and telemetric systems to allow these to send and receive data, to set up regional meteorological interpretation centers, as well as to build the capacity of the central meteorology system. As a result, rather than to implement a partial and potentially ineffective solution to a large problem, it was decided to remove this activity from the project.

98. Other cost effective considerations taken into account during the design of the project include: building upon existing ICZM committees and structures; implementing of EbA measures which has been highly recognized as being ‘beneficial from an economic point of view’ as it takes into account both the ‘social and ecological benefits that are associated with EbA projects.’⁷ Furthermore, provisions have been made within the project to measure the cost effectiveness during project implementation through activity 8 in Component 2.
99. The current project design offers the most cost effective measures to address the urgent and immediate adaptation needs in the four coastal regions. However, future projects would be required to address the full scope of investment needed to rehabilitate coastal defenses, coastal ecosystems, and to fully remove all the barriers to coastal resilience.

C. DESCRIBE THE BUDGETED M & E PLAN

100. The project will be monitored through the following Monitoring & Evaluation (M&E) activities. The M& E budget is provided in Appendix 7. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome and output as well as mid-term and end of project targets. These indicators, when necessary along with the key deliverables and benchmarks, could be developed in some more details and fine-tuned during the inception phase of the project and will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 7. Other M&E related costs are also presented in the costed M&E Plan (please see M&E table below) and are fully integrated in the overall project budget.
101. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. At the time of project approval, baseline data for most of the indicators established in the Results Framework was available. Baseline data gaps will be addressed during the first year of project implementation.
102. The project will undergo an independent Mid-Term Evaluation or Mid Term Review at the mid-point of project implementation. UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Manager and partners will participate actively in the process. The project will be reviewed or evaluated at mid-term (tentatively in 05/2017 as indicated in the project milestones). The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools. The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE is required or an MTR is sufficient.
103. An independent Terminal Evaluation (TE) will take place at the end of project implementation. The EO will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

⁷ Making the case for Ecosystem-based Adaptation, UNEP, UNDP and IUCN joint publication, 2012, page 7

i) to provide evidence of results to meet accountability requirements, and

ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

104. While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions.

105. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme. The final determination of project ratings will be made by the EO when the report is finalised. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process. The direct costs of reviews and evaluations will be charged against the project evaluation budget.

106. Day to day project monitoring is the responsibility of the project coordinating unit but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Coordinator to inform the PSC of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion. To perform these tasks, the project will be supported by a Monitoring and Evaluation Officer who will be a part time member of the project coordination unit and will be trained in accordance to UNEP rules and regulations in terms of monitoring and evaluation.

107. The Project Steering Committee will receive periodic reports on progress and will make recommendations concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight is the responsibility of the Task Managers of UNEP. The Task Manager will review the quality of draft project outputs, provide feedback, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

COSTED M&E PLAN

| M&E activity | Responsibility | Budget US\$ Excluding project team staff time | Time frame |
|--|---|---|--|
| Inception Workshop | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNEP ▪ CTA ▪ M&E Clerk | \$3,000 | Two months after project approval |
| Inception Report | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ CTA ▪ M&E Clerk | None | One month after Inception Workshop |
| Baseline Study | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ CTA ▪ UNEP ▪ M&E Clerk | \$ 45,000 | No more than 6 months after project start. |
| Measurement of Means of Verification for Project Progress on | <ul style="list-style-type: none"> ▪ Oversight by Project Coordinator | To be determined as part of the annual work plan | Annually prior to PIR and to the definition of annual work |

COSTED M&E PLAN

| M&E activity | Responsibility | Budget US\$ Excluding project team staff time | Time frame |
|--|---|---|---|
| output and implementation | <ul style="list-style-type: none"> ▪ Project team ▪ M&E Clerk | preparation | plans |
| Periodic monitoring of implementation progress | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ M&E Clerk | None | Quarterly |
| Periodic Progress reports | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ M&E Clerk | None | Quarterly |
| Project Implementation Review (PIR) | <ul style="list-style-type: none"> ▪ PC ▪ CTA ▪ UNEP ▪ M&E Clerk ▪ FMO | None | Annually |
| Mid term Review/ Evaluation (MTR/MTE) | <ul style="list-style-type: none"> ▪ UNEP TM/UNEP Evaluation office ▪ External Consultant ▪ M&E Clerk ▪ Project Coordinator | \$35,000 | Mid way through project implementation. |
| Terminal Evaluation | <ul style="list-style-type: none"> ▪ UNEP Evaluation office | \$35,000 | Close to the end of project implementation |
| Project Terminal Report | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ M&E Clerk | None | At least three months before the end of the project |
| Audit | <ul style="list-style-type: none"> ▪ Government ▪ Project manager ▪ M&E Clerk | Indicative cost : 3,500 USD per year (17,000) | Yearly |
| Visits to the project sites | <ul style="list-style-type: none"> ▪ UNEP, Government representatives ▪ M&E Clerk | For UNEP Task Manager it is paid by the IA fees and operational budget. | Yearly |
| Total Indicative Cost | | 132,500 | |

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 form. For SGP, use this [OFP endorsement letter](#)).

| NAME | POSITION | MINISTRY | DATE (MM/dd/yyyy) |
|-----------------------------------|------------------------------------|--|--------------------------|
| RALALAHARISOA Christine Edemée | Director General of Environment | MINISTRY OF ENVIRONMENT AND FORESTS | 05/102012 |
| | | | |

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

| Agency Coordinator, Agency Name | Signature | Date (Month, day, year) | Project Contact Person | Telephone | Email Address |
|--|---|--------------------------------|--|------------------------|--|
| Brennan VanDyke; Director UNEPGEF Coordination Office. |  | July 24, 2014 | Ermira Fida, Portfolio Manager; UNEP GEF Adaptation | + (254 20) 762 3113 | ermira.fida@unep.org |
| | | | | | |

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ANNEX A: PROJECT RESULTS FRAMEWORK

| | Indicators | Baseline | Mid point target | End of project target | Means of Verification | Assumptions/Risks |
|---|--|---|---|---|--|---|
| Project objective: To reduce vulnerability of the coastal zone to climate variability and change through institutional capacity building, concrete coastal adaptation interventions and integration of climate change into policy and planning | Change in Vulnerability Index in each project site | High vulnerability as identified by the NAPA. Local vulnerability score to be measured at project sites during Baseline Study | | At least 15% reduction in VA Score for men and women in project sites as measured at the end of the project by a PVA during the terminal evaluation | PVAs, Baseline study, final evaluation | (A) The physical and alternative livelihoods measures will be sufficient to reduce exposure to extreme events and to build adaptive capacity. (R) There is a risk that due to ongoing political instability, the project could experience delays, particularly if the forthcoming elections lead to further instability at the regional level. The project will carefully monitor the political situation and will ensure that the capacity for delivering the project is built at multiple levels in order to avoid delays. |
| Outcome 1.1 Strengthened institutional capacity to address climate change impacts in project sites (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) | Number of coastal regions that have institutions to tackle climate risk and have adopted adaptation plans and strategies to initiate locally coordinated actions, to mitigate the effects of climate change. | To be determined by baseline study | | By the end of the project at least one action taken in each of the four project sites. | Activities, projects or concept notes | (A) There is political will and availability to initiate such actions. (R) There is a risk that political instability or transition may impede coordination efforts. |
| Output 1.1.1 Climate change vulnerability and risks for the four coastal regions (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) are identified. | "number of vulnerability assessments, maps, and crop models prepared for each region" | There is currently only general information on potential vulnerabilities at regional level | At least one VIA, 1 map of inundatable zones, and at least 1 crop model outlook is produced for each region by mid term | | Published maps, assessments, reports | (A) There is sufficient data to enable the production of regionally sufficient models. (R) There is a risk that limited capacity to effectively tackle all project components may lead to losses in capacity development. Establishing |

| | Indicators | Baseline | Mid point target | End of project target | Means of Verification | Assumptions/Risks |
|---|---|--|--|--|--|--|
| | | | | | | a robust multi disciplinary project implementation team supported with additional training if necessary will help mitigate against this risk. |
| Output 1.1.2 A coordinating mechanism for climate change adaptation is established in project sites (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) | <p>Number of coastal regions which have an established committee which includes Climate Change in its mandate or ToRs</p> <p>% of female participants/members in each coordinating committees</p> | <p>There is currently only 1 ICZM committee in Menabe but it does not target resilience issues</p> <p>Female representation is low, exact figures to be determined by baseline study</p> | <p>One committee per region that includes in its terms of reference or mandate a reference to climate change, adaptation or resilience, by Mid Term</p> <p>At least 10% of participants/ members in each committee is female</p> | | ICZM committee constituting texts and mandates, participants lists | <p>(A) There is political will and availability to participate in coordination.</p> <p>(R) There is a risk that political instability or transition may impede coordination efforts.</p> |
| Output 1.1.3 Comprehensive adaptation plans developed for four coastal regions (in Menabe, Boeny, Vatovavy Fitovinany and Atsinanana). | number of coastal regions with adaptation plans or strategies; | There are currently no adaptation plans at the coastal zone level | | by the end of the project, each region has its own coastal adaptation plan or strategy | plans, policies, documents and reports | |

| | Indicators | Baseline | Mid point target | End of project target | Means of Verification | Assumptions/Risks |
|---|---|--|------------------|--|------------------------|---|
| Outcome 2.1 Restored and protected coastal zone | Change in exposure to climate risk in pilot sites. | To be determined by baseline study | | By the end of the project at least 15% change in exposure indicators to climate hazards has been achieved | | ((A) The ecosystems are in a state that can be recuperated and will function appropriately after rehabilitation under appropriate management. (R) There is a risk that extreme weather events may impede or slow the rehabilitation works. The project will work actively with the Meteorology department to ensure advance warning is obtained. |
| 2.1.1 Shorelines are rehabilitated through restoration of protective ecosystem services | Number of hectares of mangroves planted (Boeny, Menabe) Number of hectares of shorelines stabilized (Toamasina & Manakara) | No mangroves have been rehabilitated and no shorelines stabilized in project sites | | at least 1200 hectares of mangroves rehabilitated by year 4 of the project at least 3km2 of shorelines stabilized | physical observation | (A) The ecosystems are not in a state that is beyond recuperation and will function appropriately after rehabilitation under appropriate management. (R) There is a risk that extreme weather events may impede or slow the rehabilitation works. The project will work actively with the Meteorology department to ensure advance warning is obtained. |
| 2.1.2 Sustainable natural resource use practices and alternative livelihoods introduced in project sites | % increase in income (men and women) from resilient and sustainable use of natural resources (all four project sites) | Baseline data to be gathered during baseline study | | At least a 25% increase in income (men and women) from sustainable fisheries, resilient agriculture | PVAs, final evaluation | (A) Increased livelihoods and income do not act as a perverse incentive for local communities to continue to encroach on fragile coastal ecosystems (R) There is a risk that local communities cannot maintain enhanced livelihoods due to external factors such as extreme events, changes in market access or prices. |

