



## **IKAN Adapt: Strengthening the adaptive capacity, resilience and biodiversity conservation ability of fisheries and aquaculture-dependent livelihoods in Timor-Leste**

### **Part I: Project Information**

#### **GEF ID**

10181

#### **Project Type**

FSP

#### **Type of Trust Fund**

MTF

#### **CBIT/NGI**

CBIT **No**

NGI **No**

#### **Project Title**

IKAN Adapt: Strengthening the adaptive capacity, resilience and biodiversity conservation ability of fisheries and aquaculture-dependent livelihoods in Timor-Leste

#### **Countries**

Timor Leste

#### **Agency(ies)**

FAO

#### **Other Executing Partner(s)**

National Directorate of Fisheries and Aquaculture (NDFA) of the Ministry of Agriculture and Fisheries (MAF)

#### **Executing Partner Type**

Government

#### **GEF Focal Area**

Multi Focal Area

#### **Taxonomy**

Land Degradation, Climate Change, Climate Change Adaptation, Focal Areas, Protected Areas and Landscapes, Biomes, Biodiversity, Mainstreaming, Species, Influencing models, Type of Engagement, Private Sector, Stakeholders, Communications, Gender results areas, Gender Equality, Learning, Capacity, Knowledge and Research, Knowledge Generation, Community Based Natural Resource Mngt, Coastal and Marine Protected Areas, Fisheries, Wetlands, Threatened Species, Least Developed Countries, Ecosystem-based Adaptation, Livelihoods, Innovation, Sea-level rise, Community-based adaptation, Climate resilience, Small Island Developing States, Sustainable Development Goals, Food Security, Demonstrate innovative approach, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Behavior change, Public Campaigns, Strategic Communications, Awareness Raising, Participation, Partnership, Information Dissemination, Consultation, Indigenous Peoples, Local Communities, Civil Society, Non-Governmental Organization, Community Based Organization, SMEs, Beneficiaries, Gender Mainstreaming, Sex-disaggregated indicators, Women groups, Gender-sensitive indicators, Capacity Development, Knowledge Generation and Exchange, Participation and leadership, Access and control over natural resources, Access to benefits and services, Adaptive management, Theory of change, Training, Seminar, Course, Workshop

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 2

**Submission Date**

4/5/2019

**Expected Implementation Start**

9/1/2021

**Expected Completion Date**

8/31/2021

**Duration**

60In Months

**Agency Fee(\$)**

419,540.00

**A. FOCAL/NON-FOCAL AREA ELEMENTS**

<b>Objectives/Programs</b>	<b>Focal Area Outcomes</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
CCA-1		LDCF	2,149,726.00	5,082,514.00
CCA-2		LDCF	500,000.00	2,172,600.00
BD-1-1		GET	1,766,484.00	3,274,886.00
<b>Total Project Cost(\$)</b>			<b>4,416,210.00</b>	<b>10,530,000.00</b>

**B. Project description summary**

**Project Objective**

To enable fisheries and aquaculture stakeholders in Timor-Leste to adapt to climate change and manage biodiversity conservation through reducing vulnerabilities, piloting and adopting new practices and technologies and sharing information and knowledge

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co- Financing( \$)
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Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing (\$)
Component 1: Enabling national fisheries and aquaculture related policies and programmes, legal frameworks and local management institutions to address climate change, current variability and biodiversity conservation.	Technical Assistance	<p><b>Outcome 1:</b> Strengthened capacity of Government of Timor-Leste, NDFA, Sector stakeholders, fishing and fish farming communities and related organizations to develop Climate Change adaptation and biodiversity conservation policies and strategies</p> <ul style="list-style-type: none"> <li>• 2 MPAs and 4 LMMAs plans integrating CC and fisheries /aquaculture developed and started implementation</li> <li>• Conservation plan developed wetland under implementation</li> <li>• Vulnerable species conservation action plan developed for turtles and started implementation</li> <li>• 7 Municipalities (Aileu, Atauro/Dili, Bobonaro, Covalima, Lautem, Oecusse, Viqueque) have revised strategies for climate change Adaptation and Biodiversity conservation actions under implementation</li> <li>•</li> </ul>	<p><b>Output 1.1.</b> Climate induced risks mapped, vulnerabilities and aquatic biodiversity status assessed for the fisheries and aquaculture sub-sectors</p> <p><b>Output 1.2.</b> Climate adaptation and biodiversity conservation integrated into national strategies, incorporating fisheries and aquaculture needs</p> <p><b>Output 1.3</b> National level Sustainable Fisheries Livelihoods and Climate Change Adaptation Strategy for fishery and aquaculture dependent communities in Timor-Leste developed and implemented, based on concepts of Nature-based Solutions</p> <p><b>Output 1.4.</b> Capacity of national and sub-national government stakeholders</p>	LDCF	615,261.00	1,335,172.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing(\$)
1- Biodiversity funded Output from Component 1	Technical Assistance	1 GEF TF funded part of Outcome 1	- Output 1.5. National Biodiversity and Climate Change Centre (NBCCC) strengthened through support from NDFA and sector on issues related to fisheries and aquaculture	GET	448,127.00	790,115.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing(\$)
Component 2: Enhancing climate change adaptive capacity, practices and biodiversity conservation in fishing and fish farming communities (coastal and inland).	Investment	<p><b>Outcome 2</b> Climate and disaster resilient fisheries and aquaculture community livelihoods contribute to national food security through the development and demonstration of critical and innovative adaptation practices and technologies and the conservation of biodiversity</p> <p>? 20 Community led CC resilience and planning vulnerability assessments developed, strengthened and implemented</p> <p>? At least 10 Innovative adaptation technologies and practices developed and implemented (based on community needs assessments)</p> <p>? 35000 (50% women) with strengthen resilience to climate change from project support</p>	<p><b>Output 2.1.</b> Climate resilient livelihood and biodiversity conservation strategies developed in fishery and aquaculture dependent communities.</p> <p>- <b>Output 2.2.</b> Innovative adaptation technologies and practices co-developed with fisheries and aquaculture communities and implemented.</p> <p>- <b>Output 2.3.</b> National level programmes based on CC vulnerabilities developed to promote more resilient economies among small-scale fishing/fish farming communities</p>	LDC F	1,038,916.00	4,950,906.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing(\$)
Component 2: same as above	Investment	Outcome 2: same as above	<b>Output 2.4.</b> Community capacity development programme to support the design of ecosystem (EAFM/EbA) strategies and plans for fishery and aquaculture dependent communities in coastal and freshwater areas	GET	793,622.00	1,870,345.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing(\$)
Component 3: Strengthening institutional capacity through the development of climate and biodiversity conservation related information systems, information management and monitoring operations	Technical Assistance	<p><b>Outcome</b></p> <p><b>3.</b> Institutional capacity strengthened through the development of climate and biodiversity conservation related information management and monitoring system.</p> <p>? Fully operational CC impact and biodiversity monitoring system integrated into national fisheries and aquaculture statistics</p> <p>? Formal establishment of the National CC and Biodiversity Network (including operational budget)</p> <p>? Joint activities planned by MAF and MIEC</p> <p>? Publish lessons learned and best practices</p> <p>Assessment of the capacity of stakeholders and has improved 70 % pre-project levels</p> <p>People trained:</p> <p>TOTAL= 2920 (50 % women)</p> <p><b>Line ministries:</b></p> <p>- 60 Men</p> <p>- 20 Women (there are less women in technical positions</p>	<p><b>Output</b></p> <p><b>3.1.</b> Climate risk information system developed to enhance coordination and communication practices</p> <p>- <b>Output</b></p> <p><b>3.2.</b> Project monitoring system established and midterm and final evaluations conducted</p> <p>- <b>Output</b></p> <p><b>3.3.</b> IKAN Adapt Project Communications, Stakeholder Engagement and IKAN Adapt Stakeholder and Gender Strategies established and implemented</p>	LDC F	849,373.00	667,586.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing(\$)
Component 3: same as above	Technical Assistance	Outcome 3: same as above	<b>Output 3.4.</b> A monitoring system to assess impacts of climate change on marine and freshwater ecosystems and aquatic biodiversity incorporated in the National Fisheries Statistical System (NFSS	GET	460,616.00	414,426.00
Sub Total (\$)					4,205,915.00	10,028,550.00
<b>Project Management Cost (PMC)</b>						
LDCF			146,176.00		301,450.00	
GET			64,119.00		200,000.00	
Sub Total(\$)			210,295.00		501,450.00	
Total Project Cost(\$)			4,416,210.00		10,530,000.00	

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

<b>Sources of Co-financing</b>	<b>Name of Co-financier</b>	<b>Type of Co-financing</b>	<b>Investment Mobilized</b>	<b>Amount(\$)</b>
Recipient Country Government	Ministry of Agriculture and Fisheries (MAF)	In-kind	Recurrent expenditures	2,000,000.00
Recipient Country Government	Ministry of Agriculture and Fisheries (MAF)	Public Investment	Investment mobilized	500,000.00
Recipient Country Government	GENERAL DIRECTORATE OF ENVIRONMENT	In-kind	Recurrent expenditures	750,000.00
Recipient Country Government	GENERAL DIRECTORATE OF ENVIRONMENT	Public Investment	Investment mobilized	250,000.00
GEF Agency	FAO	In-kind	Recurrent expenditures	410,000.00
GEF Agency	FAO	Grant	Investment mobilized	420,000.00
Donor Agency	WorldFish	In-kind	Recurrent expenditures	300,000.00
Donor Agency	Conservation International	In-kind	Recurrent expenditures	300,000.00
Donor Agency	Conservation International	Grant	Investment mobilized	200,000.00
Donor Agency	WorldFish	Grant	Investment mobilized	5,400,000.00
<b>Total Co-Financing(\$)</b>				<b>10,530,000.00</b>

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

The investment mobilized: From Ministry of Agriculture is the investment they will make to implement MAF Strategic Plan. from General Directorate of Environment relates to their investment in implementing NBSAP and NAPA. CI investment mobilized t will be from their projects related to CCA, PA, conservation planning etc. WorldFish cofinance includes 5.4 million, of which 2.75 million is their

activities related to improved fisheries management, catch monitoring and nutritional outcomes and 2.65 is related to scaling up aquaculture value chains. Please see FAO cofinance letter for details on investment mobilized.

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

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>
FAO	LDC F	Timor Leste	Climate Change	NA	2,649,726	251,724
FAO	GET	Timor Leste	Biodiversity	BD STAR Allocation	1,766,484	167,816
<b>Total Grant Resources(\$)</b>					<b>4,416,210.00</b>	<b>419,540.00</b>

**E. Non Grant Instrument**

NON-GRANT INSTRUMENT at CEO Endorsement

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Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)  
PPG Required **false**

PPG Amount (\$)  
150,000

PPG Agency Fee (\$)  
14,250

Agenc y	Trust Fund	Country	Focal Area	Programmin g of Funds	Amount(\$)	Fee(\$)
FAO	GET	Timor Leste	Biodiversity	BD STAR Allocation	60,000	5,700
FAO	LDC F	Timor Leste	Climate Change	NA	90,000	8,550
Total Project Costs(\$)					150,000.00	14,250.00

## Core Indicators

**Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	380.00	0.00	0.00

**Indicator 1.1 Terrestrial Protected Areas Newly created**

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

Name of the Protected Area	WDP A ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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**Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
0.00	380.00	0.00	0.00

Name of the Protected Area	WDP A ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
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Name of the Protected Area	WDP A ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
Akula National Park Nino Konis Santana National Park	125689352708	Select		380.00					

Indicator 2 Marine protected areas created or under improved management for conservation and sustainable use

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	870.00	0.00	0.00

Indicator 2.1 Marine Protected Areas Newly created

Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
0.00	870.00	0.00	0.00

Name of the Protected Area	WDP A ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
Akula National Park	125689	SelectOthers		870.00		

Indicator 2.2 Marine Protected Areas Under improved management effectiveness

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

Name of the Prote cted Area	W DP A ID	IUCN Cate gory	Total Ha (Expe cted at PIF)	Total Ha (Expect ed at CEO Endorse ment)	Total Ha (Achi eved at MTR)	Total Ha (Achi eved at TE)	METT score (Baselin e at CEO Endorse ment)	METT score (Achi eved at MTR)	METT score (Achi eved at TE)
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#### Indicator 3 Area of land restored

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

#### Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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#### Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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#### Indicator 3.3 Area of natural grass and shrublands restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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#### Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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**Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
10.00	0.00	0.00	0.00

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

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
10.00	0.00		

Type/Name of Third Party Certification

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

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

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

Title	Submitted
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**Indicator 5 Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
1,000.00	33,540.00		

**Indicator 5.1** Number of fisheries that meet national or international third party certification that incorporates biodiversity considerations

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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Type/name of the third-party certification

**Indicator 5.2** Number of Large Marine Ecosystems (LMEs) with reduced pollutions and hypoxia

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (achieved at MTR)	Number (achieved at TE)
0	0	0	0

LME at PIF	LME at CEO Endorsement	LME at MTR	LME at TE
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**Indicator 5.3** Amount of Marine Litter Avoided

Metric Tons (expected at PIF)	Metric Tons (expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
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**Indicator 11** Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Female</b>	18,280	0		
<b>Male</b>	18,280	0		
<b>Total</b>	36560	0	0	0

## Part II. Project Justification

### 1a. Project Description

- ) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)

Timor-Leste is an independent country that occupies the eastern half of Timor Island, the largest island in the Lesser Sunda Islands, which is located at roughly 400 miles distance from the Eastern part of Australia continent. The country includes the enclave of Oecussi, which is located within West Timor (Indonesia) and Atauro and Jaco Islands. It has an area of 14,918 square kilometres and a coastline of 706 kilometers. It is located between 8° 7' S and 9° 27' S latitudes and 124° 2' E and 127° 20' E longitudes surrounded by Savu Basin in the west, Wetar Basin in the north and Timor Sea in the east and south. The topography is mainly mountainous with slopes ranging from 10 to 45 degrees with the highest point in the country being the Mount Ramelau found at approximately 2950 meters above sea level.

