



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: LDCF

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PART I: PROJECT INFORMATION

Project Title:	Building shoreline resilience of Timor Leste to protect local communities and their livelihoods		
Country(ies):	Timor Leste	GEF Project ID: ¹	
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5330
Other Executing Partner(s):		Submission Date:	January 6, 2014
GEF Focal Area (s):	Climate Change	Project Duration (Months)	48
Name of parent program (if applicable):		Agency Fee (\$):	665,000
<ul style="list-style-type: none"> For SFM/REDD+ <input type="checkbox"/> For SGP <input type="checkbox"/> For PPP <input type="checkbox"/> 			

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK²:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCA-1 1.1 Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas	LDCF	1,100,000	3,000,000
CCA-1 1.3 Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	LDCF	4,000,000	16,126,090
CCA-1 1.2 Reduced vulnerability to climate change in development sectors	LDCF	1,600,000	7,900,000
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
Subtotal		6,700,000	27,026,090
Project Management Cost (PMC)		300,000	500,000
Total Project Cost		7,000,000	27,526,090

B. INDICATIVE PROJECT FRAMEWORK

Project Objective: to strengthen resilience of coastal communities by the introduction of nature-based approaches to coastal protection						
Project Component	Grant Type ³	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
Climate resilient coastal management framework	TA	1. Policy framework and institutional capacity for climate resilient coastal management established	1.1. A comprehensive shoreline management plan developed and budgeted for the entire coast of Timor Leste (as part and a direct contribution to NAP); 1.2. Tibar Bay coastal protection and resilience strategy adopted and budgeted	LDCF	1,100,000	3,000,000

¹ Project ID number will be assigned by GEFSEC.

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

³ TA includes capacity building, and research and development.

			<p>as part of the Port construction and management plan;</p> <p>1.3. Technical skills (through specialized trainings), hardware (at least two sets of hydro-meteorological stations and wave gauges), methods (economic valuation and cost-benefit analysis) and software (e.g. InVest) introduced to monitor climate change induced coastal change and plan for management responses;</p> <p>1.4. Forestry and Fisheries Directories under the Ministry of Agriculture and Fisheries have their roles, coordination planning mechanisms clarified and enforced for improved management of mangrove and other critical coastal habitats (as emerges from NAP consultation process).</p>			
Climate resilient coastal livelihoods	Inv	2. Mangrove-based livelihoods established to incentivize mangrove rehabilitation and protection	<p>2.1. At least 1000 ha of degraded mangrove areas rehabilitated through natural recruitment and restoration of hydrological regimes both in the northern and southern coasts with a direct employment of local coastal communities;</p> <p>2.2. Mangrove-based, diversified livelihoods / social businesses (e.g. silvo-fisheries, fuel wood plantations, agroforestry, see grass cultivation, salt production etc) established in at least 10 coastal sucos benefitting at least 20,000 people and</p>	LDCF	4,000,000	16,126,090

			empowering women; 2.3. at least 10 suco development plan include mangrove- based livelihood support measures.			
Landscape level / nature based coastal adaptation	Inv	3. Integrated approaches to coastal adaptation adopted to contribute to protection of coastal populations and productive lands	3.1. Upstream watershed replantation demonstrate risk reduction, (including reduction of excessive sediment loads) to downstream coastal waterways and areas; 3.2. Coastal wetland restoration and artificial groundwater recharge plans developed and initiated to increase storm water absorption capacity and buffer seawater intrusion; 3.3. Based on economic valuation study of ecosystem services, infrastructure offset for coastal protection scheme (and other financial mechanisms, such as payment for ecosystem services - PES) devised to secure financial resources for coastal resilience;	LDCF	1,600,000	7,900,000
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
Subtotal					6,700,000	27,026,090
Project Management Cost (PMC) ⁴				(select)	300,000	500,000
Total Project Cost					7,000,000	27,526,090

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

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
National Government	Ministry of Agriculture and Fisheries	Grant	24,900,000
GEF Agency	UNDP CO	Grant	2,626,090
(select)		(select)	
(select)		(select)	

⁴ To be calculated as percent of subtotal.

(select)		(select)	
(select)		(select)	
Total Cofinancing			27,526,090

D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (\$) (a)	Agency Fee (\$) (b) ²	Total (\$) c=a+b
UNDP	LDCF	Climate Change	Timor Leste	7,000,000	665,000	7,665,000
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total Grant Resources				7,000,000	665,000	7,665,000

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

² Indicate fees related to this project.

E. PROJECT PREPARATION GRANT (PPG)⁵

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	Amount Requested (\$)	Agency Fee for PPG (\$) ⁶
• No PPG required.	-- 0--	--0--
• (upto) \$50k for projects up to & including \$1 million		
• (upto)\$100k for projects up to & including \$3 million		
• (upto)\$150k for projects up to & including \$6 million	\$150,000	\$14,250
• (upto)\$200k for projects up to & including \$10 million		
• (upto)\$300k for projects above \$10 million		

PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF ROJECT ONLY

Trust Fund	GEF Agency	Focal Area	Country Name/Global	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
LDCF	UNDP	Climate Change	Timor Leste	150,000	14,250	164,250
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total PPG Amount				150,000	14,250	164,250

MFA: Multi-focal area projects; MTF: Multi-Trust Fund projects.

⁵ On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁶ PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

PART II: PROJECT JUSTIFICATION⁷

PROJECT OVERVIEW

1. A.1. Project Description. Briefly describe the project, including ; 1) the global environmental problems, root causes and barriers that need to be addressed; 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario, with a brief description of expected outcomes and components of the project, 4) incremental cost reasoning and expected contributions from the baseline , the GEFTF, LDCF/SCCF and co-financing; 5) global environmental benefits (GEFTF, NPIF) and adaptation benefits (LDCF/SCCF); 6) innovativeness, sustainability and potential for scaling up.

Climate change related problem and underlying causes of vulnerability:

Climate change problem:

2. Coastal population of Timor Leste is particularly vulnerable to the threats of sea level rise and extreme events. Warming waters and changes in storm patterns that are already adding to the natural dynamism of the coastal zone are accelerating due to climate change. Timor-Leste has a coastline approximately 747 kilometers in length. Approximately 40% of the population lives in the coastal areas. This comprise of almost 560,000 people residing in coastal and lowland areas with an elevation up to 500m. They are not only susceptible to flash floods and landslides originating from the upstream hill areas, but are also likely to face increased incidents of sea surges and storms. These hazards have serious impacts on coastal and marine ecosystems, especially for mangroves, estuaries and coral reefs, which are already under stress because of coastal zone development and population growth. The coastal zone (and habitats) of Timor Leste are subject to a high degree of human dependency and resource use. To-date, approximately 64% of the rural population is food insecure, relying heavily on natural resources, with agriculture and (semi-)subsistence fisheries being the major sources of income for the population. Firewood is the primary source of energy for 98% of the population and is widely collected and logged.
3. Sea level rise for the coast of Timor Leste is projected to range 3.2 - 10.0 cm already by 2020 and may reach up to 80 cm by end of the century (O'Farrell, 2008, NAPA, 2010). Moreover, the most recent study by the Pacific Climate Change Science Programme indicated that sea level rise near Timor Leste measured by satellite altimeters since 1993, is about 9mm per year on average, larger than the global average of 3.2 ± 0.4 mm per year (da Silva, 2011) Since Timor-Leste is tectonically active, the impact assessments include possible upward and downward movements of land as well as mean sea level rise. Annual wind speed indicate slight change, however, climate change is expected to significantly change the frequency and intensity of extreme events, such as storms and floods (NAPA, 2010). Projected changes in tropical cyclones are subject to uncertainty inherent in climate change projections. Global climate models show few consistent changes in tropical cyclones, with results dependent on the model, although the models do show a consistent increase in rainfall intensity in future storms. Increased storminess, wave swells, sea surges and SLR will threaten the country's still fragile development gains. The main impacts of climate change to coastal regions as presented in NAPA are summarized in the table below.

Climate phenomenon	Impacts of climate change
Sea Level Rise	<ul style="list-style-type: none">• Increased groundwater contamination by salt water intrusion;• Direct damage to physical infrastructure and disruptions in water supply services, road networks, buildings, port operations as a result of coastal submersion;

⁷ Part II should not be longer than 5 pages.