| | Indicators | Baseline | Mid point target | End of project target | Means of Verification | Assumptions/Risks |
|---|--|--|------------------|---|---|---|
| 2.1.3 Technologies for protection and rehabilitation of coastal productive assets are demonstrated adjacent to restored ecosystems. | km of sea wall constructed / rehabilitated in Manakara km of combined groyne and sea wall in Toamasina; | At the moment no construction or rehabilitation is taking place | | At least 1 km of sea wall constructed and rehabilitated in Mankara At least 1 km of existing protection systems (groynes and sea walls combined) is restored and completed | physical observation; feasibility study reports and EIA reports. | (A) Rehabilitation of coastal protection associated with rehabilitation of ecosystem rehabilitation demonstrates rapid benefit. (R) There is a risk of works being delayed due to lengthy procurement and tender processes, or of their implementation taking longer than planned due to political instability. |
| Outcome 3.1 Climate change adaptation measures are mainstreamed into national and sectoral development strategies, and in non-state stakeholder actions. | Number of national/sectoral plans, strategies or norms that are being modified to include climate change adaptation. Number of non state stakeholders that are in the process of integrating climate change into their activities | To be determined by baseline study | | By end of project at least one sectoral development strategy modified. By end of project at least two non-state stakeholders in the process of integrating climate change into planning and activities | Strategies or acts Action plans, development strategies, communication strategies. | (A)The national institutional context is conducive and positive towards training and modification of strategies. Non-state stakeholders are willing to participate and change their actions. (R) There is risk that there will be no buy in from a political perspective and from NGOs and private sector stakeholders |
| 3.1.1 Training provided to increase institutional capacity of government officials to develop resilient standards, legislative instruments, norms and sectoral plans | Number of government officials trained at national and regional level on the integration of environment and CC into planning % of women trained | There is a limited cadre of people trained on climate change at national level and no trained people at regional level | | at least 200 people trained by end of project, At least 20% of those trained are women | Training reports, participant lists | (A) The institutional context is conducive to the application of newly acquired skills (R) There is a low risk that priorities will change due to political transition. |

| | Indicators | Baseline | Mid point target | End of project target | Means of Verification | Assumptions/Risks |
|--|--|---|------------------|---|-------------------------------------|---|
| 3.1.2 Training provided to non-state stakeholders to participate in adaptation planning and adaptation actions | Number of people trained among NGO, the private sector on the integration of climate change into their activities, % of women trained | No NGOs and no private sector have yet been trained at regional or national level | | at least 100 people trained, At least 20% of those trained are women | training reports, participant lists | (A) There are no institutional or legal barriers to non governmental participation in coastal adaptation efforts (R) There is a risk that political processes impede the full participation of NGOs and private sector. Political transition issues will be carefully monitored. |
| 3.1.3 Existing strategies and laws are modified to integrate climate change adaptation with adequate budgetary allocations for implementation | Number of strategies or acts, texts or norms that are modified to include climate change adaptation measures | at the moment there are none | | by the end of the project, at least the EIA procedures and one sectoral act/strategy are modified to integrate climate change | acts or strategy, texts | (A) There is willingness and an opportunity to modify legal and regulatory texts. (R) There is a risk that the legal texts can not be approved during the project due to lengthy political processes and transition. |

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

| Comments received | Response |
|---|--|
| <p>Comments Received by Germany</p> <ol style="list-style-type: none"> 1. Germany kindly asks for confirmation that the national strategy on which the proposed project seems to build, the cited Madagascar Action Plan (MAP), is still a reference with relevance to the Government of Madagascar. MAP was elaborated by former President Ravalomanana and its Government; however the current transitional government has never made reference to it nor is its implementation monitored. We would also like to ask for more details on the current status of the mentioned regional development plans: do they exist for any of the cited regions, date of publication and do they have practical relevance for the different sectors? 2. Regarding co-financing Germany asks to clarify on indications given in the PIF. According to the JICA representative in Madagascar, no bilateral aid will be made available to the Malagasy Government within this period of political instability and the non recognition of its current Government. Election, a precondition, won't be held before May 2013. This is in accordance to GoJ reaction to the putsch in 2009. It is not likely that JICA will endorse a grant of 2.650.000 USD under the current situation as mentioned in the PIF. According to JICA Madagascar (situation May 2012) no concrete environmental projects are in its pipeline. We would appreciate that if the name of an indicative co-financier is given in the PIF, this is because there is probability of co-financing the GEF project. 3. Germany kindly asks to have a more detailed look at some of the facts and figures given in the proposal. We have the impression that there are some misunderstandings/ mistakes, e.g. <ol style="list-style-type: none"> a) It is stated that Madagascar hosts coastal wetlands of significant importance of 531.000 km² (page 11). This is almost the size of the total land surface of Madagascar (587.000 km²) and cannot be correct. Please verify. b) The proposal cites a budget for the Ministry of Environment and Forests of 119,7 million USD for 2012 (page 12). Our known figures for this | <ol style="list-style-type: none"> 1. The MAP is still a document of relevance in Madagascar. At the time of writing, UN agencies and donors in operation in Madagascar were still referring and using the MAP as the last version of the PRSP. The Government of the Transition did not publish an update or a revised vision. It is expected that this will take place once a new government is in place in 2014. Regional Rural Development Plans were all in force in each of the regions concerned by the project and details on their contents and relevance was included in the project document in section 3.6. 2. Co-financing arrangements have been revised and refined, now listing only programs and projects that are ongoing in the project regions and for which financing has been confirmed over the next years. The JICA contribution was removed from the plan. Additional co-financing may be mobilized when a new government is in place in 2014. 3. The figures have been corrected in appropriate places. a) Figures for wetlands are 4,320Km². b) References to the Ministry of Environment Budgets have been corrected. The contribution of the GoM budget (all ministries) to the project through in kind contributions is now of 2,670,000 over 5 years. Figures in the PIF were mistakenly quoted from the budget request included in the 2012 Public Investment Plan. No such figures were obtained for project years. <ol style="list-style-type: none"> c) References to the debt for nature initiative were removed from the baseline description, because it was not possible to ascertain whether its projects operated |

| | |
|---|--|
| <p>Ministry and the ongoing fiscal year is of only roughly 9 million EUR (in 2011: 9,6 million EUR). This information should be clarified. The general budget situation of the GoM does not – in any case – permit a sector budget of 119,7 million USD.</p> <p>c) The description of the baseline situation includes two important initiatives, the Biodiversity Foundation and the French initiative « Dept for Nature swap » (page 10/11). The PIF gives the impression that they were not set in place: “many of these programmes have been halted, and in some cases, lost support.” The biodiversity foundation announced despite the ongoing crises that it has reached its goal in collecting 50 millions USD for its endowment fund. Part of the fund is filled by French Dept for nature swept. The German Government has just added an additional EUR 5 million in 2011 into the sinking fund of the foundation.</p> <p>4. Regarding the design of the proposed project Germany would like to highlight the following three aspects and ask to consider them in further project development:</p> <p>a) Component 1 (institutional capacity development): It is important to identify which institution shall receive support (in terms of capacity development etc.) based on its current mandate. This is to increase efficiency and effectiveness. Climate change within coastal regions may concern different ministries: Fishery, Agriculture, Water, Environment & Forests, and Infrastructure (meteorology) etc. The proposal should state a clear mechanism of coordination between involved authorities. This remark points partly to the question of governance.</p> <p>b) Component 2 (Coastal and marine ecosystem rehabilitation and management for resilience): Apart from natural pressures on the ecosystem of Madagascar, anthropogenic pressure is severe. Behind all the proposed rehabilitation and management actions lies the question of governance of natural resources. This issue is not addressed at all. However, the widely tolerated unlimited access to natural resources which leads to its degradation puts efforts at stake if governance question remain unsolved.</p> <p>c) Cross cutting issue gender: at two points</p> | <p>in or around project sites.</p> <p>4.a) The project now includes the creation of a ICZM coordinating mechanism and proposes to operate through these mechanisms to channel its institutional capacity development. Trainings and seminars are identified in the project design according to their intended beneficiaries (Ministries of Agriculture, Fisheries, Environment, Water and Public Works). Support to the strengthening of coastal governance, that includes adaptation, is also integrated in the project under Component 3.</p> <p>b) The component 2 now includes measures designed to curb un-refrained exploitation of natural resources in project sites. This includes negotiating fishing calendars, limiting mangrove use for fuelwood through the installation of dedicated woodlots, and alternative livelihoods. A study on cost effectiveness, gender dynamics and resilience of proposed alternative livelihoods activities will also serve to identify measures that are more likely to lead to broad adoption by communities. In addition, the project also includes measures to revise key sectoral laws and regulations, particularly those around fisheries and protected areas, which are inadequate (while other projects are dealing with other sectoral laws). The ICZM mechanisms created in Component 1 are also expected to deliver adaptation oriented action plans for each regions, which will tackle the issues of natural resources governance.</p> |
|---|--|

| | |
|--|---|
| <p>gender aspects are mentioned (pages 9, 19) but the proposal does not present the way how, especially women, will be targeted by the project.</p> <p>5. Germany appreciates that next to climate change some other external factors have been considered when describing the coastal vulnerability. Regarding the climate change data however, we kindly ask to give more detailed science based information, e.g. from regional IPCC modelisation or modelisations for Madagascar realized at University of Cape Town (Tadross et al., 2008). There are e.g. also parts in Madagascar where more rainfall is predicted.</p> <p>6. Regarding steering and coordination, we would appreciate concrete information on the structures and mechanisms in place to assure sound implementation. Madagascar has received within its Third Env Programme 148,850, 000 USD over more than 15 years. What lessons can be drawn for project management, participation, coordination, that can be integrated into the proposed project?</p> | <p>c) Women will be specifically targeted through interventions at the local level, where the project will work with communities to propose and pilot alternative livelihoods technologies and techniques. Following a participatory study of cost effectiveness from alternative livelihoods, specific avenues for women, female headed households and women headed small enterprises, will be proposed.</p> <p>5. Updated climate data and projections have been included in Section 2 of the project document. In addition, the project expects to deliver two downscaled climate change models for the east and west coasts, on which to base accurate local climate change predictions.</p> <p>6. This project will operate mostly at the regional level, through the Regional ICZM committees, and results will be upscaled in Component 3. The project will be overseen by a PSC which will be linked with regional committees for ease of operational oversight, and with other ongoing projects such as the Adaptation Fund rice project (which is progressing well) but coordinated by the Ministry of Environment and Forests at central and regional levels, based on experience to date. Details on project implementation arrangements are included in Annex 7 of the project document.</p> |
| <p>Comments received from the United States</p> <p>The U.S. government recognizes that biodiversity in Madagascar is an extraordinary public good that merits protection, and therefore does not register a formal objection to the PIF entitled “Madagascar: Adapting Coastal Zone Management to Climate Change in Madagascar Considering Ecosystem and Livelihood Improvement.” This position, however, does not indicate recognition of, nor any change in U.S. policy with respect to, the de facto regime in Madagascar.</p> | <p>N/A</p> |

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS⁸

A. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:

N/A

B. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

| PPG Grant Approved at PIF: | | | |
|---|--|------------------------------------|--------------------------------|
| <i>Project Preparation Activities Implemented</i> | <i>GEF/LDCF/SCCF/NPIF Amount (\$)</i> | | |
| | <i>Budgeted Amount</i> | <i>Amount Spent To date</i> | <i>Amount Committed</i> |
| Stakeholders analysis, ecosystem and livelihood studies, infrastructure and technical assessment, governance analysis, conducted by local consultants | 65,000 | 65,000 | 0 |
| Coordinating and supervising local consultants activities, preparing, amending and analysing the UNEP project proposal, conducted by the International Consultant | 49,000 | 26,950 | 22,050 |
| Travel (mission to the project sites) | 6,650 | 6,650 | 0 |
| Meetings and workshops(inception workshop, meetings with the local communities in the project sites, validation workshop) | 9,000 | 9,000 | 0 |
| Total | 129650 | 107,600 | 22,050 |