The population of Timor-Leste in 2015 is 1 183 643 (601 112 males and 582 531 females).[1] Thirty-nine percent of the population belong to the 0 - 14 age group. A larger proportion (70 percent) of the population is living in rural areas, the majority of which are engaged in farming for their livelihoods.

Timor-Leste is one of the Least Developed Countries. In the global Human Development Report 2019, Timor-Leste was ranked 131st out of 189 countries with a Human Development Index (HDI) value of 0.626. About 40 percent of the population live in income poverty. Most of the country's people are dependent on subsistence agriculture and fishing and there is widespread poverty and food insecurity amongst them. At least 36 percent of the Timorese population suffer chronic food insecurity, including 21 percent who experience moderate chronic food insecurity and 15 percent that experience severe food insecurity. On average, households in Timor-Leste spend almost 70 percent of their income on food, with poorer families spending even more. Smallholder farming families, in particular, suffer from food insecurity because they only produce cereal staples of maize and/or rice to last between three and six months per year. According to the FAO CPF 2020, agriculture is a key economic sector, providing 70 percent of employment and contributing to 17 percent of non-oil GDP. Rainfed and irrigated crop production, livestock rearing and artisanal fisheries are practiced by 80 percent of Timorese households, of which 97 percent are smallholder subsistence producers/family farmers. Two-thirds of households cultivate less than one hectare of land. Agriculture productivity remains substantially low (i.e. rice at 3 t/ha; and maize at 2.2 t/ha and 40 kg per farm labour day) compared to neighbouring countries with similar agro-economies (and is the lowest in the South-East Asia Region). Therefore, Timor-Leste is a food-deficit country, and imports above 40 percent of its annual staple food, including 64 percent of the rice it consumes.

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Timor-Leste has significant biodiversity of global importance. It is positioned in a biodiversity hotspot known as Wallacea, which harbours a number of globally significant ecosystems and endemic species. The geographic position of Timor-Leste also places it in a strategic area for marine biodiversity being a part of the Coral Triangle, which sustains about 120 million people and where 76 percent of the world's coral species and six of the world's seven marine turtle species can be found. There are five recorded species of marine turtles in Timor-Leste including *Eretmochelys imbricata* (Hawksbill turtle), *Dermochelys coriacea* (Leatherback turtle), *Chelonia mydas* (Green turtle), *Caretta caretta* (Loggerhead turtle), *Lepidochelys olivacea* (Olive Ridley turtle). The Hawksbill and Leatherback turtle are 'critically endangered' whereas the Green, Loggerhead and Olive Ridley turtles are 'endangered' (IUCN Red List). Conservation of marine turtles is recognized in the NBSAP of Timor-Leste, which lists the seven marine turtle species recorded in Timor-Leste. The country's globally significant ecosystems include its tropical rainforest, mangroves, wetlands such as the Lake Iralalaru basin, and agricultural and marine ecosystems. Approximately 35 percent (4,538.5 square kilometres or 453,850 hectares) of the land area (excluding approximately 22 square kilometres of water bodies) has some type of forest cover. Many communities (including those fishing, gleaning and fish farming) rely on ecosystem services provided by this biodiversity for livelihoods and food security. The freshwater Snake neck turtle (*Chelodina mccordi*, sub-species *timorensis*) is also critically endangered, and listed as a priority as an evolutionary distinct (EDGE) species. Their decline is due to human harvest<sup>[1]</sup>, predation by dogs and pigs, burnings during dry seasons, clearing of agricultural lands, natural predation (crocodiles), deforestation, prolonged periods of drought and related impacts of climate change, and over-harvesting. Lack of knowledge and awareness on the impacts of destructive activities, lack of fishing skills, and lack of law enforcement were identified as the main root/causes behind the destructive activities causing detrimental impacts.

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[1] Eisemberg, C.C., Costa, B.G., Guterres, E.C., Reynolds, S.J. and Christian, K.A. 2016. Notes on *Chelodina mccordi timorensis* Biology, Harvest, Current Threats, and Community Perceptions in the Lake Iralalaro Region, Timor-Leste. *Chelonian Conservation and Biology*, 2016, 15(1): 69-78.

Timor-Leste has 706 km of coastline and a marine exclusive economic zone (EEZ) over which it has fishing rights, of approximately 75,000 km<sup>2</sup>. According to the government of Timor-Leste's Strategic Development Plan (2010-2030) this fishing area has the potential to provide valuable animal protein to feed the population as well as to provide employment, income earning opportunities and foreign exchange from fish exports.

Timor-Leste's fisheries and aquaculture sector is important for livelihoods and nutrition. The fisheries sector is characterized as artisanal, with most of the fishing fleet (62.4%) comprised of small non-motorized wooden canoes powered by sail and paddles. According to the Ministry of Agriculture and Fisheries (MAF), there were around 5,185 fishers operating out of 162 fish landing centres and landing a total of 3,066 tonnes of fish in 2018. While most motorized canoes are equipped with drifting gillnets for small pelagic fish species, hand-lines and bottom long lines, the smaller paddle canoes are equipped with hand-lines and smaller gillnets for the capture of sardines and other small pelagic fish caught within a few hundred meters of the shoreline. A large number of reef gleaners (primarily women),

shellfish gatherers, divers, as well as people who fish using nets from the shore, remain still unrecorded. In addition, a large, but unrecorded number of people harvest shrimp from river mouths. All these groups are considered to have extremely vulnerable livelihoods.

Aquaculture is not yet fully developed in Timor-Leste but is a priority area for development. In recent years progress has been made with the culture of Tilapia (45 tonnes in 2017) and milkfish (80 tonnes in 2017). Some commercial production of white shrimp has started. The primary centres of production are: milkfish in Dili and Oecusse; mudcrab, milkfish and seaweed (and pilot finfish cage aquaculture) in Liquica; and seaweed on Atauro Island. Timor-Leste's National Aquaculture Development Strategy (NADS) 2013-2030 has set a goal to provide up to 40% of the country's fish production from aquaculture. Although the NADS focuses mainly on the development of freshwater aquaculture, it also considers brackish water and marine aquaculture development, with Dili, Liqui'a and Manatuto districts being priority mariculture development areas. The government target is to increase both aquaculture and capture fishery production to supply 10 kg/capita/year for consumption. Increasing climatic variability and unpredictability present a very significant additional risk to the lives, livelihoods and food and nutritional security of rural communities in the country.

Timor-Leste is also one of the top fifteen countries with the highest disaster risk and considered as having high vulnerability, susceptibility, and lack of coping and adaptive capacity to climate change[2]<sup>2</sup>. Timor-Leste is prone to various climate hazards. These include floods, drought, landslides, strong winds, storms and sea level rise. In Timor-Leste, analysis of disaster impacts from 2001 to 2011 show that more than 20,000 people were affected, and more than 10,000 houses were damaged. Among all disasters, climate related hazards lead to most severe impacts in Timor-Leste, particularly flood and droughts, which are very frequent. Most of the impacts are on agricultural sector and livelihood activities, which in turn affect food security in the country. Major flood occurrences in Timor-Leste have been recorded in recent years. Floods have resulted to varying degrees of damages in different districts such as destruction of houses and livelihoods, damages on crops, livestock and fisheries, damages on infrastructure and health impacts[3]<sup>3</sup>. Increased intensity and frequency of extreme rainfall events have led to significant losses of equipment. Floods caused by intensified rainfall are usually a cause of equipment loss given that many fishing communities are located near river mouths, which are the main fishing grounds for a number of important species (e.g. sardine), which are targeted during the rainy season.

Timor-Leste is considered as one of the most vulnerable countries to climate change and other global challenges ranking 111 out of 181 countries in the ND-GAIN index[4]<sup>4</sup>. Timor-Leste is also ranked 15 (out of 180 countries) in terms of its vulnerability to the impact of climate change[5]<sup>5</sup>). Factors that contribute to Timor-Leste's high-risk index are mainly high exposure to hazards, relatively high vulnerability and susceptibility and lack of coping and adaptive capacity. Agriculture is by far the most important economic sector in Timor-Leste in view of its absorption of a massive percentage of the

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active population for work, but because of its subsistence nature, climatic hazards and shocks would usually lead to food insecurity[6]<sup>6</sup>.

Coastal communities are already experiencing **highly unpredictable weather events** as variations of significance have been recorded on rainfall, extreme climatic events such as storms, sea surface temperature and sea level rise. Negative annual and dry season rainfall trends have been recorded since 1959. Sea surface temperature has risen gradually, with an average warming of 0.16°C per decade and sea level has risen at an average of 9 mm per year since 1993. The most extensive impact of El Niño episode occurred in 2015/2016, which caused enormous impacts in almost all sectors in Timor-Leste. Globally, it affected around 60 million people through flash flooding, long dry season and extreme cold weather[7]<sup>7</sup>. The consequence resulted in food shortage, lack of water, many livestock killed and malnutrition. The direct impacts were on agricultural production, aquaculture and livestock and leading to impacts on income generation/diversification and other key livelihoods in the rural communities.

At the local level, **rainfall variability** and its effects on **water salinity** are the most likely causes for the widespread occurrence in 2010 and 2011 of the ice-ice seaweed disease. While seaweed farming had become a successful alternative livelihood activity among fishing operators and became a main source of income for most producers, the disease provoked an important decrease in production in consequent years, leading to a widespread impact among producers' household earnings. As a result, many left the activity. This has led to a decrease in the income levels and economic diversification among small-scale fishers and a subsequent increased fishing pressure over the inshore areas. Additionally, recent disasters already witnessed in Timor-Leste, such as floods and landslides which have brought about destruction of property, livelihoods and injury to persons, have shown the further challenges that Timor-Leste will have to cope with under a scenario of increased climate variability and longer-term change.

According to Timor-Leste national communication to the UNFCCC, its climate is affected by the West Pacific Monsoon, which is driven by large differences in temperature between the land and the ocean. It moves north to mainland Asia during the Southern Hemisphere winter and south to Australia in the Southern Hemisphere summer. Its seasonal arrival usually brings a switch from very dry to very wet conditions. The normal south-easterly-trade winds in Dili are replaced by westerly winds from the monsoon onset until the end of the monsoon season. According to projections, Timor-Leste's future climate can be summarized as follows:

- ?           Temperatures will increase by 0.4-1.0 degree Celsius by 2030;
- ?           Rise in number of hot days and warm nights;
- ?           Decrease in dry season rainfall and increase in wet season rainfall;
- ?           Extreme rainfall days likely to occur more often;

- ? Decrease in frequency of tropical cyclones, but likely increase in intensity of cyclones;
- ? Increase in sea-level rise; and
- ? Increase in ocean acidification.