	<ul style="list-style-type: none"> • Damage and disruption to coastal power stations and transmission infrastructure through erosion, flooding and saltwater damage. • Flooding and destruction of coastal settlements;
intensified cyclone and storm activity	<ul style="list-style-type: none"> • Direct physical damage to forest and terrestrial ecosystems. • Reduced health, diversity and productivity of coastal and inshore marine ecosystems and species. • Loss or destruction of coastal vegetation, species and habitats. • Physical damage to coral reefs and mangroves by strong wave action. • Increased erosion of beaches, shorelines and coastal land, loss of breeding and nesting habitats. • Increased damage to and destruction of bridges, roads, roadsides, culverts, drainage structures and river embankments. • Increased risk of damage to offshore oil and gas infrastructure and disruption to operations. • Increased risk of accidents, spills, leaks and pollution resulting from flooding and wind damage to fuel storage facilities and other installations housing hazardous materials. • Damage to schools, homes and community buildings such as churches and health clinics

4. Despite the challenges of post conflict country, Timor Leste has progressed particularly due to endowment of natural resources. The petroleum boom has allowed the government to increase the public expenditure, especially on investment in infrastructure. Infrastructure development, especially rural roads throughout the country is addressing the previous relative isolation of communities, improving mobility, access to local markets and provision of public services. The government also launched ambitious investments for the development of port infrastructure both in North and South of the country. Ports of Tibar, Ocusse, Baucau and Com will improve TL's accessibility to regional and international markets. At the same time, these new investments in development without sufficient safeguards will inevitably take their toll on natural systems that underpin their success and long term resilience in the face of climate change.
5. The coastal landscape and its bountiful resources are at risk - rapid population growth, rampant economic development, and resource exploitation, are among the most pressing challenges the country faces. Changing land use practices have led to a rapid degradation of natural defense features such as mangrove forests, particularly along the north coast, but also along the southern coast of the country, exposing the coastal settlements to the greater risks of slow onset sea-level rise and sudden/extreme storm surges.
6. Mangroves occupy only a small area of Timor Leste when compared with neighboring countries, such as Indonesia and Australia. This is due mostly to the coastal configuration and physiography of Timor Leste, which unlike other islands of the Indonesian archipelago and the north coast of Australia, does not include the salient coastal contours, physiographic features and coastal processes, for significant mangrove development (i.e. extensive low-lying coastal plains, sheltered waters, sedimentary processes). Further, rivers in Timor Leste flow intermittently and hence, large estuarine systems are generally absent. Mangroves predominate on the north coast in inlets with calmer, protected waters, with the largest contiguous block of mangroves found in the Metinaro region. In contrast, on the wave exposed south coast, mangroves are generally confined to the mouths of the streams, and marshy or swampy regions. The limited expanse of mangroves makes their protection of particular value as their regeneration capacity is restricted to specific coastal locations. Although covering limited strap of coastal area, mangroves provide unique coastal protection function against rising sea levels as well as the storm surges by increasing overall sedimentation levels and by slowing the flow of water and reducing surface waves.

7. Total mangrove cover is small and confined mainly to the region between Tibar and Manatuto. Recent coastal mapping funded by the MAF has revealed a significant and ongoing coastal habitat loss, particularly in coastal mangroves. Timor Leste currently has only 2,000 ha of mangrove forests left with an observed trend of shrinking at an alarming rate. Clearing up the coastline from the mangrove stands result in greater exposure to sea surges, inundation, erosion and accretion processes. Similarly, loss in coastal wetlands disrupt the hydrology that not only, in certain areas support the mangrove stands, but also provide important storm water absorption role protecting the coast against inundation. A recent survey of Timor-Leste has identified 24 key wetland sites are in need of protection and improved management both to support the mangroves and improve the coastal protection against sea storms and inundation. Key pressures on mangroves, wetlands and other coastal habitats relate to the following issues of coastal degradation:
8. *Cutting down mangrove trees to provide for fuel wood and household income.* There is a contrasting picture in the country that on the one hand, is generating and accumulating substantial revenues from offshore oil and gas resources developed in partnership with Australia, and on the other hand, 98.7% of all households are still using fuel wood as their main cooking fuel. Consumption rate of fuel wood is approximately 600,000 tons/year and this has resulted in the diminishing of forest cover particularly in areas surrounding Dili, but also other places in Aileu, Manatuto and Liquica districts, which are the major supplier of fuel wood to Dili. The annual deforestation rate is estimated at 1.73% and the forest occupies about 60% of the total land area. The fuel wood and timber harvesting activity has significantly contributed to soil erosion and land degradation, including in coastal areas. The main trees used for firewood are ironwood, kou, Hawaiian giant, mesquite, mangrove and ainitas. Some families, particularly those living in the vicinity coastal cities of Dili and Baucau sell fuelwood to support their household income. Coastal mapping (2009, GoTL) has revealed significant and ongoing coastal habitat loss, particularly in coastal mangroves and it is estimated that the total mangrove area has been reduced from 9,000 hectares in 1940 to 3,035 hectares in 2000, to just 1,802 hectares in 2008. This equates to an 80 percent loss since 1940.
9. *Expansion of settlements towards the coastal area.* The population growth rate in the country is 2.44% and forecasted to reach 1.9 million by 2030. The population distribution trend favours urban areas. This has been intensified after the independence when the new development opportunities have opened up and the roads provided better mobility to the population. The coastal capital Dili also attracts people from all over the country, as it offers new opportunities and better public services compared to the provinces. Baucau is another coastal city in the North, attracting a growing number of people. These urban settlements accommodate about 40% of country's total population. Rapid urbanization and expansion of urban coastal settlements exert growing pressures on the coastline, contribute to further deforestation, disrupt sediment supply and accelerate the processes of coastal erosion and accretion.
10. *Infrastructure development such as roads, ports and electricity plants clear the land of the forests and disturb coastal habitats.* The country just emerged from a series of conflicts that caused heavy destruction to its infrastructure and the government is constructing much of what was destroyed and building the new infrastructure. The investments come from the country's petroleum fund, which is estimated to contain around US\$10 billion. The plan of the government is to upgrade about 3,000 kilometers of roads and build four ports. These programs are in line with the National Strategic Development Plan (2011-2030) that places a strong emphasis on infrastructure development. In the past two years, over half of the state budget was allocated to physical infrastructure related projects. For example, in 2011 the Infrastructure Fund invested US\$599.3 million into 12 infrastructure programs including Transport Program (roads, bridges, airport and ports) contract value of which only in 2013 reached US\$ 75 million. Such massive rehabilitation and expansion of infrastructure networks inevitably result in clearing of land from the vegetation making the coastal area more exposed and vulnerable. Moreover, as coasts become more developed, the vulnerability component of the equation increases as there is more value at risk to hazards.

11. *Land use change and agricultural land expansion.* Agriculture provides livelihoods for more than 80% of the Timorese population, and accounts for 30% of GDP (Census 2010). Natural forests have been a major resource over the centuries, but exploitation of sandalwood, teak, and other hardwoods and the expansion of agriculture have left most of the island without forest cover. Existing inappropriate agriculture practices have led to a rapid degradation of natural defense features such as mangrove forests when shifting cultivation with slash and burn practices and free grazing are still the main farming methods. Land conversion and agricultural land expansion is another cause for green cover loss in the country, including the loss of mangroves.

Long term solution and barriers to achieving it:

12. The government is increasingly cognizant of the mounting threats of climate change-driven sea level rise and extreme events on its coastline. In response, the government has started to build coastal based sea walls as a means to protect valuable infrastructure and people. One has already been established to protect the airport and another to protect the centre of Dili. This clearly indicates the current vision of coastal protection has favored hard engineering solutions – man-made barriers to prevent or slow the movements of the sea. However, with an expansion of coastal urbanization and rise in asset value of a fast developing coastal infrastructure, the government has realized that such approaches are costly, and many are of limited longevity. At the same time, there is a growing realization globally, including in Timor Leste, that natural ecosystems may, in certain circumstances, be able to perform coastal protection functions more effectively, while at the same time continuing to provide other critical benefits to people – such as food, timber and recreation. Mangrove forests, wetlands and reef barriers are critical to shoreline protection that Timor Leste needs to maintain and manage sustainably if it wishes to protect coastal communities and achieve long term resilience. There are number of barriers however, that preclude the immediate action on the protection of natural habitats that are essential to buffer the adverse effects of climate change:

Policy and Institutional Barrier – lack of coherent policy to govern coastal resources, unclear and fragmented responsibilities for coastal management:

13. The current institutional and legal framework does not yet provide sufficient mechanisms for sustainable coastal management. There are a number of policies and plans that govern coastal management. For example, the Strategic Development Plan (2011-2030) of the Government states that a comprehensive and integrated approach will be used to manage coastal and marine resources to ensure their sustainability. Environmental Policy adopted in 2012 also instructs the government to develop and implement an integrated coastal zone management plans. However, these strategic directions so far do not translate into the implementation plans or actual on the ground investments. Moreover, Institutional fragmentation and unclear roles and responsibilities over the coastal management and protection preclude coherent policies and actions. More specifically, National Directorate of Fisheries and Aquaculture of the Ministry of Agriculture and Fisheries carry a prime responsibility for coastal management. However, overall environmental and natural resource policy guidance comes from The Ministry of Commerce, Industry and Environment. The latter is also the lead agency on climate change in the country and a caretaker of the NAPA implementation, which also prioritizes coastal ecosystems. Directorates of Forestry and Fisheries under the Ministry for Agriculture and Fisheries share responsibilities for mangrove management. The department for protection and forest resource management under the Directorate for Forestry is responsible for mangrove conservation. Directorate of Fisheries is responsible for forest resources, in particular coastal forests and mangroves which afford protection against the effects of rising sea levels. Additionally, the Directorate for National Disaster Management (Ministry for Social Solidarity) has cross-sectoral coordination role in defining policy on disaster management at all levels, including in the coastal areas. These overly fragmented roles are not conducive for putting in practice the principles of integrated shoreline management that is essential for the implementation of coastal adaptation strategies. Projected impacts of sea level rise and climate related coastal hazards create urgency to develop a coherent shoreline management framework. Such consensus based plan for

coastal resilience will provide an opportunity to clarify the roles, delineate the areas of responsibilities and reconcile the sectoral interests of coastal development and protection. (This barrier will be addressed mainly by Outputs 1.1, 1.2 and 1.4)

Technical Capacity Barrier – limited human resources, skills and expertise for climate risk information management:

14. Despite improvements, technical capacities of the responsible directorates remain weak. Hazard management in Timor-Leste relies on support of limited climatological, hydrological, and geophysical information. There is a limited knowledge of a range of tools, methods and approaches to effective coastal management and adaptation options. Moreover, assessments are based on experts and field-based judgment and more often rely on traditional knowledge which is inevitably derived from historical experience that increases uncertainty and less reliable in interpreting future climatic variability and change and for framing the forward looking adaptation strategies. Extensive training, on the job skill building, the decision-support tools, software and hardware to improve the observation capacity, data generation, processing, communication and knowledge are all composite elements of technical capacity needs that the coastal adaptation processes demand. (This barrier will be addressed mainly by Output 1.3.)

Financial Barrier – lack of economic incentive systems and targeted budget allocations:

15. Communities are not guided or provided sufficient incentives to become stewards of the natural resources, ecosystems and their essential services that grant their coastal protection and sustainability of their livelihoods. There are sporadic interventions by the government like in Ulmera village where mangrove rehabilitation and replanting have been piloted to cover 3km² mangrove area. But rarely the rehabilitation and livelihood development are linked to achieve sustainable results. Employment and income generation potential associated with mangrove rehabilitation, protection and sustainable management has not been exploited as part of the local, suco level development plans, investments or public and private partnership initiatives. There is limited knowledge about the win-win solutions, whereby protection of natural assets such as mangroves can effectively protect and sustain physical and economic assets against climate change induced hazards and at the same time deliver on social and economic benefits.
16. Although, coastal management is declared as national priority, the budgetary allocation is far from being adequate to meet the priorities. The government's budget profile for 2013 shows over 35%, the biggest allocation, under the Electric Power programme. By contrast Agriculture and Fisheries programme that includes the coastal protection targets, including the mangrove rehabilitation, received only 1.3% of a total budget. Similarly, at the Ministerial level, the 2013 budget of the Ministry of Commerce, Industry and Environment amounts to \$16 million. Whereas, the annual budget allocation for the Ministry of Public Works reaches \$193 million, this year. This clearly indicates that public expenditure is not low, and the cash resources are pouring from the Petroleum Sovereign Fund with earnings over 4% for the last 5 years. However, the budget allocations for shoreline management or the protection of natural coastal assets is limited, as their unique roles in safeguarding coastal assets and livelihoods are not well understood. In general, there is not much awareness of the payments for ecosystem services (PES) and other financial mechanisms such as "offsetting" that could help draw additional funds towards the protection of coastal habitats essential for coastal resilience and security of lives and livelihoods. (This barrier will be addressed by outputs under Outcome 2 and 3)

Baseline Projects:

17. There are number of government and internationally, including UNDP supported programmes that will form the baseline for the proposed LDCF grant.
18. Title: Government of Timor Leste, National Budget for Natural Resource Management and Conservation – Agriculture Sector Development – Midterm Operation Plan (2014-2018): \$25,000,000

Co-financing: US\$17,000

19. Midterm Operation Plan (MTOP) consists of the following five priority programmes: (i) sustainable increase in production and productivity; (ii) improved market access and value addition; (iii) improved enabling environment; (iv) Organisational development of MAF; and (v) Natural resource conservation and management. Although, the LDCF project responds to most of the above government priorities, the latter constitutes the main programme baseline that the proposed initiative will build on. This programme fully recognizes that managing the connections between agriculture and natural resources is an integral part of agriculture sector development. The overall investment required from the public sector to support the planned activities under this Program for the 2014-2018 period is around \$25 million. The specific investment areas include (i) integrated crop-livestock-fisheries management practices; (ii) conservation and sustainable management of aquatic and marine resources; and (iii) conservation of biodiversity in forest and coastal areas. The programme will seek the ways to promoting local communities as stewards of their natural environment. This approach may require compensation programmes that are at a nascent stage of consideration. The most budget (approximately \$17 million) under this programme is earmarked for the establishment of management regimes and strategies for degraded coastal areas; and the protection and conservation of biodiversity in forest and coastal areas. Without the LDCF support the MTOP falls short of coherent climate resilience strategy of coastal protection and lacks necessary technical inputs for determining a range of cost-effective adaptation options. Without LDCF the MTOP will not embed innovative strategies for coastal adaptation that primarily include mangrove-based livelihood development approaches to coastal protection. The LDCF funds will be used to clarify and budget for the coastal adaptation measures. LDCF support will enable a shoreline management plan for coastal resilience As part of this MTOP the shoreline management plan taking climate resilient into account will inform the future budget distributions for coastal adaptation under the subsequent Operational Plans.

Title: National Natural Resource and Forest Management through the State Budget

Co-financing: US\$3,000,000

20. This government programme is primarily concerned with the conservation and sustainable management of the mangrove forests The National Directorate for Forestry (NDF) has the Reforestation, Protection and Production Divisions that focus on development of five protected forest management areas; establishment of management regimes and strategies for degraded coastal areas. Natural conservation zones, or national parks, aim to protect ecosystems by limiting commercial activity, only permitting research and education, cultural, tourism and recreation activities. The NDF protects conservation zones in 22 locations. It has also established community based mangrove nurseries in Ulmera (Liquica district) and conducted a rapid survey on mangrove areas in Dili and Bobonaro. In addition, the NDF has promoted firewood tree plantations (mainly Casuarina) since 2007 with the establishment of 6 Forestry Seed and Distribution Centres to promote community tree plantings in Liquica, Bobonaro, Oecussi, Lautem, Viqueque and Manufahi. Also the Directorate is preparing a National Bamboo Policy and Marketing Strategy that will include the promotion of bamboo cultivation for reforestation and erosion control purposes. Without the LDCF support the NDF work will miss out on additional efforts that climate change will demand with regards to mangrove rehabilitation and protection strategies. Sustainability of mangrove rehabilitation and protection will demand linking rural employment and income generation with the mangrove protection. Hence, LDCF will promote innovative, mangrove-based livelihood development, whereby the local communities will increasingly become stewards of these important coastal habitats as a result of their increased reliance for earnings. A range of mangrove-based enterprises that are economically beneficial and provide alternative income with mangrove preservation, such as silviculture, silvo-fisheries, aquaculture etc are untapped opportunities under the current baseline.

Title: National and International Environmental Management and Capacity Development through the State Budget

Co-financing: USD 2,000,000

21. The State Secretariat for Environment supports an annual programme to promote wider understanding of the UNFCCC objectives in Timor Leste, both at national and local levels and develop institutional capacity for environmental management. Funding for this programme is provided through the state budget. The National Directorate for International Environmental Affairs (DNIEA) has a climate change unit which prepares trainings for public officials on climate change and a climate change centre will open soon that will serve as a training facility for public officials on climate change related issues. In addition, through its Directorate for National Environmental Affairs (NDMA) the State Secretariat provides environmental information and data collection services. The annual budget for these functions has varied in recent years, between \$250,000 and \$400,000. The proposed LDCF project will closely cooperate with the NDMA on the data collection and processing and develop the training modules for climate information management, coastal monitoring methods, a range of coastal adaptation strategies versus the protection and “hold the line” options etc.