⁸ If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

N/A

ANNEX E – CONSULTANTS AND GOODS TO BE PROCURED

| | | | | Total | |
|-----------------------|--|---|----------------|--------------|--|
| Procurement Plan | | | | | |
| 12 CONSULTANTS | | | | | |
| | | Rate/Unit | Unit(s) | | * |
| | | daily rate inclusive of travel (25%) | | | <i>All consultancies are calculated on the basis of lump sum agreements inclusive of 25% of travel.</i> |
| 1201 | IC - VA Trainer | 688 | 60 | 41,250 | Costs of training for local government authorities on CCA and VA in Coastal Zones and perform 4 CC VRA studies using participatory vulnerability assessment tool DIVA (DINAS-Coast) and VIA guidelines (PROVIA) |
| 1202 | IC - climate modelling specialist | 688 | 20 | 13,750 | Consultant to support the development of an assessment of CC impacts to coastal ecosystems and their services for the four regions and to assist in the development of downscaled climate scenarios using data available from the National Communications and National Met service, for the east and western coastal zones. . |
| 1203 | NC - climatologists (2) | 313 | 60 | 18,750 | Consultants to perform downscaled climate scenarios using data available from the National Communications and National Met service, for the east and western coastal zones. |
| 1204 | NC - land use planner | 313 | 40 | 12,500 | Consultant to establish a map of inundate-able zones in 4 coastal regions |
| 1205 | NC - Hydrologist | 313 | 40 | 12,500 | Consultant o establish a map of inundate-able zones in 4 coastal regions |
| 1206 | IC - Production systems outlook specialist | 688 | 65 | 44,688 | International Consultant to develop and deliver training on and development of a production systems outlook for 2050 for the top non-rice agricultural value-chains: fisheries, cassava,peanuts, banana |
| 1207 | NC - agriculture specialists (2) | 313 | 235 | 73,500 | National Consultants to develop and deliver training on and development of a production systems outlook for 2050 for the top non-rice agricultural value-chains: fisheries, cassava,peanuts, banana |
| 1208 | NC - coastal zone governance experts (2) | 313 | 120 | 37,500 | National consultants to support the creation of a coordination mechanism (in Antsinanana, Vatovavy Fitovinany and Boeny) for adaptation and ICZM at the regional level building on existing coordination platforms (including national ICZM platform);and to integrate adaptation issues into the existing coordination mechanism in Menabe. |

| | | | | | |
|------|--|-----|-----|---------|--|
| 1209 | NC - coastal adaptation specialist | 313 | 100 | 31,250 | National consultants to support the creation of a coordination mechanism (in Antsinanana, Vatovavy Fitovinany and Boeny) for adaptation and ICZM at the regional level building on existing coordination platforms (including national ICZM platform);and to integrate adaptation issues into the existing coordination mechanism in Menabe. |
| 1210 | NC - adaptation planning specialist (4) | 313 | 108 | 33,875 | National consultants to identify recommended adaptation actions at regional level on the basis of vulnerability assessments, models and studies under activities 1,2,3 and 4 |
| 1211 | IC - Chief Technical Advisor | 688 | 179 | 123,000 | Chief technical advisor for the project |
| 1212 | NC - Coastal Fisheries specialists | 313 | 310 | 96,875 | National fisheries specialist to negotiate new fishing calendars and assist in the implementation of sustainable fisheries practices |
| 1213 | NC- Community-based forest management specialist | 313 | 162 | 50,625 | National consultant to support the development of sound forest management practices, including development of woodlots, reduced deforestation in mangroves |
| 1214 | NC- Agronomers (4) | 313 | 640 | 200,000 | National Experts to promote diversification of crops and climate-smart agriculture, such as vegetable production, improved crop varieties, improved cultivation techniques, in 8 communes in the four regions |
| 1215 | NC - beekeeping specialists | 313 | 280 | 87,500 | National experts to support the development of beekeeping |
| 1216 | IC - climate change policy and planning specialist | 688 | 70 | 48,125 | International consultant to develop and implement a training programme on integrating environmental and climate change concerns into legislation and regulation for national and regional parliamentarians and district/regional administrations |
| 1217 | NC - governance specialist | 313 | 80 | 25,000 | National consultant to develop and implement a training programme on integrating environmental and climate change concerns into legislation and regulation for national and regional parliamentarians and district/regional administrations |
| 1218 | IC - climate change training specialist | 688 | 40 | 27,500 | International consultant to develop and implement a series of sectoral training programmes on climate change adaptation (agriculture, tourism, infrastructure, water, fisheries and forestry). |
| 1219 | NC - climate change training specialist | 313 | 120 | 37,500 | National consultant to develop and implement a series of sectoral training programmes on climate change adaptation (agriculture, tourism, infrastructure, water, fisheries and forestry). |
| 1220 | NC - EIA specialist | 313 | 60 | 18,750 | National consultant to help revise EIA texts and procedures |

| | | | | | |
|-----------------------------------|---|--------------------------------|-----|------------------|--|
| 1221 | IC - climate change law specialist | 688 | 40 | 27,500 | IC to help revise the fisheries law and the protected areas law to take into account the results of vulnerability studies and adaptation measures identified in Component 1 |
| 1222 | NC - legal and governance experts | 313 | 120 | 37,500 | NC to revise the fisheries law and the protected areas law to take into account the results of vulnerability studies and adaptation measures identified in Component 1 |
| 1223 | NC - government planning experts | 313 | 120 | 37,500 | National experts to revise regional development planning frameworks in 4 coastal regions to integrate climate change resilience and adaptation concerns. |
| 1224 | NC - ICZM planning experts | 313 | 120 | 37,500 | National experts to review and revise the national ICZM strategy and policy, in light of regional strategies developed in component 1, working with the national ICZM committee. |
| 1225 | IC - ICZM expert | 688 | 40 | 27,500 | International Consultant to help review and revise the national ICZM strategy and policy, in light of regional strategies developed in component 1, working with the national ICZM committee. |
| 1226 | NC - government finance expert | 313 | 90 | 28,125 | National expert to support the development of a strategy to explore opportunities for upscaling and financing coastal adaptation including through public-private partnership and financing. |
| 1228 | Regional Technicians (4) | 187.5 per trimester per person | 307 | 114,640 | Regional technicians serving as focal points for the project in each region, seconded from MEF |
| 1229 | NC - ecologist | 313 | 160 | 50,000 | Ecologists to complete an assessment of CC impacts to coastal ecosystems and their services for the four regions. |
| 1230 | NC - communications specialist | 313 | 192 | 60,000 | National communications advisor to design and deploy an outreach and awareness raising campaign at regional and national level (for general public) |
| 1231 | IC - climate change and agriculture specialist | 688 | 120 | 82,500 | International consultant to help promote diversification of crops and climate-smart agriculture, such as vegetable production, improved crop varieties, improved cultivation techniques, in 8 communes in the four regions |
| 1232 | NC - tourism specialist | 313 | 80 | 25,000 | NC to support the implementation of sustainable ecotourism practices |
| 1232 | IC - ecotourism expert | 688 | 80 | 55,000 | International expert on ecotourism development |
| 1299 | SUB TOTAL | | | 1,560,203 | |
| 0 | - | | | - | |
| 20 SUB-CONTRACTS COMPONENT | | | | | - |
| 2200 | Sub-contracts (MOUs/LOAs for supporting organizations) | | | | - |

| | | | | | |
|--|---|-------------|--|------------------|---|
| 2201 | Sub-contract NGO mangrove rehabilitation | lump sum | | 144,000 | Sub-contract with an NGO for mangrove rehabilitation inclusive of EIA costs |
| 2299 SUB-TOTAL | | | | 144,000 | |
| 0 | | | | - | |
| 2300 | Sub-contracts (for commercial purposes) | | | - | |
| 2301 | sub-contract shoreline revegetation | lump sum | | 16,400 | Sub-contract for undertaking shoreline revegetation inclusive of EIA costs |
| 2302 | Sub-contract consultancy firm | lump sum | | 35,000 | Sub-contract for undertaking a participatory study on the cost effectiveness, gender dynamics and resilience of proposed alternative livelihoods options |
| 2304 | sub-contract coastal engineering firm | lump sum | | 1,120,000 | Sub-contract for the rehabilitation of the sea wall, inclusive of EIA costs |
| 2305 | sub-contract coastal engineering firm | lump sum | | 700,000 | Sub-contract for the restoration and completion of the existing system of protection combining groyne and sea walls in City of Toamasina (1.1 km), including feasibility and EIA |
| 2399 SUB-TOTAL | | | | 1,871,400 | |
| 2999 COMPONENT TOTAL | | | | 2,015,400 | |
| 40 MATERIALS AND EQUIPEMENT COMPONENT | | | | - | |
| 4100 EXPENDABLE EQUIPMENT | | | | - | |
| 4105 | reforestation materials | n-a | | 30,000 | Biomass and materials for reforestation |
| 4199 SUB-TOTAL | | | | 30,000 | |
| 0 | | | | - | |
| 4200 NON- EXPENDABLE EQUIPMENT | | | | - | |
| 4201 | materials and equipment (ecotourism) | n-a | | 70,000 | materials and equipment for installation of ecotourism facilities |
| 4202 | Vehicle and maintenance for supervision of works | n-a | | 173,000 | vehicle for project works supervision with annual maintenance and repair costs |
| 4203 | Materials and equipment (resilient agriculture) | n-a | | 240,000 | materials, equipement and implements for the implemenation of resilient agricultural practices |
| 4205 | Beekeeping equipment | n-a | | 100,000 | beekeeping materials |
| 4208 | Fisheries materials | n-a | | 150,000 | fisheries materials, including nets, boats,traps, etc |
| 4299 SUB-TOTAL | | | | 733,000 | |
| 4999 COMPONENT TOTAL | | | | 763,000 | |

ANNEX F-1: DETAILED BUDGET

| Adapting Coastal Zone management to Climate Change considering ecosystem and livelihoods | | | | | | | | | | | | | |
|--|--|---------------|---------------|---------------|---------------|----------|---------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| APPENDIX 1 - RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET LINE (GEF FUNDS ONLY US\$) | | | | | | | | | | | | | |
| Project title: Adapting Coastal Zone management to Climate Change considering ecosystem and livelihoods | | | | | | | | | | | | | |
| Project number: | | | | | | | | | | | | | |
| Project executing partner: Ministère de l'Environnement et des Forêts | | | | | | | | | | | | | |
| Project implementation period: | | | | | | | | | | | | | |
| From: | Jun -14 | | | | | | | | | | | | |
| To: | July -19 | | | | | | | | | | | | |
| Expenditure by Outcome | | | | | | | Annual Expenditures | | | | | | |
| | | Outcome 1 | Outcome 2 | Outcome 3 | PM | ME | Total | Total Y1 | Total Y2 | Total Y3 | Total Y4 | Total Y5 | Total |
| 11 PERSONNEL COMPONENT | | | | | | | | | | | | | |
| 1101 | PROJECT COORDINATOR | 14,400 | 18,000 | 18,000 | 36,000 | | 86,400 | 17,280 | 17,280 | 17,280 | 17,280 | 17,280 | 86,400 |
| 1103 | M&E Officer | | | | 49,980 | | 49,980 | 9,996 | 9,996 | 9,996 | 9,996 | 9,996 | 49,980 |
| 1199 | SUBTOTAL | 14,400 | 18,000 | 18,000 | 85,980 | - | 136,380 | 27,276 | 27,276 | 27,276 | 27,276 | 27,276 | 136,380 |
| 12 CONSULTANTS | | | | | | | | | | | | | |
| 1201 | IC - VA Trainer | 41,250 | | | | | 41,250 | 41,250 | - | - | - | - | 41,250 |
| 1202 | IC - climate modelling specialist | 13,750 | | | | | 13,750 | 13,750 | - | - | - | - | 13,750 |
| 1203 | NC - climatologists (2) | 18,750 | | | | | 18,750 | 18,750 | - | - | - | - | 18,750 |
| 1204 | NC - land use planner | 12,500 | | | | | 12,500 | 12,500 | - | - | - | - | 12,500 |
| 1205 | NC - Hydrologist | 12,500 | | | | | 12,500 | 12,500 | - | - | - | - | 12,500 |
| 1206 | IC - Production systems outlook specialist | 44,688 | | | | | 44,688 | 34,375 | 10,313 | - | - | - | 44,688 |