These impacts of climate change are likely to further undermine livelihoods of the most affected and vulnerable in the future, and to potentially intensify. The National Adaptation Programme of Action[8]<sup>8</sup> (NAPA, 2010) summarizes the risks associated with climate change as follows:

Table 1.1 Summary climate change impacts for Timor-Leste (NAPA, 2010)

Parameters	Changes
Temperature	<ul style="list-style-type: none"> <li>-Overall increase without significant variability across the seasons.</li> <li>-Extreme temperature events are expected to increase in intensity and length.</li> </ul>
Rainfall	<ul style="list-style-type: none"> <li>-Expected increase in mean rainfall values.</li> <li>-Extreme rainfall events expected to increase in intensity and decline in frequency.</li> <li>-Dry season expected to become drier.</li> </ul>
Sea level rise	<ul style="list-style-type: none"> <li>-Increase in line with global projections is expected.</li> </ul>
Tropical cyclones	<ul style="list-style-type: none"> <li>-Expected to decrease in frequency and length of event, but expected to be more intense in their nature.</li> </ul>
Ocean	<ul style="list-style-type: none"> <li>-Expected to become more acidic.</li> </ul>

Climate change is likely to impact significantly on the fisheries sector due to the altered rainfall regime and the warmer temperature. Climate projections for 2050 suggest an increase in temperatures of 1.25??1.75?C, increased duration of heatwaves, increased rainfall of 4?10 percent with an increase of up to 100?120 mm in coastal areas, increased intensity of heavy rainfall events (but decreased frequency), rise in sea level by 150?340 mm, increased cyclone intensity (but decreased frequency) and increased sea surface temperatures of 0.6?? 0.8?C by 2030[9]<sup>9</sup>. The coral reef, mangrove and seagrass habitats supporting small-scale fisheries in the region are already under stress from climate change and

other anthropogenic impacts[10]<sup>10</sup>, [11]<sup>11</sup>, [12]<sup>12</sup>. The projected increases in air temperature, turbidity from more extreme rainfall, sea surface temperature, marine heatwaves, ocean acidification, sea level, and physical damage from more intense cyclones are expected to cause further reductions in the extent and quality of coastal habitats<sup>11,12</sup>, [13]<sup>13</sup>.

In addition, the following impacts of **climate change and loss of biodiversity** are occurring and will be intensified for the sector and rural communities:

- ***Depletion of fish resources:*** Despite the fact that fish and fish products are not widely available to its wider/inland population, fishing pressure is high and is depleting fish stocks and biodiversity rapidly. Fishing is concentrated in areas close to the shore and fishers are experiencing reduced catch with the size of the fish also getting smaller. There is also a high concentration of fishers within limited areas. Their repetitive fishing within limited areas is another cause of stock and biodiversity depletion as their fleets (e.g. small paddle canoes or low power engines) are unable to take them further afield. This has resulted in overexploitation and the reduction of fishing operation areas. Unsustainable and illegal fishing practices, such as bomb and poisoning still remain rampant and widespread; all of which threaten Timor-Leste's critical coastal and marine ecosystems and fishery productive capacities.
  - ***Environmental degradation:*** Decline in the number of tropical cyclones and increased ocean acidification caused by climate change have changed coastal ecosystems, reefs (coral bleaching) and tropical biodiversity. Longer dry seasons provide more days for fishers to go fishing, resulting in unbalanced catches and increased pressure on nearshore fishing areas. Physical destruction of reefs and mangrove areas is another likely impact of climate change and more frequent and extreme weather events. Siltation of adjoining catchments has already begun to reduce coastal mangrove areas. Intensive rainfall during the wet season and deforestation has intensified erosion and the loss of fertile topsoil. The increase of sediments washed into coastal marine ecosystem environments has negative consequences including smothering of coral reef areas, increased suspended solids and reduced light penetration within the water column. In addition, mangrove areas have been converted into fish, shrimp, and salt ponds. The extraction of fuel wood and timber as well as the gathering of bivalves, snails and small fish is also currently carried out in an unsustainable manner. Overall environmental degradation has a direct and negative impact on biodiversity.
  - ***Food security*** is a major concern in Timor-Leste, and if unaddressed, this would be exacerbated by climate change and biodiversity loss. Increased sea surface temperature will lead to changes in the marine ecosystem. Such changes would likely impact migratory patterns of important marine species, ocean currents, and could decrease seaweed production due to increased diseases. Unbalanced catch caused by climate change has already reduced availability of fish during the so-called 'hungry season' (Nov to Feb). Ocean acidification as well as the decrease in frequency of tropical cyclones (with an increase in intensity) is also affecting fish stocks. The aquaculture sector is also exposed to natural
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hazards such as salt-water intrusion, flooding of ponds or shortages in water supply. Changes in climate will also influence exposure to fish diseases. All fishery products are consumed within the country, and therefore the decrease of fish available to its population will likely trigger further food insecurity. This is happening in the context of increasing population growth.

- **Food safety:** Increased air temperature decreases the quality of fishery and related marine products, as higher temperature without cooling systems spoils products rapidly. The deterioration of quality also reduces the price of the fishery products; this results in lowering incomes of fisher families. It also causes health concerns among consumers. Recently, an ice distribution system was established in four locations along the north coast (where electricity is available). However, the main market for the fishery products is in Dili (south), and there is a supply and demand gap. More than 190 fishing communities are located along the island's coast, but geographically dispersed. Thus, ice must be available over a wider area in order to avoid food safety issues in the future climate scenario.

- **Frequent flood risks.** Increased intensity and frequency of extreme rainfall events have led to loss of equipment. Floods caused by intensified rainfall are usually a cause of equipment loss given that many fishing communities are located near river mouths, which are the main fishing ground for a number of important species (e.g. sardine), which are targeted during the rainy season. The latest flooding event owing to heavy rains during the period 29 March to 4 April 2021 affected 28 734 households across 13 municipalities (of which 90 percent were in Dili municipality); preliminary assessment by the Ministry of Agriculture and Fisheries in nine municipalities as of 21 April 2021 revealed that 1 820 ha of rice crops and 190 ha of maize had been affected.[14]<sup>14</sup>

- **Biodiversity loss:** The threats to aquatic biodiversity include overexploitation and unsustainable use of natural resources, as well as habitat degradation and fragmentation, which are the main drivers of biodiversity loss in Timor-Leste. These are mainly caused by deforestation, unabated collection of sand and stones in rivers, unsustainable agricultural practices, and land conversion to other uses. Pollution, invasive alien species, and climate change are also contributing factors to biodiversity loss. Depletion of the country's forests causes significant and ongoing coastal habitat loss, particularly in coastal mangroves. In some areas, hinterland mangroves have been removed for the establishment of brackish water shrimp and/or fish ponds.

### **Key Barriers (Climate Change Adaptation and Biodiversity Conservation)**

There are a number of **key barriers** that prevent stakeholders from taking adequate action to reduce vulnerability to impacts of climate change, increase resilience and conserve biodiversity in Timor-Leste's fisheries and aquaculture sectors. The following summarizes the logic underlying key barriers preventing stakeholders from adapting to climate change and conserving aquatic biodiversity (primary lines are identified barriers; secondary lines indicate possible causes):

**A. National Policies, laws and strategies for the development of the fisheries and aquaculture sector have been developed. However, these lack strategies and action plans to address climate change adaptation and biodiversity conservation needs. Conversely there is limited integration of fisheries and aquaculture specific climate and biodiversity conservation issues to other sector policies.** This barrier will be addressed by project *Component 1*.

? Limited capacity for national policy and planning in fisheries and aquaculture sector to address climate change and biodiversity conservation targets;

? Limited capacity for research, monitoring, analysing and modelling of biodiversity conservation, climate risk and sector vulnerability;

? Strategies and frameworks to address climate change adaptation and biodiversity conservation in the sector are weak; and.

? Limited integration of biodiversity conservation across government.

**B. Limited capacity of fishing and aquaculture communities in understanding and responding to the risks of climate change and their capacity to conserve biodiversity.** This barrier will be addressed by project *Component 2*.

? Limited livelihoods diversification of communities and those involved in the sector;

? Limited capacity for developing innovative technologies for climate adaptation in fisheries and aquaculture;

? High reliance on ecosystem services and from biodiversity of global significance;

? Weak engagement on climate change adaptation and biodiversity conservation with fishing and fish farming communities;

? Underlying vulnerability due to increased pressure on nearshore fisheries resources, poor management, disasters, weak production chain;

? Limited access to aquaculture inputs (fish seeds, fertilizer and feed);

? Lack of skilled human resources, limited extension systems for fisheries and aquaculture sector;

? Limited partnerships between government agencies, NGOs, communities, the private sector;

? Damaged infrastructure; and,

? Limited value chain infrastructure (including technologies etc.)

**C. Fisheries and aquaculture communities lack information on and understanding of climate change and biodiversity conservation. In particular impacts of climate change and biodiversity loss on the sector, livelihoods and food and nutrition security.** This barrier will be addressed in *Component 3*

- ? Limited capacity for systematic collection, analysis and reporting of climate change impacts and biodiversity status, including outreach to communities;
- ? Lack of consistent monitoring and sharing of climate and biodiversity data for the fisheries and aquaculture sector in Timor-Leste;
- ? Insufficient meteorological or hydrological services available in the country due to the destruction in 1999 of most infrastructure (including meteorological);
- ? Limited capacity to forecast potential threats of disasters that may impact the fisheries and aquaculture sector and little preparedness to respond and cope with such events; and
- ? Weak coordination within the sector and with other sectors.

**Human capacity (including for policy development):** For a number of years since independence, Timor-Leste had no educational institutions providing courses in fisheries and aquaculture, biodiversity conservation or climate change. There are currently 11 Universities in Timor-Leste. Since 2016 the University of Timor-Leste (UNTL and UNITL) have been running undergraduate courses in fisheries and aquaculture with plans to offer postgraduate courses in the future. In 2018 the Government of Korea has supported the construction of the National Institute of Fisheries and Aquaculture, which can provide vocational and practical training to fishers and fish farmers. Government officers are provided basic orientation on recruitment, and skills development by the National Institute of Public Administration (INAP), although there is no training on fisheries management, aquaculture and climate change or biodiversity conservation. There is limited capacity within the sector to undertake science-based studies to enable innovation of new and important climate change adaptation technologies. The limited training and preparation of NDFA has led to NDFA's weak planning and policy development capacity.

**Sector coordination:** NDFA has established the Fisheries Consultative Council, a consultative body established under the Fisheries Law, but this was never fully established or made operational. A number of projects working in fisheries are and have been implemented with the NDFA as its partner institution. A system of focal points is present in the NDFA where staff is assigned to coordinate actions between development agencies and the NDFA. However, it has had little impact in terms of effectiveness and program coordination. Public servants see the responsibilities as Focal Points as an added duty without a reward, compensation or recognition. This has resulted in their weak involvement, coordination and communication in carrying out project activities. There is no sector specific coordination mechanism to support climate change or biodiversity conservation.

**Information dissemination to beneficiaries:** The recently-developed-web-platform [peskador.org](http://peskador.org) and the RFLP supported mobile services are the only existing tools where NDFA can disseminate information to the fishing communities. The web contains some information on weather, tide predictions, wind and wave direction and intensity. However, its use among the fishers remains low due to the high illiteracy rates. Communications with fishers and fish farmers tend to be hierarchical and are always channelled through the district fisheries officers, who lack means to disseminate

information in the Sucos. Communications to communities on new and innovative technologies for climate change adaptation is limited.

**Capacity issues in managing the National Fishery Statistics System (NFSS):** The NFSS was developed in 2011 and has the potential to serve as a crucial tool for adaptive management in a context of climate variability and biodiversity conservation. However, the management of the system remains a challenge; the NDFA does not have capacity to analyse and interpret the data and link the results to climate variability trends or to advise conservation management efforts. Additionally, no specific data is gathered locally in regard to climate variation (although the web platform links to global information systems) for the marine and coastal environments. A new, more appropriate data collection and analysis program must be developed by NFSS to match the absorptive capacity of NFSS as it continues to build its capacity over time. There has been recent progress through the support of Worldfish, Norway and New Zealand but gaps still remain with respect to climate change adaptation and biodiversity indicators. UNDP along with the MCIE are in the process of installing tide gauges to monitor sea level.

**Climate change and biodiversity data and information dissemination:** Timor-Leste has improved but does not have yet universal access to reliable sources for weather forecast to alert storms or extreme events. In a recent study, this was identified as a major safety issue pertaining to accidents at sea. Based on the records of the National Fisheries Statistics System, it stands as the second cause of accidents at sea and the main cause of loss of equipment and missing boats. Currently the GIS service of the MAF has 7 manual and 12 automatic weather stations to gather regular data on rainfall and temperature. The MAF Seeds of Life project manages 20 stations around the country. No regular analysis is done by Agriculture and Land use Geological Information System (ALGIS), while Seeds of Life (SoL) regularly uses the data gathered. ALGIS is currently receiving training and support from a number of projects, including the FAO's *Establishing a sustainable National Information and Early Warning System (NIEWS) on Food Security in Timor-Leste* project. The National Directorate of Meteorology and Geology, manages two weather stations at the two airports in country: Dili and Baucau. Digitalization of available data from the Portuguese and Indonesian times was accomplished with external support; however, the Directorate faces important financial and human resources issues. There is no information sharing or coordination among the state institutions (ALGIS and National Directorate of Meteorology and Geology).