Title: Tibar Bay Port Construction Investment baseline \$300-400 million

Co-financing: \$2,900,000. (Public Private Partnership (PPP) project for the proposed Tibar Bay port)

22. The Ministry of Transport and Communication and Ministry of Finance in partnership with the International Finance Corporation (IFC) are to establish a Public Private Partnership (PPP) for the Tibar port construction. Commercial ports in Timor-Leste are administered and managed by the national port authority, APORTIL, a landlord port authority, under the supervision of the Ministry of Transport and Communication (MTC). Currently, Dili Port is the only port in Timor-Leste which handles international container and dry cargo traffic. Dili Port is congested, with very limited expansion possibilities (including space for storage). The Government intends to discontinue all commercial cargo handling operations at Dili Port as soon as the planned new port at Tibar Bay is operational, with the former expected to be made available for alternative tourism-based uses. There are different wharf sitting options in the Tibar Bay, with the aim of minimizing impacts in line with IFC's performance standards and the port's operational requirements. Under the current preferred wharf option, the mangrove community at Tibar Bay will be impacted (loss of about 2 ha out of about 20ha of mangroves at Tibar Bay), both directly and indirectly over time. The construction of the port is planned to start in 2015 and the Government is willing to find the ways to minimize the mangrove loss in Tibar bay following the Environmental Impact Assessment (EIA) recommendations as well as explore the options of offsetting an unavoidable loss by replanting the mangroves in other appropriate places. This is among the most recent and important investment plans in the country that is currently at the stage of bid evaluations. The commencement of the actual construction is expected in January 2015. Prior to that, the preparatory works are scheduled. Although the IFC partnership grants the maximum adherence to the good construction standards and the EIA recommendations will be embedded into the compliance requirements, without an additional LDCF support an opportunity to broker coastal resilience strategy for Tibar bay and shape a mangrove rehabilitation scheme in the context of broader landscape stability and greater coastal resilience will be missed. An ad hoc and unsystematic replantation will not provide for coastal stability and resilience. Climate change impacts on the Tibar shoreline and its hydrology must be considered. Sustainable mangrove rehabilitation will demand natural recruitment and restoration of hydrological regimes. Moreover, Tibar bay port investment at the baseline offers an opportunity to introduce an offsetting scheme, an innovative funding mechanism for mangrove rehabilitation / protection with a potential to expand to other natural coastal assets (e.g. wetlands, aquifers, reef systems etc), that serve as buffers against sea level rise and climate related hazards. The established Public Private Partnership under the Tibar port investment offers a conducive baseline for such a scheme to emerge.

23. This program explores innovative ways to engage the private sector and facilitates social business partnerships and networks that will contribute towards generating rural employment and income. Rural communities in Timor Leste remain dominated by farm based livelihoods and the UNDP program will help broaden the income and livelihood base. The Project aims to improve the coordination and networking of investors, service providers, regulatory bodies, and Social Businesses, create a rich environment to foster the growth of Social Business investments, establish a Social Business Fund to finance viable business solutions and conduct capacity building of service providers to better serve the technical needs of the Social Businesses. It also aims to employ 300 women and youth through social business and 200 women/men/youth members of rural cooperatives and MSMEs to benefit from service provision: joint marketing, value chain management, business skills development, and building standards of product quality. One of the projects is to develop a viable social business model for the salt producers of Liquica which is also one of the main mangrove areas in the country. The partnership with the Ministry of Commerce, Industry and Environment, IADE and ILO, funded by the Korea-UNDP MDG Trust Fund, will modify the manufacturing and the business process. It will introduce environmentally friendly techniques to produce salt and replace the current usage of firewood cooking. In spite of the tremendous physical effort involved in manufacturing the salt, most of the producers are women. The proposed LDCF project will partner with this programme and ensure that nature-based livelihood initiatives in the coastal regions that have a combination of social, gender, economic and adaptation benefits find a priority support from this social business programme.

Additional cost reasoning:

24. Consistent with priority adaptation strategies identified by the Timor Leste NAPA, the proposed project will aim at:
1. Policy framework and institutional capacity for climate resilient coastal management established;
 2. Mangrove-based livelihoods established to incentivize mangrove rehabilitation and protection;
 3. Integrated approaches to coastal adaptation adopted to contribute to protection of coastal populations and productive lands.

Component 1:

Baseline:

25. Timor Leste does not have any explicit policy on the coastal protection. The issues that necessitate integrated coastal management are outlined in number of Action Plans. Agriculture Sector Development – Medium term operation plan (2014 – 2018) of the Ministry of Agriculture and Fisheries allocates total of \$25 million in natural resource management that includes establishment of management regimes and strategies for degraded coastal areas; and the protection and conservation of forests and coastal natural habitats.
26. Given the budgetary limitations of the Least Developed Country, these are not insignificant and provide important baseline to build on. However, effectiveness of the allocation will be limited by the prevailing gaps in clear institutional leadership and vague roles and responsibilities over the coastal protection and management of the important coastal natural systems such as mangroves, wetlands etc. In absence of any coherent shoreline management plan it is difficult for the Ministry of Agriculture and Fisheries to provide a leadership on coastal management, guide coastal investments across relevant ministries, steer them towards resilient options, and frame and enforce coastal adaptation strategies. As such, all decisions on constructions are made at the Ministry of Public

Works, depending on the scale of the investment / construction, subject to Environmental Impact Assessment. When EIA is not requested by the environmental license law, inputs / opinions from the line Ministries are not usually sought. Despite high level Steering Committees and associated technical groups, the institutional coordination is not taking place effectively. Decision-making hierarchy remains rigid and is not distributed broadly. Although, the government has taken considerable efforts towards decentralization and it appears now among top development agendas in the country, the sectoral silos persist. Issue of fragmentation and poor accounting for climate change and environmental priorities into key development decision-making is emphasized by the National Environmental Strategic Plan developed for the next 20 years. The plan underscores unclear roles and responsibilities of each Ministry in relation to natural resource management. Given the multi-sectoral nature of coastal adaptation strategies, consolidation of institutional efforts towards consensus-based shore line management policy is an urgent priority that is currently not foreseeable to happen without the LDCF intervention.

27. Loss of hydro-meteorological network due to the destruction of monitoring and collection systems throughout the Timor-Leste during its long conflict period is another important bottleneck that precludes advancements in coastal protection. With the exception of Dili Airport, there is no equipment for the systematic collection of climatological data, no hydrological network of sufficient coverage. Historical data with sufficient temporal and spatial resolution are scarce due to the removal of data records from the country. Tidal data and systematic monitoring of sea level are largely limited. Lack of data provided by climatological, hydrological, and geophysical systems inhibits analyses of frequency and magnitude of extreme events. Currently, there is no system that monitors coastal inundation and coastal erosion, assesses sediment transport or does sediment budget analysis.
28. Existing hydro-meteorological observation network is managed by number of Ministries in Timor Leste. As such, meteorological monitoring is under the Ministry of Transport and Communication, whereas hydrology is under the Ministry of Public Works. Ministry of Agriculture and Fisheries has its own network of 22 weather stations across the country, mostly automated. Although, data are generated systematically, are kept manually in the journals and not digitized. Due to such fragmented management of hydromet network across number of Ministries makes it difficult to have data readily available, especially in digital form to input into the scenario generation or modeling.
29. The limited professional capacity is illustrated by the fact that there are no trained meteorologists in the emerging Bureau of Meteorology; four meteorological observers work at the airport and four geophysical staff in the Bureau with support of six administrative staff. Neither systematic tidal measurements nor sea-level rise monitoring are carried out for Timor-Leste in any port of the Pacific or Indian Ocean. The monitoring is necessary to gather knowledge of the long-term implications of sea-level rise on the coastal systems of the country.

Additionality:

30. Ministries of Agriculture and Forestry, Public Works, Social Solidarity, Environment and their respective directorates and secretariats together with civil society groups, national university, scientific community and coastal communities will be engaged in shaping the shoreline management plan that will reconcile seemingly conflictual sectoral investment interests in the coastal region and introduce robust approaches to coastal management that is based on the principles of Integrated Coastal Management (ICM). The comprehensive and coherent shoreline management plan will also clarify and reconcile current gaps, overlaps and inconsistencies in functions and mandates across main institutions. There are some nascent steps taken in this regard that offer the opportunity for the LDCF funding to support and scale up. For example, National Directorate of Fisheries and Aquaculture of the Ministry of Agriculture and Fisheries, under its baseline MTOP plans to introduce integrated coastal resources management and ecosystem-based coastal fisheries management around the islands of Atauro Island and Batugede. This will serve as a starting point for

a broader shoreline management plan for the Timorese coastline that will introduce a range of cost-effective adaptation strategies across short, medium and long term timescales. This offers an opportunity to promote greater coherence through forthcoming actions taken for advancing a National Adaptation Plan process to commence in 2014. The UNFCCC focal point in Timor Leste has requested for such support under the GEF Global Support project for National Adaptation Programme (NAP-GSP). While such actions will be national in nature, coastal management frameworks would be an important component in such national and possibly sub-national planning frameworks. As part of this exercise, particular attention will be paid to the coastal stretch in the target Tibar bay where the port construction takes place. In response to strong government priority and in partnership with the IFC, coastal resilience strategy will be outlined in detail and embedded into the Tibar bay port construction and operation plan.