| | | | | | | | | | | | | | |
|------|--|--------|---------|--------|--|--|---------|--------|---------|---------|--------|--------|---------|
| 1207 | NC - agriculture specialists (2) | 73,500 | | | | | 73,500 | 37,500 | 36,000 | - | - | - | 73,500 |
| 1208 | NC - coastal zone governance experts (2) | 37,500 | | | | | 37,500 | - | 37,500 | - | - | - | 37,500 |
| 1209 | NC - coastal adaptation specialist | 31,250 | | | | | 31,250 | - | 31,250 | - | - | - | 31,250 |
| 1210 | NC - adaptation planning specialist (4) | 33,875 | | | | | 33,875 | - | 21,875 | 12,000 | - | - | 33,875 |
| 1211 | IC - Chief Technical Advisor | 45,000 | 45,000 | 33,000 | | | 123,000 | 24,600 | 24,600 | 24,600 | 24,600 | 24,600 | 123,000 |
| 1212 | NC - Coastal Fisheries specialists | | 96,875 | | | | 96,875 | - | - | 46,875 | 50,000 | - | 96,875 |
| 1213 | NC-Community-based forest management specialist | | 50,625 | | | | 50,625 | - | 9,375 | 28,750 | 12,500 | - | 50,625 |
| 1214 | NC-Agronomers (4) | | 200,000 | | | | 200,000 | - | 100,000 | 100,000 | - | - | 200,000 |
| 1215 | NC - beekeeping specialists | | 87,500 | | | | 87,500 | - | - | 25,000 | 31,250 | 31,250 | 87,500 |
| 1216 | IC - climate change policy and planning specialist | | | 48,125 | | | 48,125 | - | - | - | - | 48,125 | 48,125 |
| 1217 | NC - governance specialist | | | 25,000 | | | 25,000 | - | - | - | - | 25,000 | 25,000 |
| 1218 | IC - climate change training specialist | | | 27,500 | | | 27,500 | 27,500 | - | - | - | - | 27,500 |
| 1219 | NC - climate change training specialist | | | 37,500 | | | 37,500 | 12,500 | - | - | - | 25,000 | 37,500 |
| 1220 | NC - EIA specialist | | | 18,750 | | | 18,750 | - | - | - | - | 18,750 | 18,750 |
| 1221 | IC - climate change law specialist | | | 27,500 | | | 27,500 | - | - | - | - | 27,500 | 27,500 |
| 1222 | NC - legal and governance experts | | | 37,500 | | | 37,500 | - | - | - | - | 37,500 | 37,500 |
| 1223 | NC - government planning experts | | | 37,500 | | | 37,500 | - | - | - | - | 37,500 | 37,500 |
| 1224 | NC - ICZM planning experts | | | 37,500 | | | 37,500 | - | - | - | - | 37,500 | 37,500 |
| 1225 | IC - ICZM expert | | | 27,500 | | | 27,500 | - | - | - | - | 27,500 | 27,500 |
| 1226 | NC - government finance expert | | | 28,125 | | | 28,125 | - | - | - | - | 28,125 | 28,125 |

| | | | | | | | | | | | | | |
|-----------------------------------|---|----------------|----------------|----------------|----------------|----------|------------------|----------------|----------------|----------------|----------------|----------------|------------------|
| 1228 | Regional Technicians (4) | 21,320 | 21,320 | 72,000 | | | 114,640 | 22,928 | 22,928 | 22,928 | 22,928 | 22,928 | 114,640 |
| 1229 | NC - ecologist | 50,000 | | | | | 50,000 | 25,000 | 25,000 | - | - | - | 50,000 |
| 1230 | NC - communications specialist | | | 60,000 | | | 60,000 | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | 60,000 |
| 1231 | IC - climate change and agriculture specialist | | 82,500 | | | | 82,500 | - | 41,250 | 41,250 | - | - | 82,500 |
| 1232 | NC - tourism specialist | | 25,000 | | | | 25,000 | - | - | - | 25,000 | - | 25,000 |
| 1232 | IC - ecotourism expert | | 55,000 | | | | 55,000 | - | - | - | 55,000 | - | 55,000 |
| 1299 | SUB TOTAL | 435,883 | 663,820 | 517,500 | - | - | 1,617,203 | 295,153 | 372,091 | 313,403 | 233,278 | 403,278 | 1,617,203 |
| 13 ADMINISTRATIVE SUPPORT | | | | | | | | | | | | | |
| 1301 | Finance and Administration Specialist | | | | 75,000 | | 75,000 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 75,000 |
| 1302 | Logistics/driver | | | | 16,200 | | 16,200 | 3,240 | 3,240 | 3,240 | 3,240 | 3,240 | 16,200 |
| 1399 | SUB-TOTAL | - | - | - | 91,200 | - | 91,200 | 18,240 | 18,240 | 18,240 | 18,240 | 18,240 | 91,200 |
| 16 TRAVEL | | | | | | | | | | | | | |
| 1603 | Travel for PM | | | | 20,020 | | 20,020 | 4,020 | 4,000 | 4,000 | 4,000 | 4,000 | 20,020 |
| 1699 | SUB-TOTAL | - | - | - | 20,020 | - | 20,020 | 4,020 | 4,000 | 4,000 | 4,000 | 4,000 | 20,020 |
| 1999 | COMPONENT TOTAL | 450,283 | 681,820 | 535,500 | 197,200 | - | 1,864,803 | 344,689 | 421,607 | 362,919 | 282,794 | 425,794 | 1,864,803 |
| 20 SUB-CONTRACTS COMPONENT | | | | | | | | | | | | | |
| 2200 | Sub-contracts (MOUs/LOAs for supporting organizations) | | | | | | | | | | | | |
| 2201 | Sub-contract NGO mangrove rehabilitation | | 144,000 | | | | 144,000 | - | 25,000 | 119,000 | - | - | 144,000 |
| 2299 | SUB-TOTAL | - | 144,000 | - | - | - | 144,000 | - | 25,000 | 119,000 | - | - | 144,000 |
| 2300 | Sub-contracts (for commercial purposes) | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|--------------------------------|---|---------------|------------------|---------------|---|---|------------------|---------------|---------------|----------------|------------------|---------------|------------------|
| 2301 | sub-contract shoreline revegetation | | 16,400 | | | | 16,400 | - | 8,000 | 8,400 | - | - | 16,400 |
| 2302 | Sub-contract consultancy firm | | 35,000 | | | | 35,000 | 35,000 | - | - | - | - | 35,000 |
| 2304 | sub-contract coastal engineering firm | | 1,120,000 | | | | 1,120,000 | - | - | - | 1,120,000 | - | 1,120,000 |
| 2305 | sub-contract coastal engineering firm | | 700,000 | | | | 700,000 | - | - | - | 700,000 | - | 700,000 |
| 2399 SUB-TOTAL | | - | 1,871,400 | - | - | - | 1,871,400 | 35,000 | 8,000 | 8,400 | 1,820,000 | - | 1,871,000 |
| 2999 COMPONENT TOTAL | | - | 2,015,400 | - | - | - | 2,015,400 | 35,000 | 33,000 | 127,400 | 1,820,000 | - | 2,015,400 |
| 30 TRAINING COMPONENT | | | | | | | | | | | | | |
| 3200 TRAINING WORKSHOPS | | | | | | | | | | | | | |
| 3202 | Training on ecotourism | | 40,000 | | | | 40,000 | - | - | - | 40,000 | - | 40,000 |
| 3203 | Training workshops on mainstreaming | | | 20,000 | | | 20,000 | - | - | - | - | 20,000 | 20,000 |
| 3204 | sectoral training workshops | | | 20,000 | | | 20,000 | 20,000 | - | - | - | - | 20,000 |
| 3205 | Ngo training workshops | | | 20,000 | | | 20,000 | - | - | - | - | 20,000 | 20,000 |
| 3206 | Private sector training workshops | | | 20,000 | | | 20,000 | - | - | - | - | 20,000 | 20,000 |
| 3301 | VA Training workshop | 15,000 | | | | | 15,000 | 15,000 | - | - | - | - | 15,000 |
| 3302 | Training workshop on production systems outlook | 15,000 | | | | | 15,000 | 15,000 | - | - | - | - | 15,000 |
| 3303 | Beekeeping training workshops | | 40,000 | | | | 40,000 | - | - | 40,000 | - | - | 40,000 |
| 3299 SUB-TOTAL | | 30,000 | 80,000 | 80,000 | - | - | 190,000 | 50,000 | - | 40,000 | 40,000 | 60,000 | 190,000 |

| 3300 MEETINGS/CONFERENCES | | | | | | | | | | | | | |
|--|--|----------------|----------------|---------------|---------------|----------|----------------|---------------|----------------|---------------|---------------|---------------|----------------|
| 3303 | ICZM coordination meetings | 40,000 | | | | | 40,000 | - | 40,000 | - | - | - | 40,000 |
| 3304 | Adaptation planning consultation meetings | 34,000 | | | | | 34,000 | - | 16,000 | 18,000 | - | - | 34,000 |
| 3306 | Fisheries Meetings and workshops | | 32,000 | | | | 32,000 | - | - | - | 32,000 | - | 32,000 |
| 3307 | meetings and workshops (forest management) | | 12,000 | | | | 12,000 | - | 3,000 | 9,000 | - | - | 12,000 |
| 3308 | community meetings and workshops | | 80,000 | | | | 80,000 | - | 40,000 | 40,000 | - | - | 80,000 |
| 3310 | PSC and project meetings | | | | 16,797 | | 16,797 | 4,297 | 3,500 | 3,000 | 3,000 | 3,000 | 16,797 |
| 3399 SUB-TOTAL | | 74,000 | 124,000 | - | 16,797 | - | 214,797 | 4,297 | 102,500 | 70,000 | 35,000 | 3,000 | 214,797 |
| 3999 COMPONENT TOTAL | | 104,000 | 204,000 | 80,000 | 16,797 | - | 404,797 | 24,297 | 102,500 | 70,000 | 75,000 | 63,000 | 334,797 |
| 40 MATERIALS AND EQUIPEMENT COMPONENT | | | | | | | | | | | | | |
| 4100 EXPENDABLE EQUIPMENT | | | | | | | | | | | | | |
| 4105 | reforestation materials | | 30,000 | | | | 30,000 | - | 10,000 | 20,000 | - | - | 30,000 |
| 4199 SUB-TOTAL | | - | 30,000 | - | - | - | 30,000 | - | 10,000 | 20,000 | - | - | 30,000 |
| 4200 NON-EXPENDABLE EQUIPMENT | | | | | | | | | | | | | |
| 4201 | materials and equipment (ecotourism) | | 70,000 | | | | 70,000 | - | - | - | 35,000 | 35,000 | 70,000 |