Currently, no data is available in country to monitor climate change impacts within marine ecosystems. Due to the lack of ports, fishers who engage in capture fisheries must pull up and down their boats on the shore every day. The fish and fish-product supply chains are underdeveloped due to the lack of appropriate storage facilities and ice distribution network, under-developed transportation and road infrastructure, access to reliable energy as well as distance to markets. The fish supply chains are characterized by low investment, low production, and high transportation costs, all of which result in high prices and low demand. As a result, the country remains at the lowest fish and protein consumption in the region, which contributes to stunting among children and nutrient deficiency among mothers. The government has a programme in place to raise consumption to 10 kg/capita/year through increasing capture fisheries and aquaculture production.

## 2) Baseline scenario and any associated baseline projects

In the baseline, several agencies and stakeholders support efforts for sustainable development, sustainable fisheries management and biodiversity conservation at the national and municipal levels. The proposed project will directly build upon and complement these efforts by facilitating coordination and cooperation among key government departments within and across sectors.

### *Government policies and related initiatives*

In terms of agriculture and food security policy, the **Master Plan for Agriculture and Irrigation Development (2014)** aims to expand the country's irrigated area. The national policy infrastructure for improving food security, nutrition and agricultural output and addressing land degradation and climate change is in place, centred on the Government's **Timor-Leste Strategic Development Plan (2011-2030)**. Timor-Leste was the first country in the region to sign up for a **Zero Hunger National Action Plan** and important progress has been made on multi-sectoral coordination. The 2017 National Food and Nutrition Security Policy and the 2015-2025 Zero Hunger Action Plan provide the key frameworks for addressing undernourishment.

The **Ministry of Agriculture and Fisheries (MAF)** is responsible for resource management including fisheries and aquaculture sectors. The key agency for fisheries and aquaculture management is the **National Directorate for Fisheries and Aquaculture (NDFA)**, which is responsible for fisheries and coastal resources management as well as development of the fisheries and aquaculture industries. MAF has developed a Strategic Plan (2014-2020) wherein key development priorities for the fisheries sector are outlined, and indicative budget allocated (i.e. of ca. US\$4.5 million over seven years). MAF has also developed a **National Fisheries Strategy** with the support of WorldFish. The main aims of this plan are: i) to enhance exploitation of the country's 735 km coastline, and ii) to provide broad nutritional and economic benefits to each of the eleven (11) coastal municipalities in the country. Government resources are mobilized to realize this strategy, where aquaculture activities (e.g. seaweed, prawn, abalone, crab and oyster farming) are first targeted, and with increased focus to be given in the following years towards commercial ocean-fishing, and increasing catch from traditional fishing activities. The MAF is establishing several Fish Aggregating Devices (FADs) on the northern coast of Timor-Leste to help fishers to catch pelagic fish.

## National Fisheries Strategy

The NFS proposes the following vision for Timor-Leste's marine fisheries:

*Timor-Leste's marine fisheries provide for sustainable livelihoods, incomes and employment, and contribute significantly to food and nutrition security while marine living aquatic resources and coastal environs are safeguarded for future generations.*

Its overall objective is:

Responsible, sustainable and equitable management of fisheries and living aquatic resources based on a co-management arrangement and complying with regional and international laws, voluntary instruments, agreements and covenants.

The specific objectives of the NFS are:

- Co-management of marine resources by small scale and artisanal fishers, their families and communities represented socio-politically by legitimate basic democratic organizations, facilitating ownership and in compliance with legal and regulatory provisions, in concert with GoDRTL competent authorities
- GoDRTL competent authorities exercise their sovereign function of providing and enforcing a legal and regulatory framework conducive to co-management of marine resources in the EEZ for the benefit of the Timorese people, together with artisanal fishers, their families and communities.

The policy principles underlying the vision and objectives are that:

- All Timorese fisheries resources which can be caught by small scale and artisanal fishers should be caught by small scale and artisanal fishers, and
- All Timorese fisheries resources which can be caught by Timorese fishers should be caught by Timorese fishers.

In support of the national strategic plan for the sector, the government has also developed a **National Aquaculture Development Strategy (2012-2030)**. Under this strategy, inland aquaculture will be developed to address food and nutritional security throughout the central areas of Timor-Leste which currently suffers from low access to animal protein. This strategy highlights the role of aquaculture in i) building resilience of rural livelihoods through diversification via aquaculture, as well as ii) means to manage seasonal variability and harness increased rainfall/water storage through aquaculture pond development. **The investment by the National Directorate of Fisheries and Aquaculture (NFDA) in this strategy is 500,000 USD per year (or approximately US\$ 2,500,000 over the life of this project).**

The **Ministry of Commerce, Industry and Environment (MCIE)**, is responsible for Climate Change Adaptation and Biodiversity Conservation. The development of policy and legislation specific to protected areas is in process. The National Directorate for Climate Change (NDCC) is the lead

government agency of Timor-Leste responsible for biodiversity conservation, in close coordination with the Ministry of Agriculture and Fisheries (MAF). The Ministry of Economy and Development (MED) led the process in the preparation of the National Biodiversity Strategy and Action Plan (NBSAP) and is responsible for monitoring its implementation. The MED also leads the National Biodiversity Working Group (NBWG). This LDCF/BD project will support the Government of Timor-Leste in mainstreaming biodiversity conservation and climate change adaptation into the fisheries and aquaculture sectors. In addition to limitations in budgets and the capacity and number of staff, there remain large gaps in laws regulating the existing protected areas, and there is a need for stronger implementation mechanisms, and to address issues related to land ownership overall. The National Directorate of Climate Change (NDCC) under the Secretary of State for the Environment has been conducting since 2018 Integrated Vulnerability Assessment (IVA) at the village level. The results of the IVA will be a significant contribution to guide government institutions and other agencies designing initiatives that address village and communities needs. The municipalities/administrative post/villages covered under the IVA assessment are presented below, and the reporting is ongoing. The IkanAdapt will build on the knowledge generated by this assessments. Initial findings have highlighted the role of the *Tara Bandu* for awareness raising on climate related issues.

Municipality	Administrative Post	Village
Aileu	Aileu Vila	Fahiria
	Aileu Vila	Lahae
	Laulara	Madabeno
Bobonaro	Balibo	Sanirin
	Atabac	Atabac
		Hataz
		Aidabaleten
	Balibo	Cowa
Covalima	Cailaco	Atudara
	Zumalai	Raimea
		Beco
	Tilomar	Lalawa
		Casabauc
Lautem	Lautem	Com
		Euquisi

Viqueque	Lospalos	Lore I
	Iliomar	Iliomar I
	Lacluta	Ahic
	Ossu	Builale

Local authorities in Timor-Leste at the district, sucos (village) and hamlet (sub-village), in particular the Chief Suco (village leader) whose role is to coordinate village councils and all heads of hamlets on issues relevant to marine and coastal resources, are critical partners to promote the co-management of coastal resources and to encourage economic diversification and livelihoods for their communities. The sucos have their own traditional laws (Tara bandu), and government tends to treat these with respect while increasingly devolving authority to the suco level. A number of international and national NGOs and agencies support Timor-Leste in terms of implementing the NBSAP. The investment by the MCIE is estimated as 1,000,000 USD over the 5 years of the project.

#### ***Other agencies initiatives***

##### **WorldFish Center**

WorldFish is an international, non-profit research organization that harnesses the potential of fisheries and aquaculture to reduce hunger and poverty. WorldFish focuses its expertise and research on sustainably increasing the productivity of small-scale aquaculture; improving nutrition and health through fisheries and aquaculture; building adaptive capacity to climate change in fisheries and aquaculture; identifying and promoting policies and practices to increase the resilience of small-scale fisheries; strengthening gender equality in fish-dependent communities; and increasing the benefits to poor people from fisheries and aquaculture value chains. WorldFish has an office in Timor-Leste situated within the Ministry of Agriculture and Fisheries compound with a staff complement of 14 (field and office-based). WorldFish has completed implementation of the New Zealand funded *Partnership for Aquaculture Development in Timor-Leste* project. In the coastal fisheries sector, WorldFish was also partnering with MAF on the Norwegian-funded *Fisheries Sector Support Program* (FSSP) to improve fisheries data for management, pilot new value chain structures, develop fish aggregating device (FAD) technologies supporting sustainable coastal fisheries, and provide inputs to re-design the national fisheries strategy and associated policy.

In addition, through funding from the Australian Center for International Agricultural Research (ACIAR)[15]<sup>15</sup>, WorldFish recently completed a three-year research project aimed at exploring livelihoods options and resource management in coastal fishing communities in Batugade (Bobonaro) and Adara (Atauro). This proposed LDCF project is being designed to build upon their initial evaluations of adaptation options in fisheries-dependent communities and supported participatory adaptation planning in two pilot sites (sub-district Atauro and sub-district Balibo).

Overall, WorldFish's work has been closely coordinated with the development of this LDCF/BD project, and will be providing 5,700,000 USD in co-finance. The proposed LDCF/BD project in turn will provide targeted investment critical to climate proofing Timor-Leste's fisheries and aquaculture development pathway, and to upscaling this research to support local-national adaptation actions by fishers and fish farmers throughout the country.

### **Blue Ventures**

The objective of Blue Ventures is to rebuild tropical fisheries with coastal communities. Blue Ventures develops transformative approaches for catalysing and sustaining locally led marine conservation. BV works in places where the ocean is vital to local cultures and economies, and is committed to protecting marine biodiversity in ways that benefit coastal people. In Timor-Leste Blue Ventures is working very closely with local government and coastal communities on Atauro Island, Manatuto (Behau and Ma?abat) and Dili (Beto Tasi). They act and provide support to local fishermen in data collection and assist in establishing alternative livelihoods and income generation. Blue Ventures is also organizing and providing training for women in fish monitoring and data collection using mobile phones. This is being done through good cooperation with local leaders, local fishers and also in coordination with other existing projects such as World Fish, PEMSEA and Suco Development plans. As part of capacity building, they also organize outreach or bring people to visit other sites to share information and best practices. The strategy is also looking at how to engage women in fisheries management. Many activities closely match the outcomes and outputs of this LDCF project, particularly in Atauro. The two projects will collaborate closely during project implementation.

### **Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)**

PEMSEA is a well-established intergovernmental organization, which operates in East Asia and aims to foster and sustain healthy and resilient oceans, coasts, communities and economies across the region. It is a regional operation with 11 country partners including Timor-Leste. In addition there are around 21 institutional partners. PEMSEA has developed the 'Sustainable Development Strategy for the Seas of East Asia' which is a regional declaration of commitments to implement a shared vision and

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common objectives. PEMSEA has a range of services relevant to the IKAN Adapt project. Recently PEMSEA supported Timor-Leste in the preparation of a National Oceans Policy (NOP) and is supporting its implementation. PEMSEA and IKANAdapt will collaborate closely during project implementation and sharing lessons learned.

### **The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF)**

The CTI-CFF is a multilateral partnership formed by the governments of the six Coral Triangle countries in 2009 to address the growing threats to the Coral Triangle. The CTI-CFF member countries, which include Timor-Leste, implement activities specified under the CTI-CFF Regional Plan of Action (RPOA), and which correspond to CTI National Plans of Action. In August 2015, an action plan was established for the implementation of *Ecosystem Approach to Fisheries Management* (EAFM). CTI-CFF receives funding from various multilateral and bilateral funders. Notably, USAID made a \$32 million, five year grant to the Coral Triangle Support Partnership (CTSP) to target four main areas that overlap with the CTI-RPOA Goals of: i) Strengthening the CTI Secretariat and Coordination Mechanisms, ii) Improving Ecosystem Approach to Fisheries Management, iii) Improving management of marine protected areas, and iv) Improving capacity to adapt to climate change. More specifically, within Timor-Leste, the CTI Support Programme is working to ensure community involvement in the management of the coastal and marine resources of the Nino Konis Santana National Park. CTI-CFF work in Timor-Leste provides IkanAdapt with important lessons-learned on ecosystem-based adaptation within fisheries-dependent communities. This is important, and where this LDCF /BD project is being developed to improve climate related information systems, fill critical thematic and geographic gaps via improved policy and strategic frameworks, decision making proposed, community-based adaptation planning and action plans, and adaptation technologies.