31. The LDCF funds will be used to design and deliver a number of targeted training and introduce methods, tools and approaches to coastal management. For example, in addition to training on underlying methods on the economics of adaptation (especially cost benefit analysis) simple software based tools such as Integrated Valuation of Environmental Services (InVEST) or other tools will be introduced to help relevant technical and policy officers in The MAF to better align objectives of coastal protection with the development objectives and the improvements of local livelihoods. Such tool will help to (i) determine the areas of reforestation and protection that would achieve the greatest welfare-based net benefits; (ii) determine watershed protection priorities to reduce excess sediment loads to the coastal lagoons and waterways etc. Such software-based tools can be used independently or as part of existing tools, such as Arc GIS, which the government of Timor Leste is already using for planning purposes.
32. The LDCF resources will be used to procure and install hydro-meteorological stations and wave gauges (at least two sets – on critical locations of the northern and southern coasts) to measure temperature, precipitation, humidity, barometric pressure, wind speed and direction, wave height, period and swell. Methods to measure sediment supply and levels of groundwater salinity will also be introduced at the respective directorates of the MAF, MSS and other Ministries and their respective directorates at national and sub-national level and dedicated training will be delivered. The standardized collection, collation, and electronic storage of tidal records as part of the systematic measurement of water-level oscillation is essential for determining and monitoring the changes in sea level and will be addressed by these efforts.

Component 2:

Baseline:

33. The coastal stabilization and protection attributes of mangroves are recognized by the government. However, the pressures over this fast declining coastal habitat remain. Such pressures, as outlined above, among the others also come from the government investments into the coastal infrastructure development, including the ports. The Government is planning to build a Port in Tibar, Baucau and Ocusse in the north and in Com in the south, which are likely to impact coastal ecosystems. The International Finance Corporation (IFC) is supporting the government to establish a Public Private Partnership (PPP) for the Tibar port construction. The construction of the port is planned to start in 2015 and the Government is willing to explore offsetting it and a plan containing management actions to maintain/ improve ecosystem integrity establish mangrove offsets will be prepared. IFC's Scoping report (2013) where mapping of coastal and marine habitats within Tibar Bay was performed through a combination of remote sensing and ground-truthing techniques states that if the burning and chopping is ceased, and the back zones replanted and rehabilitated, without further additional impacts, the mangrove community is likely to persist and function as a natural habitat, providing the full range of ecosystem services, for decades into the future. The Tibar Bay mangroves are assessed to meet the definition of 'natural habitat' under and given this finding, IFC recommends that:

- Every effort be made to locate and design the new port so as to completely avoid or at least reduce to the maximum extent possible, destruction of the Tibar Bay mangrove community,
- The study to assess the economic value of the ecosystem services provided by the mangroves (and other habitats in Tibar Bay) is recommended be carried out,
- Additional studies be undertaken to better understand the significance of the Tibar Bay mangroves in both the regional (northern coast) and national context, including additional quantitative surveys of mangrove stands along the northern coast. Furthermore, the examination of historic aerial photographs that include mangrove communities within Tibar Bay and the broader region would assist in the determination of cumulative loss and also on how the ecological and social function of these communities may have changed over time.
- A program to be implemented to rehabilitate and restore the mangroves at Tibar Bay, including programs to assist salt producers to stop using mangrove timber as fuel to produce salt, which is perhaps the single most effective measure that could be implemented to reduce ongoing degradation of mangroves throughout Timor-Leste. It also specifies that there is a similar area of mangroves located just to the west of Tibar Bay, in Ulmera, which should be part of the above efforts.

34. The government therefore requires an urgent assistance to reconcile the objective of infrastructure development and a protection of natural habitat that essentially provides critical function of coastal stability and helps to manage coastal erosion problems, and to restore coastal capacity to accommodate short-and long-term changes induced by human activities, extreme events and sea level rise.
35. Directorates of Forestry and Fisheries under the MAF have shared responsibilities for mangrove management. Annual Action Plan for 2013 includes baseline survey, mangrove inventory and the establishment of mangrove nurseries for rehabilitation. The total annual budget is over \$600,000, as part of the four year Forest Management budget at the baseline. Despite the importance, this level of support is not proportionate to the scale of the issue, given the mounting threats of increasing storminess and prolonged coastal inundations. There are number of important internationally and nationally funded projects that provide some important sample of good practices and knowledge pool that requires further consolidation and reinforcement at the scale that the climate change risks demand. For example, Coral Triangle Initiative (CTI) implemented by the Conservation International has developed the Action Plan that includes the mangrove forest assessment as well as the priority actions for rehabilitation and conservation. These actions and recommendations will guide the LDCF project.

Additionality:

36. The LDCF project will build on the current government efforts of mangrove replantation and ensure that these efforts are guided and complemented in that mangroves are rehabilitated as the frontline defense against tidal forces. The mangrove rehabilitation will be designed and implemented in a way that considers the areas of coastal erosion, accretion, coastal flood risks and a potential for mangrove-based livelihood development. LDCF resources will follow the guiding principles that relate to (i) autecology that is selection of appropriate / local varieties, considering their reproduction and growth specificities; (ii) hydrology that may necessitate mangrove zonation; (iii) potential disturbance factors, including anticipated increased storminess that may require plantation of mature species and establishment of nurseries for replacement. Ministry of Agriculture and Fisheries and its relevant directorates will use LDCF grant resources to close existing loopholes in mangrove rehabilitation and management policy and practice and establish a coherent, well researched (inventoried) and phased action plan and budget. Moreover, following the EIA recommendations on avoidance of destruction of an important mangrove stand in the Tibar Bay, LDCF funds will be used to set a good construction practice that maintains this natural asset and protects the important intertidal zone. Investments will be provided through the Directorates for Forestry and Fisheries to

ensure the protective and production services of mangroves leading to no net loss of existing mangrove forests (approximately 2000 ha remain in the whole country, including a 12km stretch at Metinaro on the north coast) and restoration of additional areas (at least further 1000 ha) on both the northern and southern coasts. In the southern coast, most of the mangroves have already been lost and exist in only very small patches. The project's focus will be on supporting rehabilitation with natural recruitment on degraded mangrove areas, and restoring hydrological regimes in some areas, as necessary (as roads and water diversions have created siltation and drying in some areas).

37. Building on UNDP baseline programme and utilizing existing mechanisms for rural employment and social business development, coastal communities will be mobilized to implement the actual mangrove rehabilitation works. In order to ensure that such rehabilitation sustains in the long term, LDCF resources will be used to establish mangrove-based, diversified livelihoods, whereby the mangrove plantations provide essential support and protection for number of viable productive systems such as, silvo-fisheries, fuel wood plantations, agroforestry, sea grass cultivation and salt production. Integrated and diversified production will be based on a unique land use model (elevated mounds and intermediary ponds and ditches), whereby a pond structures for aquaculture (fish and shrimps) or sea grass production are protected and stabilized by the strong roots of mangroves. Timber varieties interspersed with mangroves in hinterland will also ease the pressure on mangroves to satisfy fuel wood needs of the population. Such mangrove-based social businesses will be established in at least 10 coastal sucos benefitting at least 20,000 people. The LDCF finance will be used to particularly engage and empower women by providing targeted support and guidance for them to initiate such mangrove-based social businesses. Women often prove to be more devoted stewards of natural resources and open to innovation. This has been proven in the context of UNDP's sustainable salt production social business initiative that is entirely spearheaded by women. Demonstrated social and economic benefits will help mobilise additional communities and integrate mangrove-based diversified livelihoods into the Suco Development Plans that can be supported further and replicated in the natural mangrove habitats of both northern and southern coasts. In order to further understand the importance of the coastal habitats capacities will be developed in relevant ministries, academia and other entities to ascertain on economic, ecological and social value of the associated ecosystem services under changing climate conditions in order to inform the development of coastal adaptation strategies.
38. According to the MAF, Liquica, Manatuto, Suai, Covalima and Manufahi districts are the priorities for mangrove protection and rehabilitation. However, the PPG phase will examine the locations of the actual rehabilitation works, depending on current land use, scale of mangrove degradation, hazard exposure, erosion processes, livelihood opportunities and other physical and socio-economic characteristics of the location.

Component 3:

Baseline:

39. The allocation of available public resources is currently more focused on physical infrastructure. Acutely less is earmarked for maintaining the natural systems that can help protect and sustain vital physical and economic infrastructure in the long term and especially in the context of unfolding climate change induced sea level rise and extreme events. Undoubtedly, infrastructure projects are generally associated with substantial economic and public interest. In order to find the optimum solutions, the relative merits of different and sometimes competing priorities need to be weighed carefully so that optimal decisions are made. The economic gains from infrastructure projects cannot irreversibly undermine the functional integrity of ecosystems that are critical for coastal resilience. The current challenge at the baseline is to match the government's overarching priority of infrastructure development with the aims of promoting coastal capacity and resilience. During 2008-2012 the government invested over \$2billion into the infrastructure development. These high value physical assets at the coast require protection from hydro meteorological hazards. The total

construction cost coastal defense walls amounted to US\$ 3.2 million. This does not account for maintenance cost, important to factor in making the informed choices and the decisions on cost-effective options. Moreover, more intense storms would inevitably require more frequent maintenance of embankments, raising the cost even further. Otherwise, the breaches can occur that will allow sea water in. It will subsequently take more time for the water to drain out of the breaches, resulting in longer submersion and greater damages to coastal settlements, farms and infrastructure, adding to cost of damages.