| | | | | | | | | | | | | | |
|---------------------------------------|--|---------------|----------------|----------------|---|----------------|----------------|---------------|----------------|----------------|---------------|---------------|----------------|
| 4202 | Vehicle and maintenance for supervision of works | | 173,000 | | | | 173,000 | 93,000 | 20,000 | 20,000 | 20,000 | 20,000 | 173,000 |
| 4203 | Materials and equipment (resilient agriculture) | | 240,000 | | | | 240,000 | - | 80,000 | 160,000 | - | - | 240,000 |
| 4205 | Beekeeping equipment | | 100,000 | | | | 100,000 | - | - | 100,000 | - | - | 100,000 |
| 4208 | Fisheries materials | | 150,000 | | | | 150,000 | - | - | 150,000 | - | - | 150,000 |
| 4299 SUB-TOTAL | | - | 733,000 | - | - | - | 733,000 | 93,000 | 100,000 | 430,000 | 55,000 | 55,000 | 733,000 |
| 4999 COMPONENT TOTAL | | - | 763,000 | - | - | - | 763,000 | 93,000 | 110,000 | 450,000 | 55,000 | 55,000 | 763,000 |
| 50 MISCELLANEOUS COMPONENT | | | | | | | | | | | | | |
| 5300 REPORTING COSTS | | | | | | | | | | | | | |
| 5301 | Printing (maps) | 5,000 | | | | | 5,000 | 5,000 | - | - | - | - | 5,000 |
| 5302 | Printing, media costs | | | 92,000 | | | 92,000 | 20,000 | 20,000 | 20,000 | 20,000 | 12,000 | 92,000 |
| 5305 | Printing and reporting costs | 20,000 | 20,000 | 20,000 | | | 60,000 | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | 60,000 |
| 5399 SUB-TOTAL | | 25,000 | 20,000 | 112,000 | - | - | 157,000 | 37,000 | 32,000 | 32,000 | 32,000 | 24,000 | 157,000 |
| 5500 MONITORING AND EVALUATION | | | | | | | | | | | | | |
| 5581 | audit | | | | | 17,500 | 17,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 17,500 |
| 5582 | IC-Baseline study | | | | | 45,000 | 45,000 | 45,000 | - | - | - | - | 45,000 |
| 5583 | Mid-term evaluation | | | | | 35,000 | 35,000 | - | - | - | 35,000 | - | 35,000 |
| 5584 | Final evaluation | | | | | 35,000 | 35,000 | - | - | - | - | 35,000 | 35,000 |
| 5599 SUB-TOTAL | | - | - | - | - | 132,500 | 132,500 | 38,500 | 3,500 | 3,500 | 38,500 | 38,500 | 132,500 |
| 5999 COMPONENT TOTAL | | 25,000 | 20,000 | 112,000 | - | 132,500 | 289,500 | 85,500 | 35,500 | 35,500 | 70,500 | 62,500 | 289,500 |

| | | | | | | | | | | | | | |
|----------------------|----------------|------------------|----------------|--|-------------|-------------|---------------|-------------|-------------|---------------|---------------|-------------|---------------|
| | | | | | 00 | 0 | 0 | 0 | | | 0 | 0 | |
| | | | | | | | | | | | | | |
| PROJECT TOTAL | 579,283 | 3,684,220 | 727,500 | | 213,9 97 | 132,5 00 | 5,337,5 00 | 612,4 86 | 702,6 07 | 1,085,8 19 | 2,303,2 94 | 633,2 94 | 5,337,0 00 |

Budget Notes *All consultancies are calculated on the basis of lump sum agreements inclusive of 25% of travel.*

- 1 Costs of project coordinator; split between outcomes (60%) and project management (40%)
- 2 Costs of a part-time Monitoring and Evaluation Officer
- 3 Costs of training for local government authorities on CCA and VA in Coastal Zones and perform 4 CC VRA studies using participatory vulnerability assessment tool DIVA (DINAS-Coast) and VIA guidelines (PROVIA)
- 4 Consultant to support the development of an assessment of CC impacts to coastal ecosystems and their services for the four regions and to assist in the development of downscaled climate scenarios using data available from the National Communications and National Met service, for the east and western coastal zones. .
- 5 Consultants to perform downscaled climate scenarios using data available from the National Communications and National Met service, for the east and western coastal zones.
- 6 Consultant to establish a map of inundate-able zones in 4 coastal regions
- 7 Consultant o establish a map of inundate-able zones in 4 coastal regions
- 8 International Consultant to develop and deliver training on and development of a production systems outlook for 2050 for the top non-rice agricultural value-chains: fisheries, cassava,peanuts, banana
- 19 National Consultants to develop and deliver training on and development of a production systems outlook for 2050 for the top non-rice agricultural value-chains: fisheries, cassava,peanuts, banana
- 10 National consultants to support the creation of a coordination mechanism (in Antsinanana, Vatovavy Fitovinany and Boeny) for adaptation and ICZM at the regional level building on existing coordination platforms (including national ICZM platform);and to integrate adaptation issues into the existing coordination mechanism in Menabe.
- 11 National consultants to support the creation of a coordination mechanism (in Antsinanana, Vatovavy Fitovinany and Boeny) for adaptation and ICZM at the regional level building on existing coordination platforms (including national ICZM platform);and to integrate adaptation issues into the existing coordination mechanism in Menabe.
- 12 National consultants to identify recommended adaptation actions at regional level on the basis of vulnerability assessments, models and studies under activities 1,2,3 and 4

- 13 Chief technical advisor for the project
- 14 National fisheries specialist to negotiate new fishing calendars and assist in the implementation of sustainable fisheries practices
- 15 National consultant to support the development of sound forest management practices, including development of woodlots, reduced deforestation in mangroves
- 16 National Experts to promote diversification of crops and climate-smart agriculture, such as vegetable production, improved crop varieties, improved cultivation techniques, in 8 communes in the four regions
- 17 National experts to support the development of beekeeping
- 18 International consultant to develop and implement a training programme on integrating environmental and climate change concerns into legislation and regulation for national and regional parliamentarians and district/regional administrations
- 19 National consultant to develop and implement a training programme on integrating environmental and climate change concerns into legislation and regulation for national and regional parliamentarians and district/regional administrations
- 20 International consultant to develop and implement a series of sectoral training programmes on climate change adaptation (agriculture, tourism, infrastructure, water, fisheries and forestry).
- 21 National consultant to develop and implement a series of sectoral training programmes on climate change adaptation (agriculture, tourism, infrastructure, water, fisheries and forestry).
- 22 National consultant to help revise EIA texts and procedures
- 23 IC to help revise the fisheries law and the protected areas law to take into account the results of vulnerability studies and adaptation measures identified in Component 1
- 24 NC to revise the fisheries law and the protected areas law to take into account the results of vulnerability studies and adaptation measures identified in Component 1
- 25 National experts to revise regional development planning frameworks in 4 coastal regions to integrate climate change resilience and adaptation concerns.
- 26 National experts to review and revise the national ICZM strategy and policy, in light of regional strategies developed in component 1, working with the national ICZM committee.
- 27 International Consultant to help review and revise the national ICZM strategy and policy, in light of regional strategies developed in component 1, working with the national ICZM committee.
- 28 National expert to support the development of a strategy to explore opportunities for upscaling and financing coastal adaptation including through public-private partnership and financing.
- 29 Regional technicians serving as focal points for the project in each region, seconded from MEF

- 30 Ecologists to complete an assessment of CC impacts to coastal ecosystems and their services for the four regions.
- 31 National communications advisor to design and deploy an outreach and awareness raising campaign at regional and national level (for general public)
- 32 International consultant to help promote diversification of crops and climate-smart agriculture, such as vegetable production, improved crop varieties, improved cultivation techniques, in 8 communes in the four regions
- 33 NC to support the implementation of sustainable ecotourism practices
- 34 International expert on ecotourism development
- 35 Support for financial management for the project
- 36 Travel for project management unit
- 37 Sub-contract with an NGO for mangrove rehabilitation inclusive of EIA costs
- 38 Sub-contract for undertaking shoreline revegetation inclusive of EIA costs
- 39 Sub-contract for undertaking a participatory study on the cost effectiveness, gender dynamics and resilience of proposed alternative livelihoods options
- 40 Sub-contract for the rehabilitation of the sea wall, inclusive of EIA costs
- 41 Sub-contract for the restoration and completion of the existing system of protection combining groyne and sea walls in City of Toamasina (1.1 km), including feasibility and EIA
- 42 Training workshop for private sector and NGOs on ecotourism
- 43 Training workshops on mainstreaming climate change adaptation into planning processes
- 44 Regional sectoral training programmes on climate change adaptation (agriculture, tourism, infrastructure, water, fisheries and forestry).
- 45 Awareness raising seminars for NGOs on adaptation, ecosystem-based adaptation, climate change and development
- 46 Training workshops for private sector on climate change and investment planning (tourism, fisheries)
- 47 Training on vulnerability assessments using DIVA or PROVIA methodologies
- 48 Training on production systems outlooks for regional officers
- 49 Meetings on the development of ICZM coordination mechanisms
- 50 Meetings and workshops on development of regional adaptation plans
- 51 Meetings and workshops on the development of new fisheries calendars and fisheries practices

- 52 Meetings on forest management
- 53 Community meetings on agriculture
- 54 Project Steering committee meetings
- 55 Biomass and materials for reforestation
- 56 materials and equipment for installation of ecotourism facilities
- 57 vehicle for project works supervision with annual maintenance and repair costs
- 58 materials, equipment and implements for the implementation of resilient agricultural practices
- 59 beekeeping materials
- 60 fisheries materials, including nets, boats, traps, etc
- 61 printing costs for maps of inundatable areas
- 62 costs of an awareness raising campaign
- 63 Regular costs of printing and reporting for project outputs, studies, reports
- 64 Annual audit costs
- 65 Costs of a baseline study
- 66 Mid-term evaluation
- 67 Final evaluation

ANNEX F-2- DETAILED CO-FINANCING BUDGET

| Adapting Coastal Zone management to Climate Change considering ecosystem and livelihoods | | | | | | | | |
|---|---|----------------|--------------------|--------------------------|----------------|---------------------|----------------|-------------------|
| APPENDIX 2 - Co-financing | | | | | | | | |
| Project title: Adapting Coastal Zone management to Climate Change considering ecosystem and livelihoods | | | | | | | | |
| Project number: | | | | | | | | |
| Project executing partner: Ministère de l'Environnement et des Forêts | | | | | | | | |
| Project implementation period: | | | | | | | | |
| From: | Jun-14 | | | | | | | |
| To: | July-19 | | | | | | | |
| 0 | 0 | Total | MinA gri IK | MinAgri Progra ms | MEF IK | MEF Programs | UNEP | TOTAL Co\$ |
| 0 | 0 | 0 | - | - | - | - | - | - |
| 11 PERSONNEL COMPONENT | | 0 | - | - | - | - | - | - |
| 1101 | PROJECT COORDINATOR | 87,200 | - | - | 100,000 | - | 400,000 | 500,000 |
| 1103 | M&E Officer | 16,200 | - | - | - | - | - | - |
| 1199 | SUBTOTAL | 103,400 | - | - | 100,000 | - | 400,000 | 500,000 |
| 0 | | - | - | - | - | - | - | - |
| 12 CONSULTANTS | | - | - | - | - | - | - | - |
| 1201 | IC - VA Trainer | 41,250 | - | 500,000 | 100,000 | - | 300,000 | 900,000 |
| 1202 | IC - climate modelling specialist | 13,750 | - | - | 300,000 | - | - | 300,000 |
| 1203 | NC - climatologists (2) | 18,750 | - | - | - | - | - | - |
| 1204 | NC - land use planner | 12,500 | - | - | - | 80,000 | - | 80,000 |
| 1205 | NC - Hydrologist | 12,500 | - | - | - | - | - | - |
| 1206 | IC - Production systems outlook specialist | 44,688 | - | - | 300,000 | - | - | 300,000 |
| 1207 | NC - agriculture specialists (2) | 73,500 | - | - | - | - | - | - |
| 1208 | NC - coastal zone governance experts (2) | 37,500 | - | - | 800,000 | - | - | 800,000 |
| 1209 | NC - coastal adaptation specialist | 31,250 | - | - | - | - | - | - |
| 1210 | NC - adaptation planning specialist (4) | 33,875 | - | - | - | 200,000 | - | 200,000 |
| 1211 | IC - Chief Technical Advisor | 123,000 | - | - | - | - | - | - |
| 1212 | NC - Coastal Fisheries specialists | 96,875 | 500,000 | 3,500,000 | - | 100,000 | - | 100,000 |
| 1213 | NC-Community-based forest management specialist | 50,625 | - | - | - | 100,000 | - | 100,000 |
| 1214 | NC-Agronomers (4) | 200,000 | - | - | - | - | - | - |