### **Food and Agriculture Organization of the United Nations (FAO)**

FAO and the Government of Timor-Leste share a long history of cooperation with the common objective of eradicating hunger, malnutrition and poverty through agricultural and rural development. The 2015-2018 FAO-Timor-Leste programme (Country programme Framework) saw fifteen (15) projects across agriculture sectors and value chains, with a value of over \$US 25 million (excluding the GEF funded LDCF and ISLME projects). The joint FAO-Timor-Leste Country Programming Framework (CPF) is being updated for 2020-2024. The current framework identifies 'support to smallholder fishing and aquaculture households to become more resilient in the face of climate change and to sustainably improve their livelihoods and free themselves from hunger and malnutrition' as a priority area of work for the country. The FAO and UNDP have also joined forces to support countries as they integrate their agriculture sectors in the NAPA process through the global *'Integrating Agriculture in National Adaptation Plans Programme'*, including the agriculture, fisheries and forestry sectors. Although Timor-Leste is not one of the initial countries under discussion, this LDCF /BD project will benefit from lessons learned and guidance on the integration of the agriculture sectors into

broader NAPA processes. Overall, FAO activities provide baseline and an estimated US\$ 830,000 in co-financing to the proposed project.

### **Australian Aid**

TOMAK is an investment from the Department of Foreign Affairs and Trade of the Australian Government in the agriculture and food security sector, managed by Adam Smith International, with an estimated budget of Aus\$ 25million over five years (July 2016 to June 2021), with a second five year phase planned from July 2021 to June 2026. TOMAK has two main components targeting i) Value Chain Development and ii) Nutrition Sensitive Agriculture. The project is implemented through partnership with international and national NGOs and government services. The international NGOs include CRS, World Vision and Mercy Corps. TOMAK is working in close collaboration with the Ministry of Agriculture and Fisheries (Department of Agriculture Extension, Forestry, and Livestock Services) and with the Ministry of Health for design and implementation.

TOMAK's goal is to ensure that rural households live more prosperous and sustainable lives. It proposes to achieve this through parallel and linked interventions that:

- establish a foundation of food security and good nutrition for targeted rural households; and
- build their capacity to confidently and ably engage in agricultural markets by promoting development of selected agricultural value chains.

As part of its production activities, TOMAK is supporting around 160 aquaculture ponds. TOMAK's involvement in aquaculture is a small component of its nutrition sensitive agriculture activities ? this involvement is likely to continue during the second phase (2021 to 2026) ? however, the level of involvement and the budget for this activity is not yet known, although it is likely to remain a small component on TOMAK's overall portfolio. TOMAK works in two of the municipalities also covered by this LDCF/BD project, but with a focus on inland irrigated areas.

### **NOAA**

From 2012 to 2016, NOAA's Coral Reef Ecosystem Program (CREP) of the Pacific Islands Fisheries Science Center provided assistance to Timor-Leste in conducting baseline surveys over the period 2012 to 2016 under the partnership agreement between MAF, USAID, and NOAA [16]. The IkanAdapt project will build on the recent comprehensive coastal habitat mapping to develop an aquaculture suitability spatial model using recommendation domains GIS-based modelling approaches (WorldFish has completed a matched exercise for inland aquaculture suitability) including spatial layers on

biodiversity and climate change vulnerability. As Timor-Leste is currently developing a new legal basis for aquaculture management, this work will not only guide project interventions, but also have impact at the national planning level. It will be pre-adapted for incorporation into a broader coastal zone spatial planning exercise.

### **Oxfam International**

Oxfam has been supporting development and humanitarian work in Timor-Leste for more than 20 years. Oxfam's vision for Timor-Leste is Rights, Equality and Prosperity for all. Oxfam currently implements a multi-sectorial program by working in partnership with civil society and community development organizations and constructive engagement with government. The 2021-2025 Oxfam Country Strategy focuses on Economic Justice, Climate Justice and Gender Justice. A feminist approach to working and leadership, inclusion and influencing are all cross-cutting themes and approaches that go across all of Oxfam's work in Timor-Leste. Within the strategic focus areas of Economic Justice, Climate Justice and Gender Justice Oxfam has projects and programs spanning Disaster Risk Reduction and humanitarian response, together with the Australian Humanitarian Partnership (AHP), women's economic empowerment and influencing on economic diversification and agriculture covering national to municipal levels. The IkanAdapt project will collaborate with Oxfam addressing these issues during project implementation.

### **Conservation International (CI)**

Conservation International works on conservation and environmental issues in Timor-Leste aiming to improve local food security, fight climate change and enhance livelihoods. CI works directly with government and local communities to research, implement and improve the management of protected areas on land and at sea, through national parks and no-take zones. CI Timor-Leste works on protected areas, seascape and landscape planning, species conservation and community engagement. The project activities include establishment of 13 community managed marine protected areas on Atauro Island, 6 community managed marine protected areas in Nino Konis Santana National Park, 1 Dugong marine protected area in Com managed by the community. CI has supported completion of the Nino Konis Santana National Park Zoning Management Plan, Atauro Island and its waters, Zoning Plan for protected area status, 2 full marine Rapid Assessment (RAP) programs from Lore 1 to 20 marine site surveys across the north and south coasts, 3 full terrestrial Rapid Assessments in national protected areas and Atauro Island. CI undertook the first boat-based Cetaceans Scoping Study in Timor-Leste Draft Seascape Plan for Timor-Leste. More than 1000 community members have been trained in ecological and biological monitoring. Over 150 government staff, and partners have been trained in ecological and biological surveying techniques, and monitoring and 15 communities are now actively protecting sea turtles and their nesting beaches. More than 20 interns have joined the CI program. Highlights include 10 new reef fish species that have been identified. Two potentially new mammal species have been identified along with one new potentially new orchid species and two potentially new freshwater fish species.

CI is supporting policy development including the establishment of the country database for biological and ecological data with government and the Minimum Catch Size legislation for government approval and updated the Marine Protected Species list for Timor-Leste and contributed to the Rare and Endangered Species list for Timor-Leste.

CI has developed a co-management model in partnership with government and communities and worked on the SDG14 Voluntary Commitments. CI will be working on the north coast with 4 new community managed marine protected areas, fisheries management plans for 7 communities, 3 new management plans for national terrestrial protected areas, pilot a sustainable financing option for protected areas and environment work, establish the National Protected Area System with government and communities, and finalize the marine protected area network in Timor-Leste.

Other work on the south coast include fulfilling the SDG14 Voluntary Commitment to complete the data set for the marine area of the southern EEZ, work with government, neighbours, and communities to develop a management plan for the southern EEZ to reflect sustainable fisheries models, tourism models, biodiversity protection, and commercial opportunities. The work of CI will contribute an estimated 500,000 USD in co-financing (LDCF and BD).

### **European Union (EU)**

The EU has several initiatives in fisheries, climate change and marine biodiversity in Timor-Leste. The Pacific-European Union Marine Partnership (PEUMP) Programme overall objective is to improve the economic, social and environmental benefits for 15 Pacific ACP states (PACPs) (including Timor-Leste). The programme purpose is to support sustainable management and development of fisheries for food security and economic growth, while addressing climate change resilience and conservation of marine biodiversity. The EU's ongoing Global Climate Change Alliance programme implemented by the GIZ aims to improve the capacity of populations vulnerable to climate change risks to cope with climate change effects through the sustainable management of their natural resources and the improvement of their livelihood options. The project focuses primarily on agriculture, forestry and agroforestry activities. The IkanAdapt project will inform on vulnerabilities and adaptation options within the fisheries and aquaculture sectors for possible inclusion into the GCCA's broader efforts.

### **Green Climate Fund (GCF) (UNDP and MCIE)**

The **Safeguarding rural communities and their physical assets from climate induced disasters in Timor-Leste** project aims to address existing institutional, financial and legislative barriers, increasing

the climate resilience of vulnerable small-scale rural infrastructure. Output 1 focuses on strengthening the capacity of mandated institutions to assess and manage climate risks in order to maintain local infrastructure services. GCF-funded activities will embed new skills, technologies, and innovative methods in climate risk identification and mitigation processes. Monitoring and recording of climate risk information will be enhanced, and these data will be integrated into policies, standards, guidelines, and long-term investment planning for small-scale rural infrastructure. Output 2 focuses on implementing climate resilient building measures to improve small-scale rural infrastructure in vulnerable areas. GCF funds will assist in the development and implementation of catchment management strategies, supporting long-term resilience and climate risk reduction via landscape restoration and enhanced land stability, particularly in vulnerable catchments where small-scale infrastructure is present. The project targets 175,840 direct beneficiaries, an estimated 15% of the total population. Benefits include increased climate resilience for small-scale infrastructure as well as 300 ha of reforested and rehabilitated land to buffer against climate-induced disasters. The project will ensure long-term infrastructure resilience via (i) embedding climate resilience standards into the processes through which small-scale infrastructure is planned, designed, constructed and maintained; (ii) improving climate hazard and risk assessment capacity and access to climate risk information. This project was developed at the request and full support of the NDA. All proposed interventions are aligned with the national determined contributions for adaptation, the National Adaptation Programme of Action, and strategic development plans. The project total GCF grant investment is USD 22,356,805 during 6 years.

## **UN Environment**

The UN Environment Programme (UNEP) has submitted a project proposal to GCF on "Enhancing Early Warning Systems to build greater resilience to hydro-meteorological hazards in Timor-Leste" which aims to address the urgent need for integrated climate information services, covering oceans, and proactive disaster risk management approaches founded on impact-based forecasting and end-to-end MHEWS. This will be achieved through four inter-related components – the Project Results:

1. Strengthened delivery model and legislation for climate information and multi-hazard early warning services;
2. Strengthened observations, monitoring, analysis and forecasting of climate and its impacts;
3. Improved dissemination and communication of risk information and early warning;
4. Enhanced climate risk management capacity.

The Project will build the capacity of Timor-Leste to provide the essential high-resolution data and climate information needed to underpin science-based transformational planning and programming, de-risk investments, and facilitate long-term resilience and adaptation to climate change, protecting both human lives as well as the diverse ecosystems that sustain them. The interventions are designed to demonstrate the value of climate data at all levels of Timor-Leste's economy – from government policies to the decision-making of subsistence farmers – and pay particular attention to establishing climate services for health. The Project will also ensure adequate funding for early action through Forecast-based Financing and Early Warning Early Action (EWEA) for agriculture and food security.

This will facilitate that climate-resilient early actions from national to community level are identified and funded before a climate shock and become an integral component of disaster risk management and disaster risk reduction in Timor-Leste. The Project has been developed at the request of and with the support of the Nationally Designated Authority for Interaction with the GCF (the NDA). All proposed interventions are aligned with and will contribute to the achievement of goals identified in major national strategic and policy documents, including the Nationally Determined Contributions for adaptation and the National Adaptation Program of Action. Continued country ownership will be ensured through strong stakeholder and community engagement. At the request of the NDA of Timor-Leste, the UN Environment Programme (UNEP) will serve as the Accredited Entity (AE) for the Project. The AE will work with the Secretary of State for the Environment (SSE) as the national Executing Entity (EE) alongside a range of technical partners and national service providers, including Timor-Leste Meteorological Service (National Directorate for Meteorology and Geophysics ? DNMG), the National Disaster Management Directorate (NDMD), the Ministry of Agriculture and Fisheries (MAF), Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), the Food and Agriculture Organization (FAO), International Federation of Red Cross and Red Crescent Societies (IFRC) ? including its Climate Centre and national society (Cruz Vermelha de Timor-Leste ? CVTL), Indonesian Meteorological, Climatological and Geophysical Agency (Badan Meteorologi, Klimatologi dan Geofisika ? BMKG), International Centre for Theoretical Physics (ICTP) and the World Meteorological Organization (WMO). The project total GCF fund requested is USD 19,997,944. This project is still in the project development phase, and the IkanAdapt will work closely with the team involved during project design and further execution.

- 3) Proposed alternative scenario with a brief description of expected outcomes and components of the project and the project's Theory of Change

The IKAN Adapt project will support Timor-Leste to achieve its national development goals, especially those related to fisheries and aquaculture management, as well as biodiversity conservation. The adaptation alternative provided by the GEF will help address climate change impacts in the fisheries and aquatic resources sectors in Timor-Leste, so these sectors can continue providing contributions to food security and increased resilience against the impacts of climate change, and to conserve biodiversity.

The project's **Theory of Change** is presented in Annex N and provides an integrated approach to address the impacts of climate change and biodiversity loss, by building on the ongoing adaptation options and addressing the existing key barriers that are preventing fishery and aquaculture dependent communities and their sector institutions from taking adequate action to reduce vulnerability to the impacts of climate change, increase their resilience and conserve biodiversity.