40. Presently, increased interest in soft measures for coastal protection (including increased forest cover) and a combination of hard and soft structures is dominating among coastal engineers and planners. This is consistent with an improving and stronger knowledge on coastal processes and natural protective functions. There is a growing body of evidence that coastal forests provide critical buffers against extreme events and that the clearing of coastal forests increases the vulnerability of all productive assets – including technological, human and nature based assets. The same principle applies to other natural assets, such as wetlands, coastal aquifers and reef systems that perform important coastal stabilization function.
41. This approach is a novelty in Timor Leste. However, the government in the context of Tibar Bay port infrastructure development is seeking for a technical assistance to test a mechanism by which coastal resilience will not be compromised and a portion of infrastructure investments will be directed towards nature-based coastal resilience efforts through such mechanisms as offsetting and / or Payments for Ecosystem Services (PES).

Additionality:

42. Long term resilience of the coastal area demands comprehensive approaches that examine and address risk acceleration factors at a broader coastal landscape and catchment area. Improved watershed management upstream, reforestation and restoration of degraded lands will reduce excessive sediment loads to downstream coastal waterways and areas that cause siltation of natural pond, mud march and wetland systems and in some places contribute to coastal accretion. Moreover, coastal natural ponds, wetlands and marches act as important storm and flood water storage facilities. They also buffer seawater intrusion into the aquifers. Aquifers themselves protect against salt water intrusion provided that water tables are kept at appropriate levels. Therefore, coherent plans for the restoration and protection of such natural systems within a broader landscape are essential for coastal resilience. LDCF resources will be used by MAF, MPW and Environment to work together to outline coastal land use strategies and plans that are fully compatible with the restoration and protection of these natural systems that provide unique coastal protection services to the economic assets and coastal populations. In addition to groundwater salinity monitoring protocol, LDCF resources will be used to design management and artificial recharge scheme with accompanying monitoring procedures. Small scale micro-watershed and natural pond / wetland restoration measures with the engagement of local district / sub-district authorities and residing communities will be implemented. This will be done to test “infrastructure offset for coastal habitats” scheme. LDCF resources will be used to ensure that combined financial mechanisms are designed to leverage a portion of infrastructure investments from the “Petroleum Fund” and other sources towards the restoration and protection of coastal habitats that deliver essential services guarding infrastructure and economic assets from the increasing storms and sea surges. Such instrument will follow the principles of “payment for ecosystem services” and will be devised based on an in-depth review of existing good practices worldwide that can be effectively customized to the country specific context as well as contextual information from target areas in TL. Expanding oil and gas exploitation and petroleum production is expected not only to accumulate the financial capital but also exert pressures on the natural resources of this fragile island and undermine adaptation capacity. It is an early and opportune moment to direct a portion of this growing financial capital towards securing protection of critical natural systems and habitats for long term climate resilience and sustainability. Liquica and Metinaro provide a unique combination of mangrove and wetland

systems that the project may focus for the on-the-ground actions under this component. Additionally, the mangrove rehabilitation process under the component 2 will be used to examine the offsetting and PES options with a primary focus on the baseline investment in the Tibar bay where the IFC and the government investment at the baseline will be supported to introduce coastal resilience strategy, built around the mangrove stand rehabilitation, through offsetting financial scheme.

Adaptation benefits, innovation, sustainability and scalability:

43. At least 20,000 people, residents of coastal areas of Timor Leste will benefit from the LDCF funding. The total area of mangroves and critical coastal habitats which will be secured and restored, affording increase protection against the effects of sea level rise, will be at least 3000 ha. The environmental benefits of mangroves, as well as their commercial use, have made them very important ecosystem. Ultimately, in the areas where mangrove coastal buffers are intact, distractive impacts of waves will be noticeably less. Mangroves also provide nursery grounds for fish, prawn and crabs and support the fishery sector in the coastal areas. Furthermore, by virtue of their coastal location mangroves and coastal wetlands play a very direct role in the protection of key physical infrastructure much of which is located along the coast. The conservation and rehabilitation of mangroves to buffer against storms and the management of upper watersheds to reduce excess sediment load transport that pollute waterways and cause coastal accretion will also safeguard these primary economic investments. The benefit to cost ratio is likely to be very high. It has been estimated that in Timor Leste loss of 1000 ha of mangroves may result in economic losses of \$100,000/y if only accounting the losses from fisheries (Barbier, 2000). Other losses are not factored in. However, the cost of restoration can be high ranging from \$200-200,000 per hectare, depending on scale of degradation and how much of hydrological restoration is required. Moreover, for fisheries, the cost of restoration will be recovered in 2-8 years. Considering this and in order to maximize a short term cost-recovery and deliver immediate adaptation benefits to the local communities, the project offers a diversified livelihood, structured around the mangrove buffer zones. Such mangrove-based livelihood will encompass a broad range of economic activities, such as silvo-fisheries, fuel wood plantations, agroforestry, sea grass cultivation, salt production etc. Such approach will increase reliance of the local coastal population on mangroves and place a strong incentive for their protection. Empowering women and relying on their stewardship role will be core to the project strategy and will yield considerable benefits to at least 10,000 women. UNDP's community mobilization strategy in Timor Leste incentivizes women's participation and social business initiatives. Certain practices, such as salt production is already led by women in Timor Leste. The PPG will identify women specific roles in various production systems and tailor to their roles and adaptation needs. Integration of such mangrove-based livelihood activities into the Suco Development Plans will secure further replication and scale up.
44. Mangrove forests are coastal plant communities that are part of a larger coastal ecosystem that typically includes mud flats, sea grass meadows, tidal marshes, wetlands, aquifers, salt barrens and even coastal upland forests and coral reefs. In effect, the project focuses on the restoration / rehabilitation and management of some of the critical habitat features within a larger landscape so as to enhance functionality of the landscape as a whole. This will be done not only through the restoration plans and management protocols but also by devising an innovative funding mechanism that will direct a portion of public infrastructure investment funding towards the coastal habitat restoration that serve as coastal protection from storms, typhoons and long term sea level rise.
45. Installed technical capacity, including series of targeted training of key government personnel, hardware and software will instill necessary knowledge and knowhow for coastal risk monitoring and risk management planning.

Environmental and Social Screening

46. Following the application of UNDP's Environmental and Social Screening guidance at the PIF formulation stage, the project idea has been assigned a category 3a, signifying that impacts and risks are limited in scale and can be identified with a reasonable degree of certainty and can often be handled through application of standard best practice. These risks will require some minimal or targeted further review and assessment to identify and evaluate whether there is a need for a full environmental and social assessment. During the preparatory phase for this project assessments will be undertaken, using preparatory grant funds, to (i) identify activities that will minimize environmental and social impacts or increase vulnerability through the changes that this project will make to coastal management planning and finance processes at national and sub-national level; (ii) work specifically to reduce the likelihood of any land use related conflicts in the target areas as a result of establishing mangrove-based production activities in the coastal regions that this project will need to undertake; and ensure that the land use decisions do not disrupt Tara bandu – a traditional land use agreement within a community to protect a special area or resource for a period of time. (iii) to ensure that gender equality and women's empowerment efforts are not undermined as a result of the project (vi) minimize the likelihood of differentiated impacts on women and men; and (v) reduce impacts that could affect women's and men's ability to use productive land (adoption of climate resilient livelihood practices and social businesses linked with mangrove rehabilitation and protection).
47. The UNDP Initiation Plan for the PPG phase, which governs the preparatory activities to be undertaken to develop the LDCF project document, will include activities and appropriate resources to further investigate likely environmental and social impacts of the project. Safeguards specific assessment will be conducted based on the initial risks identified during the screening of the PIF. Results of this assessment will inform project design and measures to minimize environmental and social risks will be outlined in the project document

A.2. Stakeholders. Identify key stakeholders (including civil society organizations, indigenous people, gender groups, and others as relevant) and describe how they will be engaged in project preparation:

STAKEHOLDER	RELEVANT ROLES
Directorate for Forestry (Ministry for Agriculture and Fisheries)	The department for protection and forest resource management under the Directorate for Forestry is responsible for mangrove conservation. Currently they are working on community based mangrove conservation initiatives. The directorate has district offices (98 staff in the districts).
District and Sub-District Administrations	Over the past decade the Government of TL has been increasingly investing in the capacity of the country's 13 districts and 65 sub-districts to carry out development planning and service delivery. While full administrative decentralization remains some years away, the districts and sub-districts already play a vital role in supporting the delivery of sectoral strategies and plans. They are also responsible for budget planning and implementation of increasing levels of local development funds (PDIP), albeit still less significant in total amounts than national sector budgets.
Other National Government agencies	The Ministry of Commerce, Industry and Environment is the lead agency on climate change in Timor Leste and caretaker of the NAPA process. The Secretary of State for the Environment provides national coordination of climate change policy and is developing its capacity as a repository of climate risk information and data, including core analytical, assessment and planning skills. The Ministry of Agriculture is responsible for forest resources, in particular coastal forests and mangroves.