| | | | | | | | | |
|-----------------------------------|---|------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| 1215 | NC - beekeeping specialists | 87,500 | - | - | - | - | - | - |
| 1216 | IC - climate change policy and planning specialist | 48,125 | - | - | 50,000 | 200,000 | 300,000 | 550,000 |
| 1217 | NC - governance specialist | 25,000 | - | - | - | - | - | - |
| 1218 | IC - climate change training specialist | 27,500 | - | 500,000 | - | - | - | 500,000 |
| 1219 | NC - climate change training specialist | 37,500 | - | - | - | 500,000 | - | 200,000 |
| 1220 | NC - EIA specialist | 18,750 | - | - | 100,000 | 100,000 | - | 200,000 |
| 1221 | IC - climate change law specialist | 27,500 | - | - | 200,000 | - | - | 200,000 |
| 1222 | NC - legal and governance experts | 37,500 | - | - | - | - | - | - |
| 1223 | NC - government planning experts | 37,500 | - | 500,000 | - | 50,000 | - | 550,000 |
| 1224 | NC - ICZM planning experts | 37,500 | - | - | - | - | - | - |
| 1225 | IC - ICZM expert | 27,500 | - | - | - | - | - | - |
| 1226 | NC - government finance expert | 28,125 | - | - | - | - | - | - |
| 1228 | Regional Technicians (4) | 57,640 | - | - | - | - | - | - |
| 1229 | NC - ecologist | 50,000 | - | - | - | 800,000 | - | 800,000 |
| 1230 | NC - communications specialist | 60,000 | - | - | - | - | - | - |
| 1231 | IC - climate change and agriculture specialist | 82,500 | - | - | - | - | - | - |
| 1232 | NC - tourism specialist | 25,000 | - | - | - | - | - | - |
| 1232 | IC - ecotourism expert | 55,000 | - | - | - | - | - | - |
| 1299 | SUB TOTAL | 1,560,203 | 500,000 | 5,000,000 | 1,850,000 | 2,130,000 | 600,000 | 5,780,000 |
| 0 | | - | - | - | - | - | - | - |
| 13 ADMINISTRATIVE SUPPORT | | - | - | - | - | - | - | - |
| 1301 | Finance and Administration Specialist | 30,000 | - | - | - | - | - | - |
| 1302 | Logistics/driver | 16,200 | - | - | - | - | - | - |
| 1399 | SUB-TOTAL | 46,200 | - | - | - | - | - | - |
| 0 | | - | - | - | - | - | - | - |
| 16 TRAVEL | | - | - | - | - | - | - | - |
| 1603 | Travel for PM | 20,000 | - | - | 120,000 | - | - | 120,000 |
| 1699 | SUB-TOTAL | 20,000 | - | - | 120,000 | - | - | 120,000 |
| 1999 COMPONENT TOTAL | | 1,729,803 | 500,000 | 5,000,000 | 2,070,000 | 2,130,000 | 1,000,000 | 6,400,000 |
| 0 | | - | - | - | - | - | - | - |
| 0 | | - | - | - | - | - | - | - |
| 20 SUB-CONTRACTS COMPONENT | | - | - | - | - | - | - | - |
| 2200 | Sub-contracts (MOUs/LOAs for supporting organizations) | - | - | - | - | - | - | - |
| 2201 | Sub-contract NGO mangrove rehabilitation | | - | - | - | 500,000 | - | 500,000 |

| | | | | | | | | |
|--|---|------------------|---|---|---------------|------------------|---|------------------|
| | | 144,000 | | | | | | |
| 2299 SUB-TOTAL | - | 144,000 | - | - | - | 500,000 | - | 500,000 |
| 0 | - | - | - | - | - | - | - | - |
| 2300 | Sub-contracts (for commercial purposes) | - | - | - | - | - | - | - |
| 2301 | sub-contract shoreline revegetation | 16,400 | - | - | - | 500,000 | - | 500,000 |
| 2302 | Sub-contract consultancy firm | 35,000 | - | - | - | - | - | - |
| 2304 | sub-contract coastal engineering firm | 1,200,000 | - | - | - | 250,000 | - | 250,000 |
| 2305 | sub-contract coastal engineering firm | 700,000 | - | - | - | - | - | - |
| 2399 SUB-TOTAL | | 1,951,400 | - | - | - | 750,000 | - | 750,000 |
| 2999 COMPONENT TOTAL | | 2,095,400 | - | - | - | 1,250,000 | - | 1,250,000 |
| 0 | | - | - | - | - | - | - | - |
| 30 TRAINING COMPONENT | | - | - | - | - | - | - | - |
| 3200 TRAINING WORKSHOPS | | - | - | - | - | - | - | - |
| 3202 | Training on ecotourism | 40,000 | - | - | - | - | - | - |
| 3203 | Training workshops on mainstreaming | 20,000 | - | - | - | - | - | - |
| 3204 | sectoral training workshops | 20,000 | - | - | - | - | - | - |
| 3205 | Ngo training workshops | 20,000 | - | - | - | - | - | - |
| 3206 | Private sector training workshops | 20,000 | - | - | - | - | - | - |
| 3301 | VA Training workshop | 15,000 | - | - | - | - | - | - |
| 3302 | Training workshop on production systems outlook | 15,000 | - | - | - | - | - | - |
| 3303 | Beekeeping training workshops | 40,000 | - | - | - | - | - | - |
| 3299 SUB-TOTAL | | 190,000 | - | - | - | - | - | - |
| 0 | | - | - | - | - | - | - | - |
| 3300 MEETINGS/CONFERENCES | | - | - | - | - | - | - | - |
| 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3303 | ICZM coordination meetings | 40,000 | - | - | - | - | - | - |
| 3304 | Adaptation planning consultation meetings | 34,000 | - | - | - | - | - | - |
| 3306 | Fisheries Meetings and workshops | 32,000 | - | - | - | - | - | - |
| 3307 | meetings and workshops (forest management) | 12,000 | - | - | - | - | - | - |
| 3308 | community meetings and workshops | 80,000 | - | - | - | - | - | - |
| 3310 | PSC and project meetings | 16,797 | - | - | 60,000 | - | - | 60,000 |
| 3399 SUB-TOTAL | | 214,797 | - | - | 60,000 | - | - | 60,000 |
| 3999 COMPONENT TOTAL | | 404,797 | - | - | 60,000 | - | - | 60,000 |
| 0 | | - | - | - | - | - | - | - |
| 40 MATERIALS AND EQUIPEMENT COMPONENT | | - | - | - | - | - | - | - |

| | | | | | | | | |
|---------------------------------------|--|------------------|----------------|------------------|------------------|------------------|------------------|-------------------|
| 4100 EXPENDABLE EQUIPMENT | | - | - | - | - | - | - | - |
| 4105 | reforestation materials | 30,000 | - | - | - | - | - | - |
| 4199 SUB-TOTAL | | 30,000 | - | - | - | - | - | - |
| 0 | | - | - | - | - | - | - | - |
| 4200 NON-EXPENDABLE EQUIPMENT | | - | - | - | - | - | - | - |
| 4201 | materials and equipment (ecotourism) | 70,000 | - | - | - | - | - | - |
| 4202 | Vehicle and maintenance for supervision of works | 173,000 | - | - | - | - | - | - |
| 4203 | Materials and equipment (resilient agriculture) | 320,000 | - | - | - | - | - | - |
| 4205 | Beekeeping equipment | 100,000 | - | - | - | - | - | - |
| 4208 | Fisheries materials | 150,000 | - | - | - | - | - | - |
| 4299 SUB-TOTAL | | 813,000 | - | - | - | - | - | - |
| 4999 COMPONENT TOTAL | | 843,000 | - | - | - | - | - | - |
| 0 | | - | - | - | - | - | - | - |
| 50 MISCELLANEOUS COMPONENT | | - | - | - | - | - | - | - |
| 5300 REPORTING COSTS | | - | - | - | - | - | - | - |
| 5301 | Printing (maps) | 5,000 | - | - | - | - | - | - |
| 5302 | Printing, media costs | 92,000 | - | - | - | - | - | - |
| 5305 | Printing and reporting costs | 60,000 | - | - | - | - | - | - |
| 5399 SUB-TOTAL | | 157,000 | - | - | - | - | - | - |
| 5500 MONITORING AND EVALUATION | | - | - | - | - | - | - | - |
| 5581 | audit | 12,500 | - | - | - | - | - | - |
| 5582 | IC-Baseline study | 35,000 | - | - | - | - | - | - |
| 5583 | Mid-term evaluation | 30,000 | - | - | 20,000 | - | - | 20,000 |
| 5584 | Final evaluation | 30,000 | - | - | 20,000 | - | - | 20,000 |
| 5599 SUB-TOTAL | | 107,500 | - | - | 40,000 | - | - | 40,000 |
| 5999 COMPONENT TOTAL | | 264,500 | - | - | 40,000 | - | - | 40,000 |
| 0 | | - | - | - | - | - | - | - |
| PROJECT TOTAL | | 5,337,500 | 500,000 | 5,000,000 | 2,170,000 | 3,380,000 | 1,000,000 | 12,050,000 |

ANNEX G- MONITORING AND EVALUATION BUDGET AND WORKPLAN

| COSTED M&E PLAN | | | |
|--|---|--|--|
| M&E activity | Responsibility | Budget US\$ Excluding project team staff time | Time frame |
| Inception Workshop | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNEP ▪ CTA ▪ M&E Clerk | \$3,000 | Two months after project approval |
| Inception Report | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ CTA ▪ M&E Clerk | None | One month after Inception Workshop |
| Baseline Study | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ CTA ▪ UNEP ▪ M&E Clerk | \$ 45,000 | No more than 6 months after project start. |
| Measurement of Means of Verification for Project Progress on output and implementation | <ul style="list-style-type: none"> ▪ Oversight by Project Coordinator ▪ Project team ▪ M&E Clerk | To be determined as part of the annual work plan preparation | Annually prior to PIR and to the definition of annual work plans |
| Periodic monitoring of implementation progress | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ M&E Clerk | None | Quarterly |
| Periodic Progress reports | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ M&E Clerk | None | Quarterly |
| Project Implementation Review (PIR) | <ul style="list-style-type: none"> ▪ PC ▪ CTA ▪ UNEP ▪ M&E Clerk ▪ FMO | None | Annually |
| Mid term Review/ Evaluation (MTR/MTE) | <ul style="list-style-type: none"> ▪ UNEP TM/UNEP evaluation office ▪ External Consultant ▪ M&E Clerk ▪ Project Coordinator | \$35,000 | Mid way through project implementation. |
| Terminal Evaluation | <ul style="list-style-type: none"> ▪ UNEP Evaluation office | \$35,000 | Close to the end of project implementation |
| Project Terminal Report | <ul style="list-style-type: none"> ▪ Project Coordinator ▪ M&E Clerk | None | At least three months before the end of the project |
| Audit | <ul style="list-style-type: none"> ▪ Government ▪ Project manager ▪ M&E Clerk | Indicative cost : 3,500 USD per year (17,000) | Yearly |

COSTED M&E PLAN

| M&E activity | Responsibility | Budget US\$ Excluding project team staff time | Time frame |
|-----------------------------|--|---|-------------------|
| Visits to the project sites | <ul style="list-style-type: none">▪ UNEP, Government representatives▪ M&E Clerk | For UNEP Task Manager it is paid by the IA fees and operational budget. | Yearly |
| Total Indicative Cost | | 132,500 | |

ANNEX H – PROJECT IMPLEMENTATION ARRANGEMENTS

Implementing and Executing Agencies

108. UNEP will be the Implementing Agency (IA) for this proposed project and will be responsible for overseeing and monitoring the project implementation process as per its rules and procedures, including technical back stopping. It will work in close collaboration with the Ministry of Environment and Forests, which houses the Directorate of Climate Change (DCC), who acts as the Executing Agency for the project. The Executing Agency will be responsible for the achievement of project outputs and outcomes, day to day management and coordination of project activities and inputs, as well as for the reporting on achievement of project objectives. The Executing Agency will be responsible for entering into agreements with other partners, as well as for ensuring that co-financing contributions from the Government of Madagascar and external sources materialize as planned.