The Theory of Change of the project implies that, if sector institutions (including government and other agencies) in Timor-Leste, coordinate and collaborate on the design and implementation of climate change adaptation and biodiversity conservation related policies, plans and actions, and if there is a strong capacity development program on ecosystem approaches (for fisheries and aquaculture, and for climate change adaptation), the capacity of sector stakeholders will be strengthened.

It is also anticipated that, if women and men in fishing and fish-farming dependent communities integrate climate change adaptation and biodiversity conservation considerations into fishing and fish-farming technologies and practices, they will increase their resilience against climate change and contribute to the conservation of biodiversity and national food security.

Furthermore, if climate and biodiversity conservation information systems and monitoring systems are established, the institutional capacity of Timor-Leste will be enhanced for climate change and biodiversity conservation.

For this to be achieved it is necessary to strengthen the understanding of climate risks and vulnerabilities and biodiversity status, mainstreaming adaptation and biodiversity considerations into fisheries and aquaculture sectors and vice-versa and enhancing stakeholder capacity on climate change adaptation and biodiversity. This will also require the design and implementation of **climate resilient and biodiversity conservation strategies for fisheries communities**, strengthen their adaptation capacity, and develop and transfer innovative adaptation technologies and practices. It will also be necessary to develop a climate risk information system, as well as the development of communication strategy and monitoring systems, and a stakeholder engagement and mainstreaming strategy.

The Theory of Change is grounded on a number of assumptions. First, it is assumed that, sector institutions and stakeholders have common interests in the sustainable management of fisheries resources and on the conservation of biodiversity, and on addressing the impacts of climate change. Then, it is assumed there are sufficient resources and buy-in to engage with the working group for the long term, and there is ongoing interest by sector stakeholders on the importance of the monitoring system. In addition, resources are made available for the continuation beyond the life of the project, and ultimately, there is political stability in the country, during the duration of the implementation of the project. This Theory of Change will be revisited regularly, along with the assumptions, as part of the project's adaptive management.

In accordance with the Theory of Change, the project's objective is **?to enable fisheries and aquaculture stakeholders in Timor-Leste to adapt to climate change and manage biodiversity**

**conservation through reducing vulnerabilities, piloting and adopting new practices and technologies and sharing information and knowledge?.** The proposed alternative will address both climate change and biodiversity conservation systematically for the first time in the fisheries and aquaculture sectors in Timor-Leste. A key action will be to develop and transfer innovative technologies to assist fish farmers and fishers in adapting to climate change. The project implementation will be designed to use a collaborative 'One-UN' and multi-donor delivery mechanism in support of the national frameworks for development, and will clearly strengthen national adaptation capacity within Timor-Leste, through a series of activities under the following three components:

- **Component 1** ? Enabling national fisheries and aquaculture related policies and programmes, legal frameworks and local management institutions to address climate change, current variability and biodiversity conservation
- **Component 2** ? Enhancing climate change adaptive capacity, practices and biodiversity conservation in fishing and fish farming communities (coastal and inland)
- **Component 3** ? Strengthening institutional capacity through the development of climate and biodiversity conservation related information systems, information management and monitoring operations

These components will strengthen mainstreaming of climate change adaptation and biodiversity considerations into policy and planning, improve coordination and collaboration among different government agencies and development partners at the local, municipal and national levels, and increase the capacity of local stakeholders to be better prepared to deal with the impacts of climate change. To achieve this, the LDCF and Biodiversity funds will build on the baseline projects and will support synergistic actions to increase the adaptive capacity of communities heavily dependent on fisheries resources. Interventions will build resilience and enhance climate change adaptation within these vulnerable social-ecological systems, with the use of ecosystem approaches for the management of fisheries, mangroves and other coastal resources such as seagrasses and coral reefs. The project will work with national, municipal and local authorities and the fisheries communities to identify short- and medium-term climate risks and to co-develop adaptation actions that address their specific vulnerability contexts.

These three components are described in a summary below, while a more detailed description of the project outputs and activities, as well as responsibilities for each, is included within Annex H. The detailed project results framework and indicators can be found in Annex A1.

Component 1 ? Enabling national fisheries and aquaculture related policies and programmes, legal frameworks and local management institutions to address climate change, current variability and biodiversity conservation.

**Outcome 1. Strengthened capacity of Government of Timor-Leste, NDFA, Sector stakeholders, fishing and fish farming communities and related organizations to develop Climate Change adaptation and biodiversity conservation policies and strategies**

Key results under this Outcome will be:

**Climate Change Indicators**

- 3 national strategies including climate change adaptation and biodiversity conservation developed or strengthened.
- 2 Marine Protected Areas and 4 Local Marine Managed Areas (LMMAs) plans integrating climate change and fisheries /aquaculture developed and started implementation

**BD indicators**

- Conservation plan developed for 1 wetland
- 2 ETP conservation action plan developed
- 7 municipalities with revised strategies for climate change Adaptation and Biodiversity conservation actions under implementation
- Formal establishment of the Biodiversity and Climate Change Network

These indicators will be achieved through a combination of several Outputs, which are described below.

The project will provide additional support to NDFA and MCIE to develop the following five outputs. The focus will be given to the country's climate sensitive areas and priority biodiversity hotspots (under the NBSAP which include mangrove areas, coastal habitats, wetlands, and freshwater systems).

**Output 1.1. Climate induced risks mapped, vulnerabilities and aquatic biodiversity status assessed for the fisheries and aquaculture sub-sectors (marine and freshwater)**

Work under this output will generate relevant risk and vulnerability assessments and provide information about the nature and magnitudes of impacts expected from climate change (covering the 7 municipalities). The output will also assess the biodiversity status of key aquatic species.

The climate related information will be used to inform decisions about the form and urgency of adaptation activities and develop sector-wide climate change adaptation strategies at national and municipal level and it will be made widely available to partners. At the same time the biodiversity conservation information will be used to inform sector action plans.

The work will be integrated as part of national and sector thematic level vulnerability assessments and models building on the most recent CC forecasts (such as IPCC). The biodiversity information will assist monitoring and reporting to the CBD. These will include analysis of vulnerable habitats and ecosystems, which may include specific fisheries, marine ecosystems, river catchments, coastal and reef areas. These national and community assessments will then serve to provide a national basis for community-based vulnerability and biodiversity conservation planning, implementation and scale up under component 2.

This Output will build on the work of other agencies in this regard. Key activities will include:

- Vulnerability assessments (at national level and covering the 7 municipalities) of climate change impacts on livelihoods of both men and women and ecosystems (including socio-economic and biophysical issues) that are important for fisheries and aquaculture livelihoods and aquatic biodiversity.

- Guidelines on how to integrate climate change and biodiversity conservation into municipal development plans approved and piloted in IkanAdapt project sites.

## Output 1.2. Climate adaptation and biodiversity conservation integrated into national and municipal strategies, incorporating fisheries and aquaculture needs

This output will focus on the integration of climate adaptation and biodiversity conservation considerations into fisheries and aquaculture strategies and plans, a process that will be strengthened through the development of a Sustainable Fisheries Livelihoods and Climate Change Adaptation Strategy under Output 1.3, following nature-based solutions and the use of an ecosystem approach. This output will assist NDFA and other stakeholders to prepare a consultative and evidence-based climate change and biodiversity conservation strategy and action plan for the sector.

Appropriate policy tools will be adapted and developed during this process, based on needs and which will include recommendations on regulations, guidelines and strategy papers. Under the leadership of NDFA the outputs of vulnerability assessment, aquatic biodiversity conservation status, policy, and policy tools will be communicated to key stakeholders through participatory consultation processes. This will ensure NDFA's ownership over policies and policy tools on climate change adaptation, resilience and biodiversity conservation programs. The proposed project will also help other ministries and institutions to benefit from the knowledge gained through the vulnerability assessment process. This will include sectors that engage in coastal and marine issues such as recreational fishing and tourism, infrastructure and transportation. The proposed project will place gender considerations as a high priority area in the planning process and developing policy tools. Project supported work to develop policy tools will build on the existing livelihoods-knowledge-base developed by some of baseline projects, including the FAO's RFLP, WorldFish, EU and Seeds of Life, ALGIS, UNDP and other projects.

The project will work with communities, government (MAF and Ministry of Environment), local NGOs and international NGOs towards protection plans and actions for a number of critically endangered species. Stakeholder consultations for the project highlighted 3 species in particular, and a fourth of concern.

- the Snake neck turtle (*Chelodina mccordi*, sub-species *timorensis*) is critically endangered<sup>[17]</sup>, and resident in the Lake Iralalaru area, Lautem district<sup>[18]</sup>. Stakeholders suggested in consultation meetings that dramatic increases in crocodile numbers may be responsible for the species decline.

- the ricefish (*Oryzias timorensis*) is known from riverine systems in mid-Timor (both Timor-Leste and West Timor). It is critically endangered<sup>[19]</sup>, and has not been found in recent surveys, however locals reported knowing of the fish during community consultations. The

ricefish family may have potential as small indigenous fish for culture, to be investigated as a component of project output 2.2.

- In marine systems, the Hawksbill turtle (*Eretmochelys imbricata*) is critically endangered<sup>[20]</sup> and conservation planning and actions for the species will be undertaken within the framework of MPAs and LMMAs developed or enhanced through project actions. Project actions will build on successes nationally through community actions and NGO activities.

- During stakeholder consultations, resident populations of the hammerhead shark (*Sphyrna lewini* ? critically endangered<sup>[21]</sup>) were raised as a potential project focal species. This species will be considered within the broader framework of protected area status for Atauro Island, and project actions will at a minimum raise awareness of this species within such a framework. Broader engagement in species protection will be challenging.

Activities under this output **will** include:

- Assessment of relevant policies and programs and the existing gaps for the climate change adaptation and biodiversity conservation needs, and their intersection with fisheries and aquaculture. The assessment will review the existing situation and current issues faced by the endangered species selected (e.g. freshwater and marine turtles).

- Workshops at the national, municipal and suco/village/hamlet levels to integrate climate change adaptation and biodiversity conservation measures, addressing fisheries and aquaculture needs, into MMAs and MPAs (closely linked with the capacity development Output 1.4).

- Development of a participatory community level conservation action plans for 1 wetland and 2 ETP species (Linked with activities under 2.4)

### **Output 1.3 National level Sustainable Fisheries Livelihoods and Climate Change Adaptation Strategy for fishery and aquaculture dependent communities in Timor-Leste developed and implemented, based on concepts of nature-based solutions**

A process of participatory consultation will be carried out to develop and iterate appropriate policy with all stakeholders, taking into consideration the needs and perspective of men and women. The strategy developed under this Output will build on the existing policies and plans (NAPA, NBSAP, NOP and others). The strategies will enable integration of climate change adaptation (CCA) and biodiversity conservation into adaptive fisheries management planning and implementation of ecosystem-based approaches. Reviews of existing fisheries and aquaculture, national climate change

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and biodiversity strategies will be carried out along with institutional capacity assessments (under Output 1.2).

Activities under this output **will** include:

- Review of Timor-Leste's EAFM strategy and action plan under CTI-CFF National Plan of Action (NPoA) and provision of recommendations for further implementation.

- Initiate a participatory process for the development of a national Sustainable Fisheries Livelihood Adaptation Strategy for fishery and aquaculture dependent communities (aligned with the EbA and EAF approaches and the IKAN Adapt Gender Strategy), identifying options for the development sustainable fishing practices, aquaculture (e.g. tilapia, milk-fish, seaweed, etc.), eco-tourism, rice-fish farming, etc. (implementation under Component 2).

#### **Output 1.4. Capacity of national and sub-national government stakeholders enhanced for collaborative management following the Ecosystem approach to Fisheries Management (EAFM) and Ecosystem-based Adaptation (EbA)**

The proposed project will implement fishery co-management committees as the critical institutional mechanisms for decentralized decision-making. Fish Farmer 'clusters' will be strengthened or established. Biodiversity conservation efforts will adopt existing best practice in Timor-Leste on the development and implementation of marine protected areas (MPA)/ marine managed areas (MMA/LMMA). New, active and responsible roles for fishers and fish farmers within those mechanisms will be defined in improved policies.

To pilot these new roles, LDCF/BD resources will support the activation and regular operation of the Consultative Council established by law as well as the development of specific regulations to make operational critical fisheries co-management committees. Importantly, the roles of the traditional management systems (such as *Tara Bandu*) as well as their capacity to become effective mechanisms for CC adaptation and biodiversity conservation will be assessed and formalized in strategies and laws as appropriate.

Recommendations on special regulations to enable co-management will be made to support Output 1.3 Sustainable Fisheries Livelihoods and Climate Change Adaptation Strategy for fishery and aquaculture dependent communities.