Development partners	The USAID has considerable experience in coastal/aquatic rehabilitation in Timor Leste, having been implementing the Coral Triangle and Mud crab and Milkfish cultivation programs. JICA is supporting the Government on watershed management.
Other UN Organisations	The International Organisation of Migration (IOM) has considerable experience in disaster relief and recovery in Timor Leste, having been active on the ground in all 13 districts. IOM is also engaging in community based preparedness through a livelihoods diversification approach. The World Food Programme (WFP) and Food and Agriculture Organization (FAO) are supporting MoAF in monitoring and response to food security issues.
International NGOs	The most recognized INGOs involved in coastal areas is Oxfam that works on community forestry, climate change adaptation and community-based efficient resource management. Also CARE International focuses on long-term sustainable development projects in agriculture and disaster risk reduction.
National NGOs	The most recognized NGOs involved in mangrove rehabilitation are Estrela and Haburas
Local communities	UNDP's programme on social business development has conducted a wide range of consultations with local communities, including women, many in coastal provinces that have confirmed the interest to initiate the mangrove-based activities for alternative income generation.

A.3 Risk. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

Risk	Level	Mitigation
Institutional – coordination among the various directorates at the concerned ministries will remain limited and preclude an agreement over a consensus-based, multi-sectoral and integrated shoreline management plan as coastal adaptation process demands.	M	The project will rely as much as possible on the existing coordination mechanism, including cross-ministerial technical groups and other platforms to engage with all stakeholders. It will use these platforms to raise the awareness of the climate change related threats to the coastal areas, economic assets and the residing population and offer the cost effective ways of addressing the sea level rise, intensified storminess and tidal activities. Focusing on the immediate priority of Tibar Bay will provide an important entry point for the engagement with the key Ministries of Construction, Public Works and Transport and Communication.
Financial– the project will face a certain degree of resistance from the government institutions over innovative financial instruments such as offsetting mechanisms or payment for ecosystem services that are important to direct a portion of public investment funding towards the protection of natural assets in the coastal regions.	M	The government, namely the Ministry of Transport in partnership with the IFC has already shown an interest over such mechanism. However, the steps will taken with caution and the project will closely examine feasibility of such options. The results of a study on economic valuation of ecosystem services in the context of coastal habitats and their defense functions will be used to determine protection priorities. This will help identify the viable adaptation strategies, including financial mechanisms to avail necessary fund allocation that match coastal protection needs (mainly the protection and rehabilitation of the natural defense features, such as mangrove stands, wetlands etc.)
Organisational – communities may not be willing to adopt new land use practices and mangrove-based livelihood	L	The project will rely on UNDP's experience and networks in social business development. The UNDP's social business development programme at the baseline will act as an essential mechanism for community mobilization and

options due to perceived risks to their income stability and uncertainties over the market demand.		engagement. Participatory approach will be employed during the needs identification as part of the vulnerability assessments. Social business development model will be used to motivate and engage communities, especially women in mangrove-based production that will be designed to secure mangrove protection as well as income generation in the target households.
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A.4. Coordination. Outline the coordination with other relevant GEF financed and other initiatives:

48. The project has been designed in close consultation with key stakeholders within the GoTL in order to determine the most strategic intervention for the LDCF funding. Discussions were held with the Ministry of Agriculture and Fisheries and the Ministry of Commerce, Industry and Environment. The project concept has also been extensively discussed with the GEF/OFP and with the UNFCCC Focal Point for review and endorsement. From these consultations, it is proposed that the project will closely cooperate with a number of key related initiatives, some of which can be accounted as baseline activities, some as co-funding sources and others as relevant projects with which strong synergies will be built. The proposed intervention will particularly coordinate with the LDCF funded projects in the country. The *Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk* and *Strengthening Community Resilience to Climate Induced Natural Disasters in the Dili to Ainaro Road Development Corridor*. Both projects are of high relevance and address risks of floods, flashfloods and landslides of observed frequency and intensity that threaten local rural infrastructure and livelihoods. The coordinated action will be particularly necessary in relation to climate risk data management as well as other aspects of institutional and technical capacity development for climate risk assessment and response. Watershed based approaches to the climate driven disasters in the upstream mountainous districts is an area of potential synergy with the proposed project.
49. ADB supported LDCF project on *Climate Proofing Development in Pacific* includes Timor Leste among the other Pacific LDCs. The overall objective of the program is to reduce the vulnerability of vital infrastructure in the Pacific LDCs through the implementation of NAPA priorities. The ultimate impact of the program will be to reduce absolute investments losses from the negative impacts of climate change.
50. *United States Department of Agriculture ACD/VOCA mud crab and milkfish cultivation programme* is working in collaboration with the Fisheries Department of the Ministry of Agriculture and Fisheries and with the Ministry of Tourism, Commerce and Industry in Timor Leste to promote community groups in 15 villages along Timor Leste's north coast to develop and manage crab farming and milkfish rearing in cages and tanks close to the villages nearby mangrove forests. Although, the primary objective is to increase income of poor villagers, the project also aids mangrove conservation because the placements of crab and fish cages in mangroves provides them with better feed and is sheltered from the direct impacts of sea waves. The coordination with the project expert teams and stakeholders are important for learning and knowledge sharing purposes. The project however, does not directly incorporate climate change issues in the design and implementation such as likely impacts on the shoreline that will require new approaches to mangrove rehabilitation and protection (including zonation). It also misses the actions on the interface between the upstream watershed systems that generate runoff down to the water streams and river systems, wetlands and the mangrove stands both in hinterland and on the shoreline. Improving connectedness and functionality of the broader landscape falls beyond the scope of the project but the potential to embed the climate change considerations will be exploited.
51. *Coral Triangle Support Programme (USAID)*. The CTI-CFF is a multilateral partnership formed by the governments of the six Coral Triangle countries in 2007 to address the growing threats to the Coral Triangle. The Coral Triangle Support Programme (CTSP) is the delivery mechanism at the local level for Coral Triangle Initiative and partner organizations. In December 2007, these six

countries formed the Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security (CTI-CFF, or CTI for short). In response to the CTI, the U.S. Government initiated the CTI Support Program (USCTI) which consists of three agreements:

1. The Coral Triangle Support Partnership, a cooperative agreement between USAID and the World Wildlife Fund (WWF), Conservation International, and the Nature Conservancy.
2. A Program Integrator contract awarded by USAID to Tetra Tech ARD Inc. to coordinate technical assistance from various U.S. Government agencies and partners.
3. An agreement through the National Oceanic and Atmospheric Administration to provide information and technical assistance.

USAID's Regional Development Mission for Asia (RDMA) awarded the Coral Triangle Support partnership, a 5-year, \$32 million leader with associated cooperative agreement, on September 30, 2008. WWF is the prime implementer, and it provided sub-awards to Conservation International and the Nature Conservancy, forming a regional consortium. As of December 2011, cumulative obligations and disbursements under the program totaled \$23.5 million and \$15.8 million, respectively. In Timor, US CTI Support Program efforts target four main areas that overlap with the CTI Regional Plan of Action (RPOA) Goals: 1) Strengthening the CTI Secretariat and Coordination Mechanisms, 2) Improving Ecosystem Approach to Fisheries Management, 3) Improving management of Marine Protected areas, and 4) Improving capacity to adapt to Climate Change.

52. The CTSP has supported the community based management plans for Marine Managed Areas in the Nino Konis Santana National Park area and also teamed with a number of other institutions and agencies that have worked in the area in the past (AIMS, CDU, ANU, Oxfam, Plan International, CCF, JICA, Many Hands). The primary aim of CTSP in the country is to conduct the community engagement processes to ensure community involvement in the future management of the NKNP coastal and marine resources.
53. *JICA community-based sustainable natural resource management.* The Japan International Cooperation Agency (JICA) community based NRM project is promoting sustainable watershed management in Lalo River and Comoro River Basins. It is a 4 year project and is housed at the National Directorate of Forestry of the Ministry of Agriculture and Fisheries. The JICA and MAF Project Teams have started the participatory land use planning (PLUP) activities in the four project target villages, Suco Faturasa, Suco Fadabloc, Suco Talitu and Suco Madabeno. The project was designed primarily in response to the increase deforestation in these watersheds by i) wildfires, ii) intensive fuel wood collection, iii) shifting cultivation and iv) uncontrolled illegal logging, which have led to increased soil erosion, landslides, flash floods and inflow of sedimentation into rivers, and eventually affected the people's life in river basins. The tree planting activities will be implemented as an integral part of an improved land use planning and community-based natural resource management at a local level. The following are expected outputs of relevance: 1) land use plans are agreed upon and implemented by local residents in accordance with relevant Suco regulations, 2) capacities of the staff of the implementing agency and relevant stakeholders are enhanced to support CB-NRM, and 3) effective processes with roles of stakeholders to support CB-NRM are identified. The project is targeting one sub-watershed in each river basin and a total of 6 Sucos altogether and it is expected to achieve results through the concentration of effort and resources within a relatively limited geographical area. The project focuses on impacts of climate change on people and local ecosystems and the proposed LDCF project will partner with this programme and ensure that supported ecosystems as part of the livelihood development will also enhance the adaptation capacity of the coastal areas.