National Project Director (NPD)

109. The Director of the DCC will serve as the National Project Director (NPD). The NPD will ensure a continued cohesion between the project and the mandate of the MEF and provide additional linkages and interactions with high level policy components within the Government. He/she will follow up on, supervise and coordinate the contributions of the Government of Madagascar.

Project Coordinating Unit (PCU)

Project execution will be ensured by a Project Coordination Unit (PCU) comprised of a project Coordinator, a financial and administrative assistant and a Monitoring and Evaluation officer. At the regional level, the PCU will be assisted by regional technicians delegated by the regional MEF antenna, who will provide technical support for project implementation. The PCU will also serve as a focal point to coordinate activities between ministries and stakeholders for project implementation.

Project Coordinator (PC)

110. The project will hire a full time PC who will lead and direct the PCU. The PC will bring in administrative experience and technical expertise in at least one of the disciplines relevant to the project and will be responsible for the day to day execution and management including the financial management of the project and the preparation of all due reports. He/she will be provided with administrative/logistical support staff assistance. The PC will carry out all of the above functions under the direct supervision of the NPD. In addition, the PC will report to the UNEP Task Manager on progress and challenges during execution.

Chief Technical Advisor (CTA)

111. A Chief Technical Advisor (CTA) will be hired by the project and will function as a member of the PCU. The CTA will provide the following services: i) quality assurance and technical review of project outputs (e.g. studies and assessments); ii) assist in drafting TORs for technical consultancies and supervision of consultants work; iii) assist in monitoring the technical quality of project M&E systems, including annual work plans, indicators and targets; iv) advice on best suitable approaches and methodologies for achieving project targets and objectives; v) provide a technical supervisory function to the work carried out by other technical assistance consultants hired by the project; and vi) assist in knowledge management, communications and awareness raising. The CTA will report to the PD and will participate in the meetings of the PSC as a resource person.

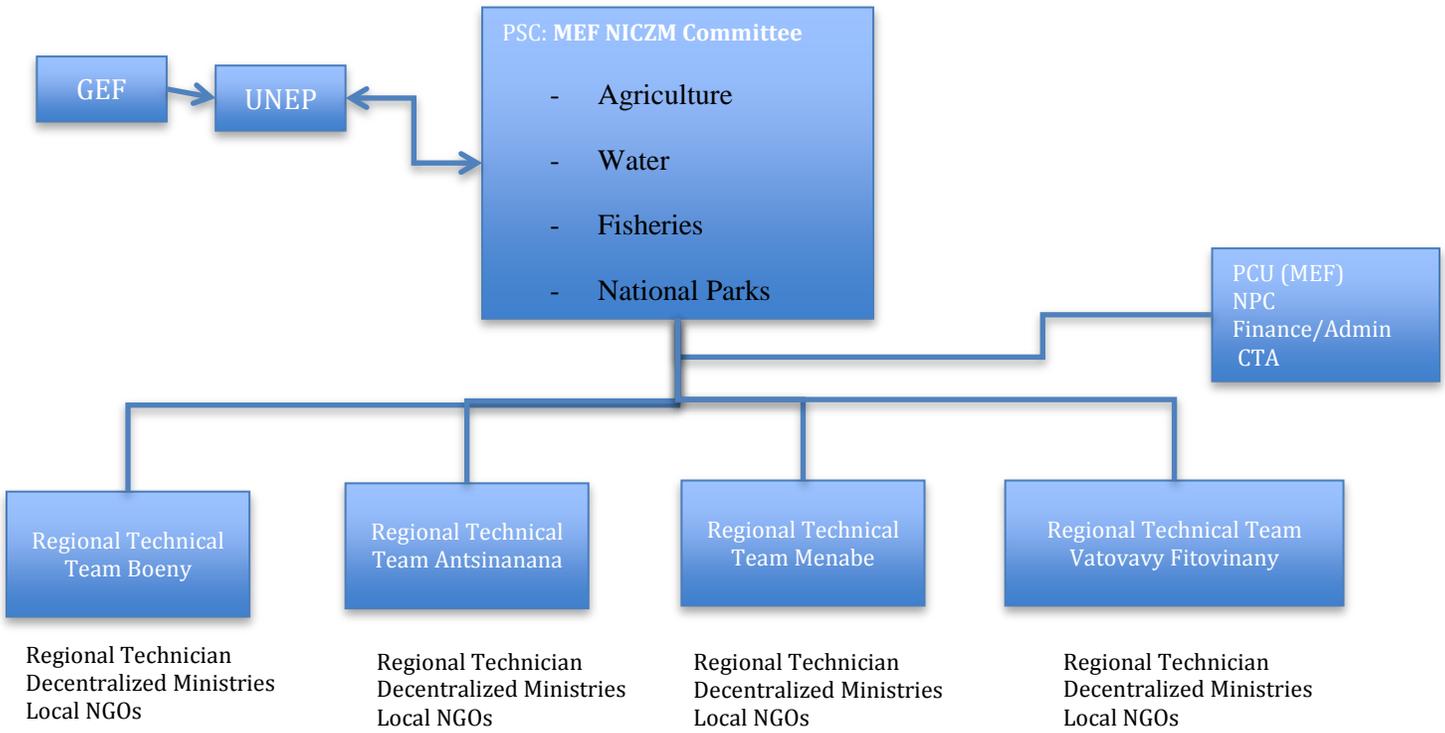
Project Steering Committee (PSC)

112. A Project Steering Committee (PSC) will be appointed at the beginning of the project, and will be chaired by the Executing Agency. The PSC will play an oversight role, and provide support, policy guidance

and supervision for the project. Specifically, it will consider, approve and validate the project's annual work plans, budgets and procurement plans, as well as all progress, monitoring, evaluation and final reports. It should be multi-disciplinary and multi-stakeholder in its composition to include members with disciplinary expertise required by the project and representatives of NGO, CBO, the Private Sector, and government institutions and departments such as the Ministries of Water, Agriculture, Fisheries, Environment, Public Works, the Regional and National ICZM committee chairpersons, the Ministry in charge of Finance, Economic Planning and Industrial Development, and representatives from the regional authorities. UNEP will be a full-fledged member of the PSC.

113. The expected contribution of the PSC members is to facilitate the implementation of the project activities in their respective agencies as appropriate, and ensure that activities are implemented in a timely manner and facilitate the integration of project inspired activities into existing programmes and practices. The PSC will meet at least once annually and will be expected to review implementation progress and to address any challenges or major changes in implementation plans.
114. Both the PC and the NPD will be members of the PSC with the latter serving as its chair, while the PC will serve as its secretary. The PSC will have the authority to establish sub-committees or Task Teams in order to provide sectoral or thematic guidance to project implementation. Task teams will comprise relevant PSC members as well as technical advisors or consultants recruited through the project.
115. Where necessary, regional coordinating committees will be established at the regional level, to ensure local level coordination and linkages. Regional coordinating committees will be supported by local technicians who will be recruited by the project and who will act as focal points for the project activities in their respective regions, acting as a relay between the PCU and the regional partner institutions. Regional committees will also include, where feasible, representatives of other ongoing projects, so as to ensure continued dialogue and coordination.
116. A Project Managers' Coordination Working Group (PMCWG) will be established to improve the coordination and dialogue between the ongoing projects including the AF one implemented by UNEP. The PMCWG will include the CTA, the managers of the baseline projects and representatives of other aligned projects (see Section 2.8). Meetings for the PMCWG will be held twice a year. They will work towards: i) promoting synergy between projects; ii) preventing the duplication of activities; iii) optimising the effects of the project interventions; and iv) sharing lessons learned.
117. During the project implementation, the Executing Agency (MEF) will enter on behalf of the project into agreements with other relevant ministries in order to delegate the delivery of sector specific activities, and to ensure the integration of project activities into the program of work of different ministries. As such, infrastructure works will be expected to be carried out under the responsibility and supervision of the Ministry of Public Works, and activities designed to explore and implement alternative livelihoods will be delivered by and through the Regional Rural Development Directorates (MinAg) and its procedures. However, the MEF will remain responsible for the use of resources, and for the application of adequate social and environmental safeguards, including the application of environmental impact assessment requirements.

FIGURE 1: PROJECT MANAGEMENT STRUCTURE



ANNEX I – DETAILED PROJECT WORKPLAN SHOWING DELIVERABLES AND BENCHMARKS

| Component | Outcome/Outputs/Activities | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | | Year 5 | | | |
|--|---|--------|----|----|----|--------|----|----|----|--------|----|----|----|--------|----|----|----|--------|----|----|----|
| | | Q1 | Q2 | Q3 | Q4 |
| 0 | 0 | Q1 | Q2 | Q3 | Q4 |
| 0 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1. Institutional Capacity Development | 1. Strengthened institutional capacity to address climate change impacts in project sites (Menabe, Boeny, Vatovavy Fitovinany, Atsinanana) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.1 Climate change vulnerability and risks for the four coastal regions (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) are identified. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1. Training for local government authorities on CCA and VA in Coastal Zones and perform 4 CC VRA studies using participatory vulnerability assessment tool DIVA (DINAS-Coast) and VIA guidelines (PROVIA), including the identification of potential adaptation measures. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1b. Complete an assessment of CC impacts to coastal ecosystems and their services for the four regions. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2. Perform downscaled climate scenarios using data available from the National Communications and National Met service, for the east and western coastal zones. | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3. Establish a map of inundate-able zones in 4 coastal regions | - | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4. Training on and development of a production systems outlook for 2050 for the top non-rice agricultural value-chains: fisheries, cassava,peanuts, banana | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