Activities **will** include:

- Capacity needs assessment related to Ecosystem Approach to Fisheries management (EAFM) and Ecosystem based Adaptation (EbA), biodiversity conservation in coastal and freshwater ecosystems and the impacts and mitigation measures possible for fisheries and aquaculture sectors, gender mainstreaming in fisheries and aquaculture sectors, etc.) for project stakeholders (at the national, municipal, and *suco*/village levels), with periodic assessments carried out throughout the life of the project.
- Provide capacity development support (training, technical advice, etc.) to village, municipal and national-level stakeholders on co-management, EAFM, EbA, and climate change impacts and adaptation measures including climate finance, remote sensing, conservation of coastal (e.g. mangroves) and freshwater (river and lagoons) ecosystems, participatory vulnerability assessments and adaptation planning (at the municipal and national levels), biodiversity conservation, gender mainstreaming, etc.
- Strengthen co-management mechanism through integration of good practices in traditional management practices (e.g. *Tara Bandu*) and Ecosystem approaches, such as EbA and EAFM and biodiversity conservation.

#### **Output 1.5. Biodiversity and Climate Change Network strengthened through support from NDFA and sector on issues related to fisheries and aquaculture**

The project will work closely to strengthen the **Biodiversity and Climate Change Network** on areas related to fisheries and aquaculture, climate change and biodiversity. It is foreseen that NDFA staff will benefit through training and capacity development from the centre but also that NDFA will contribute data and information from the sector to the Network in order to inform national policy making. The training and capacity development activities for NDFA staff may focus, among others, on climate change and biodiversity related issues as well as public awareness raising, risks of climate change and loss of species, vulnerability impact assessment and adaptation, and analyzing climate change impacts according to current and future climate change projections. **The aim is that the network will be formally established in a national institution with the ability to support the network such as a university. The operation budget is expected to be very low, just maintaining the meetings, which will be initially covered by the project. The project will also provide support for writing up the Terms of Reference for the operation and technical work of the Network, as well as provide initial assistance for writing research grants, and accessing other forms of financial resources. This will ensure the sustainability of the Network well beyond the lifetime of the project. Ultimately, the Network will serve as a clearing house for climate activities.**

Activities **will** include:

- Set up a technical working group related to climate change and biodiversity mainstreaming in fisheries and aquaculture, with defined Terms of Reference and assignment of Focal Points to meet regularly.
- Undertake an annual workshop on Climate Change, Biodiversity, Fisheries and Aquaculture with national level stakeholders.

- Facilitate the participation of fisheries and aquaculture stakeholders to the National Adaptation Plan process for Timor-Leste, as well as providing data to contribute to the National Determined Contributions related reporting on adaptation

*Component 2 ? Enhancing climate change adaptive capacity, practices and biodiversity conservation in fishing and fish farming communities (coastal and inland).*

**Outcome 2.1. Fisheries and aquaculture dependent communities adapt to climate change and conserve biodiversity through innovative practices and technologies**

The LDCF/BD resources will address the issues on under-developed climate change adaptation and biodiversity conservation capacity and practices among fishing and fish farming communities of Timor-Leste. The proposed FAO/GEF LDCF/BD project will strengthen existing co-management units, fish farmer clusters, cooperatives, MPAs and LMMAs in target communities. New co-management units will be developed where appropriate and following FAO and Government of Timor-Leste good practices. The fishery co-management units and aquaculture clusters will be the entry point for the project to mobilize community members, improve people's awareness on climate change, biodiversity conservation and develop and adapt resilient strategies, and promote decentralized decision-making processes. While NDFA will provide support to target communities to overcome the identified barriers, the co-management committees and MPAs will play a central role in supporting the vulnerability assessments, planning priority CC adaptive activities and implementing field activities. Based on the NBSAP priorities, 2 MPAs and 4 LMMAs will be implemented. The proposed FAO GEF/LDCF/BD project will work in 20 communities and 7 municipalities of the country's **climate risk areas**.

Potential locations of MPAs/LMMAs are:

- **Lautem:** seagrass patches and shallow reefs west of the Northern boundary in Com of the Nino Konis Santana National Park, Timor-Leste's first national park
  
- **Oecusse:** coastal forest and coastal swamp forests (Beneufe); mangroves, patchy reef and wetland (Lifau-Costa); coastal swamp forest, estuary, patch reef, wetland and coastal forest (Mahato-Sakato)
  
- **Bobonaro:** patch reef and turtle nesting grounds (Beacou)
  
- **Covalima:** mangroves, saltwater crocodile habitat, wetlands and estuaries
  
- **Viqueque:** Irabene site, which is part of the Irabene-Iliomar complex, with important bird area, estuary and freshwater habitat
  
- **Atauro:** small areas of reef not currently under improved management

The estimated hectares include (see the maps in Annex E):

Potential MPA/MMA Locations	
Atauro	Coastal Ecosystem = 131 ha
Bobonaro	Patchy Reefs = 81 ha Mangroves = 10 ha Wetlands = 101 ha
Lautem	Patchy Reefs = 115 ha Coastal Wetland = 2 ha

Covalima	Wetland = 809 ha Rocky Reef = 52 ha
Oecusse	Coastal Forest = 258 ha Patchy Reef = 53 ha Mangrove = 2 ha Coastal Wetland = 125 ha
<b>Total</b>	<b>1739 ha</b> ( <i>the project estimates to work in about 50 % of these areas</i> )

Key results under this Outcome will be:

#### CC indicators

- At least 20 Community led CCA plans developed, strengthened and implemented.
- At least 10 innovative adaptation technologies and practices developed and implemented
- 35,000 people (50% women) with strengthened resilience to climate change from project support

**BD indicators-** 380 ha of **Terrestrial protected areas** created or under improved management for conservation and sustainable use (Hectares) (related to Core Indicator 1). The project will be working in the Ira Lalaro Lake (Lautem Municipality). The lake has an average water spread area of 1900 ha. The project's work will cover about 20% of this area, which is 380 ha.

- 870 ha of **Marine protected areas** created or under improved management for conservation and sustainable use (Hectares)

- 33,540 ha of marine and coastal area effectively managed to ensure conservation and sustainable use of globally important habitats and species to increase their resilience and conservation status (related to Core Indicator 5)

These indicators will be achieved through a combination of several Outputs, which are described below.

**Output 2.1. Climate resilient livelihood and biodiversity conservation strategies developed in fishery and aquaculture dependent communities (marine and freshwater).**

Climate change resilient and biodiversity conservation livelihoods strategies will be assessed and developed in each ecosystem and participating community and integrated in relevant sector action plans. Community-based livelihood and vulnerability assessments of each target community will form the basis for this component. Such assessments will take into account gender differences, needs and priorities.

These will be integrated with and informed by higher-level analyses of vulnerability (in Component 1) for the sector and more general analyses of existing livelihoods, ecosystems and traditional co-management practices. These assessments will use sector-specific adaptations of the IPCC Vulnerability Framework, such as rapid socio-ecological VA, and applying livelihood profiles as baseline for vulnerability analyses.

The assessments will also identify barriers to good biodiversity management. The vulnerability analyses/profiles will also look into the broader challenges of the sector and will include addressing fisheries management, illegal, unreported and unregulated (IUU) fishing, challenges of market linkages and consumption patterns of fish and fish products at national and local levels, as well as barriers and constraints faced by men and women. In addition, the analysis will include a projection of climate change effects on livelihoods and ecosystems including biodiversity status.

As part of livelihood analysis, conditions of critical infrastructure will also be assessed. In parallel to the vulnerability assessments, the proposed FAO/GEF LDCF/BD project together with the target communities will identify potential adaptive technologies, practices and processes that would be suitable to identified climate resilient livelihood profiles and overcome the identified issues. The assessment of the potential adaptive technologies, practices and processes would include how the livelihoods of men and women could be positively or negatively affected and the measures that may be undertaken to mitigate the negative effects. The intersection of gender with age, social status, and (dis)ability would be considered.

The project will adopt and build on good practice and technologies from ongoing and past projects (including the FAO-RFLP project and others). The profile will serve as the basis for developing participatory climate-change resilient livelihood strategies and action plans and develop pilot activities on climate change resilient livelihood development.

Key activities under this output will include:

- Develop participatory community Climate Adaptation Plans (including livelihood diversification plans and opportunities) for 20 communities (in the 7 municipalities)

- Biodiversity assessments at the municipal-level and design of EbA plans in the 7 municipalities including measures for the conservation and restoration of coral reefs, mangroves, and seagrass areas in the coastal areas, and flood and drought control in freshwater areas

## **Output 2.2. Innovative adaptation technologies and practices co-developed with fisheries and aquaculture communities and implemented**

Adaptation plans, practices and technologies will be developed and implemented with the support of NDFA and partners. The profiling of each community (under the vulnerability assessments done under Output 1.1) will lead to the preparation of CC resilient/CC adapted local fisheries management plans or CCA plans, as appropriate. These plans will integrate biodiversity conservation strategies relevant to the ecosystem (Output 2.2). In aquaculture clusters similar CCA plans will be developed.

Based on these community plans, and agreed allocation of project resources, the project will implement the priority activities for each. These plans will be developed in the context of results of CC vulnerability assessments, considering also principals of equity with budget allocations. The project will assist each target community to prepare, for example, an immediate adaptation plan to be financed by the project and a longer-term adaptation plan to be financed by co-financing partners. Close communications will be maintained with co-financing partners and collaborating projects to inform the results of the profiles and CC adaptive plans to explore potential areas for additional funding. Communities that have sensitive habitats such as mangrove forests, wetlands, reefs (and/or crocodile

habitat where there is risk from attacks on fishers and gleaners) will have additional support to carry out some key CC adaptation activities identified in the management plans.

Activities under this output will include:

- Implement innovative fisheries and aquaculture technologies and practices to address climate adaptation priority needs at the community level. While interventions will be decided through participatory processes, plausible interventions in each district are highlighted in table 1 and described in additional detail below.

Table 1. Interventions Possible As Component Of Activity 2.2 In The Seven Focal Districts.

Table 1. Interventions Possible As Component Of Activity 2.2 In The Seven Focal Districts.

District	1. Safety	2. Co-management	3. Post-harvest	4. Infrastructure	5. Skills development	6. Climate-smart infrastructure	7. Integrated aquaculture/agriculture	8. Ne...
	Capture Fisheries					Aquaculture		
Oecousse	P	P	P	P	P			P
Cova Lima	P	P	P	P	P		P	
Bobonaro	P	P	P	P	P	P	P	
Dili	P	P	P	P	P	P		P
Aileu					P	P	P	
Viqueque	P	P	P	P	P	P	P	
Lautem	P	P	P	P	P	P	P	P

\*Activities implemented will be selected through plan co-developed with communities.

## A) Capture Fisheries Adaptations and Innovations

### 1) Innovations in fishing methods and fishing grounds

Reduces vulnerability of fishing livelihoods by reducing reliance on reef areas likely to be increasingly impacted by temperature stress, terrestrial runoff and increased storm severity.

Fishing pressure reduced on reef areas.

Effort shifted from vulnerable sedentary, slow growing reef species, to robust small-pelagic species with high reproductive rates

Fishing is constrained seasonally and geographically in Timor-Leste by the very small scale of fishing fleets, and the limited range of fishing gears employed by fishers. This creates a cycle that sees fish as a seasonal, low volume, and (relatively) high value commodity for most households in Timor-Leste. While from a conservation perspective this may seem optimal, reality is that fishing pressure is in many contexts focused on vulnerable areas and resident, slow growing species. In particular, the narrow fringing reefs near population centers are highly vulnerable. While in past years, the lack of fisheries monitoring rendered risky any efforts to diversify fishing, the recent development of vessel and catch monitoring capacities through the PeskaAS system provide the tools to monitor new fisheries, and their impacts on stock levels. The project will in particular work with communities on further scaling past research<sup>22</sup> on the use of nearshore anchored FADs to shift effort away from reefs, on accessing deeper water stocks (see associated component on sea safety) such as the substantial south coast snapper resource, targeted in recent years by international fleets with few or no benefits flowing back to Timor-Leste. This aligns directly with a key principal of the National Fisheries Strategy ? ?all fish stocks that can be fished by Timorese fleets should be reserved for Timorese fleets?