B. Description of the consistency of the project with:

54. B.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.:
55. Government of Timor Leste outlined its key adaptation priorities in **National Adaptation Programme of Action** that was finalized in 2010. The country has already benefited from the LDCF funding to address climate resilience of the rural infrastructure and improve its climate related disaster risk management. The proposed project will contribute to the several NAPA priorities. First of all it will help to *build resilience of rural livelihoods to secure national food security*. Establishment of mangrove-based, diversified livelihoods under the component 2, where most project funds are allocated, provides a direct contribution towards this aim. Second, the project specifically responds to the priority on *restoration and conservation of mangrove ecosystem and awareness raising to protect coastal ecosystems exposed to sea level rise*. The entire project strategy is devoted to this objective. Third, *improving institutional, human resource capacity and information management in the disaster sector in relation to climate change induced risks at national, district and community levels* is another NAPA priority addressed by the project. Although, the country has already mobilized number of projects to address this particular priority, none is currently addressing the disaster risk reduction in the context of coastal setting, which demands specific risk evaluation and response capacities.
56. Mangrove and coastal wetland restoration and protection are specifically underscored by the recent **Fourth Report on Biological Diversity**. NBSAP includes two strategic priorities that the project responds to: (i) building climate-resilient ecosystems through effectively managing protected areas and reducing threats to biodiversity; and (ii) enhancing biodiversity and ecosystems services to ensure benefits to all.
57. All government and internationally supported projects and programmes in Timor Leste should be anchored on the **National Strategic Development Plan**. The SDP (2011 – 2030) is a 20-year vision that reflects the aspirations of the Timorese people to create a prosperous and strong nation, and covers three key areas: social capital, infrastructure development and economic development. It envisions Timor Leste to have joined the ranks of upper-middle-income countries by ending extreme poverty, eliminating the economic gap with the emerging economies of the Association of Southeast Asian Nations, and fostering a democratic and environmentally sustainable society, by 2030. The SDP specifically envisions the restoration of a strong bond between the Timorese people and their environment and the sustainable management of the natural resources and environment for the benefit of all. It includes also the protection of biodiversity, key habitats and ecosystems.
58. The **Environmental Policy** (2012) guides the Government in managing its environment and natural resources in order to achieve a sustainable economic development. It includes priority to develop a National Environmental Framework that the Project component I will respond to by clarifying the roles and responsibilities of relevant sectors for environmental management including coastal zone management. According to the Policy, the National Directorate for Fisheries will develop and implement coastal management and marine biodiversity regulations and policies.
59. A draft **Community Forestry Policy** is formulation with the purpose to implement the Government's plan to delegate authority for the management of natural resources to the lower levels of government and to the civil society. The aim of the draft Forest Policy is to enable the implementation of sustainable forest management for the long term economical benefit of the nation (particularly the rural communities) and for maintaining the provision of ecosystem goods and services. The **National Forestry Legislation** is awaiting government approval too. The overarching objectives of this prospective law is to provide for a sustainable use and management of forest resources for the good of all people through achieving a balance between: the conservation and rehabilitation of the forest resources to guarantee the necessities and interests of the future generations; and the productivity of

the forest resources to satisfy current economical necessities and the livelihoods.

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

60. Consistent with the Conference of Parties (COP-9), the proposed project will implement priority interventions addressed in Timor Leste's NAPA, therefore satisfying criteria outlined in UNFCCC Decision 7/CP.7 and GEF/C.28/18. It will address urgent and immediate climate change adaptation needs and leverage additional co-financing resources from the government and multilateral sources. The Government requests the LDCF to finance the additional costs of achieving sustainable development imposed on Timor Leste by the impacts of climate change to coastal communities. It is country-driven, cost-effective, and focused on immediate needs of vulnerable people, especially women. It will contribute to building community resilience to climate induced coastal inundations, cyclonic storms and sea level rise through measures that improve understanding of the drivers of shoreline vulnerability and coastal change, technical capacity and institutional strengthening within nascent MAF and MSS structures and related policy outcomes for coherent shoreline management. It will include on the ground measures for immediate benefit to vulnerable coastal communities by helping them diversify and develop climate resilient livelihoods. It will apply complementary measures to secure long term benefits through the introduction of investments in watershed, mangroves and wetland management to support community livelihoods as well as buffer economic assets against sea level rise threats. The project focus is fully aligned with the scope of expected interventions as articulated in the LDCF programming paper and decision 5/CP.9. As climate impacts fall disproportionately on the poor, the project recognizes the link between adaptation and poverty reduction (GEF/C.28/18, 1(b), 29).

B.3 The GEF Agency's comparative advantage for implementing this project:

61. The proposed LDCF project is strongly aligned with UNDP's comparative advantage, as articulated in the GEF Council Paper C.31.5. UNDP was selected as the preferred GEF Implementing Agency by the GoTL based on its recognized added-value in most strategic elements of the project, including integrated policy development, capacity building and institutional strengthening, community mobilization, environmental finance, and decentralized governance of natural resources. Also, with strong country presence and through its global network of technical staff, in addition to operational expertise in designing/managing other related CEO approved SCCF/LDCF coastal adaptation projects in Africa, Latin America, Asia-Pacific and Arab-States UNDP is ideally positioned to assist Timor Leste to conceptualize and implement this project. Indeed, through its global GEF and non GEF portfolio and learning mechanisms, UNDP will bring in its extensive knowledge in coastal adaptation and climate resilient livelihood development.
62. The proposed project is fully in line with country's UNDAF objective 2 that focuses on vulnerable groups, IDPs and disaster probe communities and the UNDP Timor-Leste Country Programme Document (2009-2013) points out development policies, mechanisms and institutional capacities to prevent, reduce and mitigate natural disasters (Outcome 7) It also promotes a strengthened livelihood-approach for vulnerable communities, which includes the sustainable management of natural resources (Outcome 3).
63. The UNDP CO in Timor Leste possesses very good track record of working on climate change and sustainable development and maintains excellent relations and partnerships with the Ministry of Agriculture and Fisheries and all key stakeholders involved in the project.
64. UNDP is equally well positioned in relation to strengthening the land management and ecosystem integrity. UNDP was the main counterpart to Government helping to develop the country's first national biodiversity policy process and document – the National Biodiversity Strategy and Action Plan (NBSAP) which was approved by the Council of Ministers in February 2012 as well as the National Adaptation Programme of Action (NAPA), approved in August 2011. UNDP has also implemented, together with the Ministry of Agriculture and Fisheries (Directorate for Forestry,) a

Sustainable Land Management (SLM) project from 2008-2010. The goal of the project was to ensure that the agricultural, forest and other terrestrial land uses of TL are sustainable to support productive systems that maintain ecosystem productivity and ecological functions while contributing directly to the environmental, economic and social well-being of the country. One of the outputs was the National Action Plan to Combat Land Degradation (NAP) in Timor Leste

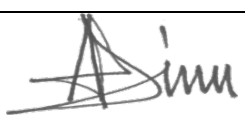
65. The CO's Energy & Environment Unit currently manages a programme portfolio with a total value of US\$12.8 million. It provides adequate staffing and technical capacity to successfully perform all tasks and obligations related to project implementation support. The following staff team will be specifically dedicated to the LDCF project: i) Environment Programme Analyst, tasked with continuous oversight of project implementation, including technical support, quality insurance and monitoring & evaluation; ii) Programme Associate, in charge of project management backstopping, e.g. budget planning and revisions, periodic reporting, audits, technical and financial troubleshooting iii) Finance and Procurement Associates, who support financial management tasks, such as budget reviews, delivery reporting, billing, bidding and contracting of service providers; (iv) Country Director, responsible for providing strategic leadership and support to the policy reforms advocated by the project.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

- A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Jao Carlos Soares	GEF Operation Focal Point	MINISTRY OF COMMERCE , INDUSTRY AND ENVIRONMENT	SEPTEMBER 30, 2013

- 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 project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
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