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|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10. Undertake shoreline stabilization in a total area of 300 ha along major protection infrastructure and coastal assets (2 km in Toamasina and 1 km in Manakara) (including cost of EIA) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2.2 Sustainable natural resource use practices and alternative livelihoods introduced in project sites | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11. Develop new fisheries calendars with local fishing communities and industries (incl. shrimping) on a pilot basis in two western regions | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12. Develop community-based natural forest regeneration, including community woodlots, and conservation plans | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 13. Awareness raising among coastal communities on coastal deforestation and sustainable land management | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 14. Introduce improved fish & crab production and techniques (e.g. mariculture) in Mahanjanga II, Belo sur Tsiribihina, Mahanoro, and Vatomandry Communes of Boeny, Menabe and Antsinanana | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 15. Introduce technologies and assets for promotion of beekeeping in and around mangroves in Bemanonga & Tsimafana communes (Menabe) and Mangatsiotra and Antsary communes (Vatovavy Fitovinany) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 16. Promote diversification of crops and climate-smart agriculture, such as vegetable production, improved crop varieties, improved cultivation | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| | | | | | | | | | | | | | | | | | | | | |
|---|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | techniques, in 8 communes in the four regions | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 17. Work with local communities to develop and implement investment plans to promote mangrove-based ecotourism in Boeny, Menabe and Vatovavy Fitovinany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2.3 <i>Technologies for protection and rehabilitation of coastal productive assets are demonstrated adjacent to restored ecosystems.</i> | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | 18. Construction and rehabilitation of 1 km sea wall in Manakara be (Vatovavy Fitovinany) including feasibility study and EIA | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | 19. Restore and complete the existing system of protection combining groyne and sea walls in City of Toamasina (1.1 km), including feasibility and EIA | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | 3. Climate change adaptation measures are mainstreamed into national and sectoral development strategies, and in non-state stakeholder actions. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 3. Upscaling and mainstreaming adaptation measures into national ICZM policies and development strategies | 3.1 <i>Training provided to increase institutional capacity of government officials to develop resilient standards, legislative instruments, norms and sectoral plans</i> | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | 20. Develop and implement a training programme on integrating environmental and climate change concerns into legislation and regulation for national and regional parliamentarians and district/regional | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

| | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| | | | | | | | | | | | | | | | | | | | | | | |
| | Final evaluation | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

ANNEX I – FOCAL AREA TRACKING TOOLS

Adaptation Tracking Tool (AMAT) available on separate file

ANNEX K – OFP LETTER OF ENDORSEMENT

available on separate file

ANNEX L - LETTERS OF CO-FINANCING

available on separate file

ANNEX M – ENVIRONMENTAL AND SOCIAL SAFEGUARDS CHECKLIST

UNEP/GEF Environmental and Social Safeguards Checklist

| | | | |
|--|--|------------------------------|--------------------|
| <i>Project Title:</i> | Adapting Coastal Zone management to Climate Change considering ecosystem and livelihoods | | |
| <i>GEF project ID and UNEP ID/IMIS Number</i> | | <i>Version of checklist</i> | |
| <i>Project status (preparation, implementation, MTE/MTR, TE)</i> | <i>PPG</i> | <i>Date of this version:</i> | <i>26 nov 2013</i> |
| <i>Checklist prepared by (Name, Title, and Institution)</i> | <i>Atifa Kassam, Task Manager, GEF CCAU, DEPI</i> | | |

In completing the checklist both short and long term impact shall be considered.

Section A: Project location

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | <i>Yes/No/N.A.</i> | <i>Comment/explanation</i> |
|------------------------------------|--------------------|--|
| Is the project area in or close to | | |
| densely populated area | YES | |
| cultural heritage site | NO | |
| protected area | NO | In Menabe there is one protected area more than 50 km south of the project site. |
| wetland | NO | |
| mangrove | YES | The project will work to rehabilitate mangroves and to establish buffer zones to limit their unsustainable use. Environmental impact study has been budgeted and will be performed prior to any works commencing. |
| estuarine | YES | The project works in estuary areas and will work to rehabilitate coastal environments while curbing unsustainable natural resource use inland. Environmental impact study has been budgeted and will be performed prior to any works commencing. |

| | | |
|--|----|--|
| buffer zone of protected area | NO | |
| special area for protection of biodiversity | NO | |
| Will project require temporary or permanent support facilities? | NO | |
| <i>If the project is anticipated to impact any of the above areas an Environmental Survey will be needed to determine if the project is in conflict with the protection of the area or if it will cause significant disturbance to the area.</i> | | |

Section B: Environmental impacts

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | <i>Yes/No/ N.A.</i> | <i>Comment/explanation</i> |
|--|-------------------------|--|
| Are ecosystems related to project fragile or degraded? | Yes | Fragile ecosystems such as mangroves, coastal forests and degraded shorelines will benefit from this project through rehabilitation and protection works |
| Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure? | No | |
| Will project cause impairment of ecological opportunities? | No | |
| Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters) | No | |
| Will project cause air, soil or water pollution? | No | |
| Will project cause soil erosion and siltation? | No | |
| Will project cause increased waste production? | No | |
| Will project cause Hazardous Waste production? | No | |
| Will project cause threat to local ecosystems due to invasive species? | No | |
| Will project cause Greenhouse Gas Emissions? | NO | |
| Other environmental issues, e.g. noise and traffic | No | |

Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long term, can the project go ahead.

Section C: Social impacts

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | <i>Yes/No/N.A.</i> | <i>Comment/explanation</i> |
|---|--------------------|---|
| Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people? | Yes | Consultations with Local Government and communities have been conducted. Regional governors were the ones to assist in identifying which villages should be used as pilot sites. Local village populations have volunteered their participation and villages will be further consulted throughout project implementation, including through participatory vulnerability impact assessments and participatory studies on cost effectiveness, gender dynamics and resilience of proposed alternative livelihood activities. |
| Are property rights on resources such as land tenure recognized by the existing laws in affected countries? | Yes | Land tenure arrangements are clear, however their application in certain parts of Madagascar is sometimes difficult. No land tenure issues are expected during this project, as activities will take part on public, non exploited lands. |
| Will the project cause social problems and conflicts related to land tenure and access to resources? | No | The project does not intend to implement activities that will impact on land tenure, land property or will change existing land use arrangements. Access to resources will be implemented as per current land tenure arrangements and any changes will be negotiated with the communities concerned. |
| Does the project incorporate measures to allow affected stakeholders' information and consultation? | Yes | Feedback is built into the project to ensure that stakeholders are shaping the project to meet their livelihoods and resilience needs. Ongoing feedback is foreseen throughout the project through participatory studies and local steering committees, as well as through the appointment of a project focal point person in each project site to facilitate resolution of issues. |
| Will the project affect the state of the targeted country's (ies') institutional context? | Yes | The project will enhance institutional coordination through improved collaboration and communication between government stakeholders on coastal zone and adaptation issues, including through support to the creation of ICZM committees at regional level. The project will also help revise |

| | | |
|--|--------------|--|
| | | laws that are inadequate to deal with climate change, and to assist in the development of coastal adaptation plans, and resilient regional development plans. |
| Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)? | YES | The project intends to develop mechanisms whereby overexploitation of fish stocks and mangroves is curbed, but replaced by other means of livelihoods for local communities. The project foresee no absolute loss of livelihoods for targeted communities. |
| Will the project cause technology or land use modification that may change present social and economic activities? | Not intended | |
| Will the project cause dislocation or involuntary resettlement of people? | No | |
| Will the project cause uncontrolled in migration (short and long term) with opening of roads to areas and possible overloading of social infrastructure? | No | |
| Will the project cause increased local or regional unemployment? | Yes | It is the hope that this project will help create conditions for new economic avenues that are sustainable and resilient, including ecotourism and other livelihoods means that will provide employment to people, outside of agriculture. |
| Does the project include measures to avoid forced or child labour? | Yes | In following UN standards, rules and regulations with regard to recruitment forced child labour will be avoided |
| Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project? | Yes | Satisfactory infrastructure with proper workstations and equipment, fair salaries, and adequate staff to ensure management of project without overburdening staff are part of the project design. |
| Will the project cause impairment of recreational opportunities? | No | |
| Will the project cause impairment of indigenous | No | |

| | | |
|--|-----|--|
| people's livelihoods or belief systems? | | |
| Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups? | No | The project will help reduce the exposure of climate vulnerable groups including women, children, farmers and fisherfolks. Active participation of vulnerable groups (women and youth) are planned for project implementation. |
| Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage? | No | |
| Does the project include measures to avoid corruption? | Yes | As per GoM Policies and UNEP norms and standards |
| <i>Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long term, can the project go ahead.</i> | | |

Section D: Other considerations

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | <i>Yes/No/N.A.</i> | <i>Comment/explanation</i> |
|---|--------------------|--|
| Does national regulation in affected country (ies) require EIA and/or ESIA for this type of activity? | Yes | An EIA has been planned and budgeted for each activity that involves physical work (rehabilitation of mangroves and shorelines, rehabilitation of sea wall). Furthermore the project will re-examine the EIA procedure to see if it can be improved for resilience considerations. |
| Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country (ies)? | Yes | Yes, the Ministry of Environment and Forests, the National Environment Agency and the Centre National de Recherche en Environment will all participate and lead on the development of EIAs. Independent EIAs will be performed for the key works, to ensure impartiality. |
| Is the project addressing issues, which are already addressed by other alternative approaches and projects? | No | |
| Will the project components generate or contribute to cumulative or long term environmental or social impacts? | Yes | This project seeks to improve resilience in coastal areas through a blend of hard and soft measures, combined with measures to enhance sustainable natural resource use, and to create an institutional and legislative conducive |

| | | |
|---|-----|--|
| | | environment for proactive adaptation. |
| Is it possible to isolate the impact from this project to monitor E&S impact? | Yes | The project indicators (SMART) are designed to measure the impacts of the project. |

ANNEX N – ACRONYMS AND ABBREVIATIONS

| | |
|-------------|---|
| ICZM | Integrated Coastal Zone Management |
| LDCF | Least Developed Country Fund |
| MAP | Madagascar Action Plan |
| MEF | Ministry of Environment and Forests |
| NAPA | National Adaptation Program of Action |
| NEAP | National Environment Action Plan |
| ONE | Office National de l'Environnement |
| PPRR | Rural Income Promotion Programme |
| PRDR(RRDP) | Regional Rural Development plan |
| PROSPERER | Programme de Soutien aux Pôles de Micro Entreprises Rurales et aux Économies Régionales |
| PRSP | Poverty Reduction Strategy Paper |
| RICZM | Regional ICZM committee |
| SAHA/MATTOY | Support Programme for Rural Development |
| UNEP | United Nations Environment Program |
| WIOMER | West Indian Ocean Marine Ecoregion |

ANNEX P – METHODOLOGY FOR CALCULATION OF CLIMATE CHANGE VULNERABILITY INDEX

Conceptual framework for the vulnerability index construction

The conceptual framework for the vulnerability analysis is based on the Intergovernmental Panel on Climate Change's definition of vulnerability: "*the degree, to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity; and its adaptive capacity*"⁹. Understanding vulnerability requires an integrated approach that considers both the physical risks (external climate effects) and social dimensions (susceptibility/ability to cope). Thus, vulnerability is best understood as an aggregate of three components:

- **Exposure** – nature and degree to which a system is exposed to significant climate variations.
- **Sensitivity** – responsiveness of a system to the climate variations (dependant on socio-economic and environmental conditions).
- **Adaptive capacity** – ability of a community to re-organise and minimise loss to cope with the effects of climate change. For the most part, this depends on whether the community has access to natural, financial, social, human and physical capital.

Calculation of the vulnerability index

The vulnerability index was calculated using the following equations:

- The exposure index was expressed as the sum of the scores for indicators (1– 6)
 $Exposure = (\sum_6^1 score_indicator)$
- The sensitivity index was expressed as the sum of the five indicator scores (7 – 11).
 $Sensitivity = (\sum_{11}^7 score_indicator)$
- The adaptive capacity index was expressed as the sum of the four indicator scores (12 – 15).
 $Adaptive\ Capacity = (\sum_{15}^{12} score_indicator)$
- The vulnerability index was expressed as the product of sensitivity and exposure minus adaptive capacity.

$$Vulnerability = (Exposure \times Sensitivity) - Adaptive\ capacity$$

⁹ IPCC, 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, P.J., Hanson, C.E. (Eds.) Cambridge University Press: Cambridge, UK, 976 pp.