The Fisheries Sector Support Program has conducted extended research into the utility of anchored nearshore FADs to sustainably increase fish supply in Timor-Leste. A FAD appropriate to the steep bathymetry/high current context of Timor-Leste has been extensively trialed (Tilley et al., 2019). Returns on FAD deployment varied considerably between trial communities, however time to return on investment (ca. US\$1200) was as short as 18 days at one site. FADs provide an alternative fishing location to the extensively fished reef areas of Timor-Leste, and shift fishing pressure away from typically slow-growing, resident reef species, to fast-growing, highly nutritious small pelagic species. In anchored FAD trials in four dispersed communities in Timor-Leste, catches were dominated (96% of

total catch) by three ?species? ? the mackerel scad, the short-bodied scad, and sardines (sardines possibly representing a complex of up to five species). The diversity of catches from FADs was less than half the diversity of a typical reef catch, meaning FAD fishing in this context is highly selective. FADs in Timor-Leste do not attract substantial numbers of juvenile tuna or sharks ? an issue seen in other jurisdictions. Catch rates at FADs (kg of fish per fisher per hour) averaged almost 3 times that of open water fishing activities targeting similar small pelagic species. While monitoring and management is still key to sustainability, these short-lived, highly fecund species are typically much more robust to fishing than are reef fish. The IkanAdapt project will base approaches to developing FAD systems with communities on this research, but will also link to, and continue to build on, FAD system progress in the Pacific. Notably, recent work has addressed issues relating to marine debris produced by failed FADs, moving towards biodegradable materials<sup>[23]</sup><sup>23</sup>. Recognizing the environmental trade-offs associated with tilapia farming, although as noted above, the risks are lower in Timor-Leste than in many other countries. Given the substantial donor support for the sector as a supply of micronutrients to rural households, the project will work with farmers and policy makers on reducing environmental footprints as a component of increasing climate resilience.

## 2) Introduction of safer vessel design, and training in sea safety

Improved safety in the face of likely increased severity of climatic events.

Enables safe fishing beyond inshore reefs, and adoption of new fishing methods, reducing pressure on vulnerable habitats and species.

In association with innovations in fishing gears, and in alignment with project climate-change induced seasonal changes in weather patterns, contextually appropriate, co-developed, affordable improvements to safety protocols and vessel design will be promoted. Co-development processes will involve working directly with communities to catalog the most common and most damaging types of fishing accidents. This data will form the basis of a national fishing accidents database, to be appended to the PeskaAS system. This work will link directly with the early warning system development, and the interaction between recorded accidents and forecast meteorological change will form the basis of interventions. Responses will build directly on work by both FAO and the SPC in similar fisheries in the Pacific and globally, and by the FAO-led Regional Fisheries Livelihoods Program in Timor-Leste<sup>[24]</sup><sup>24</sup>.

## 3) Improved climate-responsive co-management systems

Climate awareness and responsiveness built into fisheries management systems, enabling adaptation.

Effective co-management communication provides pathways for climate change communication with fishers and their communities.

Effective management directly engaging with communities provides for 2-way communication relating to concerns and experience of biodiversity change.

Provides an effective mechanism for species protection at local levels

Fishery management in Timor-Leste has largely been traditional in nature, and informal. Formal management has impacted on past international fisheries conducted in Timorese waters (none currently licensed), but has had low levels of influence at the community level. This is due to the very small scale nature of community fisheries, their widespread distribution, and a lack of attention paid to fisheries in national budgets. As pressure on fisheries increases, both through a rapidly increasing national population, through the likelihood of future enterprise development, and through climate change, active ecosystem based collaborative management of small-scale fisheries is becoming a growing priority for both government and communities. The small areas of coastal reef in Timor-Leste risk becoming over exploited if controls and management capability are not improved, and diversified livelihoods for coastal communities not supported. Areas of reef near to populations are showing clear signs of heavy fishing pressure. While co-management is supported in policy, implementation has been scattered and variable in effectiveness <sup>25</sup>. The IkanAdapt project provides a timely opportunity to invest in institutionalizing ecosystem based approaches to co-management, and ensuring legitimate participatory engagements to understand and assess trade-offs between food production, culture and biodiversity conservation. The project will work alongside existing initiatives in the co-management space (e.g. the WorldFish-led Fisheries Sector Support Program, the USAID Tourism for All project <sup>2</sup> focused on Atauro Island) and key agencies working in this space (Coral Triangle Centre, Conservation International), to build capacity to fill current knowledge and institutional gaps required as preconditions for effective management

Recent government processes of decentralization provide both concerns and opportunities for institutionalizing co-management. Intermediate institutions, necessary between community and national levels, will be formed under the new district structures. The project will work on climate integration and biodiversity conservation at all levels, but will focus capacity building efforts on this 'new middle'. Given strong co-financing through WorldFish and MAF for the development of co-management systems, the project will focus directly on the integration of climate change resilience approaches into management – an area not currently at the forefront of co-management design.

#### 4) Improved post-harvest and marketing technologies

Ensures optimal livelihood and nutrition benefit from existing resources, and new species accessed through diversified fishing.

Diversified livelihoods can spread ecological risk across diverse species and systems or system components.

The nutrition benefits from fish are currently largely experienced by those in or adjacent to fishing communities, or those in adjacent to Dili. Dried fish is traded inland, although research has shown that most of this dried fish consumed is of Indonesian origin. A feature of Timorese fisheries is also seasonality – an excess of fish in the high season contrasts with zero fish availability in the rough

season. With improved sustainable production capacity, opportunities for a broader distribution of nutrition benefits must be matched with improved post-harvest handling and value chains. WorldFish has worked extensively with women's groups to develop livelihood options based around small pelagic fish resources. Examples include:

- fish powder (<https://worldfish.exposure.co/ingredients-for-success/>), providing livelihoods, improved hygienic processing, and improved nutrition outcomes for children, solar fish drying tents
- Solar drying tents ? enabling women to dry fish in conditions that would normally lead to poor quality or spoiled dried fish, and improving marketing option. This is important in the context of increasing unpredictability of wet season impacts.
- Fish restaurants/stalls ? providing good returns for cooperatives, and improving fish availability in communities.
- The project will work directly with communities to assess community-driven options for building sustainable fish-based livelihoods through improved handling and value chain system.

All value-chain improvement and post-handling work will be done within a framework for biodiversity conservation, climate resilience and improved nutrition outcomes. On the north coast, this is likely to revolve around small pelagic species. On the south coast, snapper fisheries may be included in the program.

## 5) Development of climate resilient fishery landing areas and infrastructure

Infrastructure investments will support livelihood activities developed with communities within a climate resilience framework

Ensuring optimal benefit from exploited natural resources is vital if ecosystem components are to be protected for biodiversity conservation

The micro-scale of the vast majority of coastal fishing in Timor-Leste means that fish are in most communities landed on beaches, adjacent to the homes of fishers, and traded from homes or nearby. The project will work directly with communities to learn from variable success in the past of donor or government projects with landing site investments, and ensure project activities are in line with aspirations and needs. This work will therefore link directly with the value chain and livelihood development endeavours, to ensure investments have a common purpose, and operate within the overarching framework of improving resilience and incorporating biodiversity conservation and knowledge of potential trade-offs. Interventions could include simple processing facilities, marketing areas, ice production etc, and in a limited number of locations, possible landing infrastructure and boat storage. The team will work with communities to ensure appropriate investments that align with the aspirations of diverse groups including women and youth.

## 6) Skills development for fishers, women, youth

Training will link directly to, and thereby support, new areas of endeavor such as diversified livelihoods, cooperative formation developed within a climate-change resilience framework

Ensuring optimal benefit from exploited natural resources is vital if ecosystem components are to be protected for biodiversity conservation

Links to national training partners and international agencies working in the fisheries space provide the opportunity for skills development in a range of areas relevant to project activities. These include in supporting services for sustainable fisheries (boat building, repair, engine maintenance), finance skills to facilitate enterprise development (including finance access) and group/co-operative formation, and resource management/conservation. Programs of skills development must be developed with communities, paying particular attention to principals of 'doing no harm' - skills development provided without this context risks undermining local enterprise and innovation. Priority areas for development will be developed in year 1, and comprehensive locally contextualised courses either facilitated with local partners, or developed where no local options exist.

## **B) Aquaculture adaptations and innovations**

### **7) Climate-smart farming infrastructure and technological adaptations**

Improved production system resilience in the face of projected climate shifts.

Resilient livelihood and food production systems help to constrain ecosystem pressure to a limited set of resources.

Globally, aquaculture is the fastest growing food production sector. In Timor-Leste, where low supply of affordable animal-source foods is a key driver of nutrition insecurity and widespread childhood stunting, even in small amounts, fish and other aquatic foods in diets can be transformative. Inland aquaculture is set to grow rapidly, with donor funding supporting the development of capacity and infrastructure to see major expansions of tilapia farming in the next five years. Seaweed farming also has substantial potential for growth. With both sectors primed for rapid growth, locally adapted climate-smart systems that keep biodiversity benefits/costs and tradeoffs central, will be both timely and impactful. The IkanAdapt project will integrate directly with teams involved in leading donor programs, and with government on policy, to develop and promote these approaches.

Adaptations will be co-developed with farmers (and hatchery owners, for inland culture). Recent climatic shocks (floods in 2020, 2021; El Nino-induced drought in 2016; increased ocean temperatures in 2018/19) have provided empirical experience that, together with international experience and research, will provide the experiential basis for developing adaptation strategies. Farming system adaptations may include physical adaptation to farming infrastructure (e.g. higher bund walls to protect from flooding and increase water storage), optimised macro- (landscape) and micro- (farm) scale selection of new sites through improved suitability mapping, diversified species selection (see below), improved technological solutions to maintaining optimal culture conditions during shocks (e.g. solar aerators, locally sourced optimized emergency feeds) etc.

### **8) Integrated agriculture/aquaculture farming systems (IAA)**

Diverse culture systems provide resilience to diverse shocks, maintaining livelihoods and food systems when conditions are unpredictable and changing.

Benefits of moving away from monoculture include reduced disease risk, and diluted pressure on a more diverse set of ecosystem services

Integrated agriculture/aquaculture is a nature-based approach that sees fish grown with other aquatic or terrestrial animal and plant species in a way that benefits biodiversity, access to diverse foods (to build nutrition security) and system productivity. The approach optimizes the use of on-farm resources including land, water, nutrients and sunlight. The approach is extensive, or semi-intensive and appropriate to household and small-scale enterprises. IAA as a multi-trophic system has good potential to increase dietary diversity of rural households and communities in Timor-Leste. As examples, IAA could involve the use of livestock or poultry producing manure that is in turn used to fertilize ponds to support green-water tilapia farming. Crops grown on the bund of the pond, or irrigated from pond water, then receive additional nutrient benefits from nutrient enrichment of the water. IAA can reduce disease concerns associated with monoculture systems. In some circumstances (perhaps infrequently in Timor-Leste due to soil types) fish ponds can double as water storage. Fish can be grown in crop irrigations systems such as in rice-fish farming. Rice/fish culture systems, highly successful in a number of Asian countries in increasing diversity in production systems<sup>[26]</sup><sup>26</sup> and conferring climate resilience, will be investigated and potentially piloted in 1 ? 2 districts. Approaches to IAA must be developed in context, considering local bio-physical conditions, biodiversity impacts, farming practices and traditions, food environments and cultural norms. The innovations here will be in co-developing locally contextualised systems with farmers, the private sector and government.

## 9) Nearshore habitat-integrated mariculture ? seaweeds and mangrove oysters

Provide viable supplemental and alternative livelihoods to reduce pressure on fisheries resources

Carbon positive culture systems. Habitat-integrated culture systems with minimal to positive impacts on ecosystems. Income generation provides an incentive for habitat protection.

Globally, marine finfish culture continues to expand rapidly, but largely serves the high-end market in developed economies and financial barriers to entry are often insurmountable for small enterprises in less developed economies. Seaweeds, and potentially mangrove oysters, not only offer low-investment alternatives that are accessible to rural households, but also offer carbon positive culture systems. Seaweeds are unique in their success as a supplemental livelihood for fishing households<sup>[27]</sup><sup>27</sup>, with a very good cultural fit for fishing households. Women are able to integrate many associated activities with existing livelihood and domestic commitments. Seaweed farming on Atauro Island provides a supplemental livelihood, but there is substantial potential to build a more resilient industry. Larger scale and highly productive systems in West Timor provide excellent opportunities for learning, and at least in the short term provide access to international markets. Early scoping suggests current culture systems are limited by supply of propagules, diversified markets, and limited business skills among industry participants. Opportunities for small-scale processing and marketing of food and cosmetic

products have been piloted and show potential. The project will work across these barriers to promote and facilitate seaweed livelihood development in appropriate ecotypes.

Other opportunities for ecosystem integrated near-shore culture systems, such as mangrove oysters, will be investigated and where appropriate (particularly considering safety regarding crocodiles) piloted with communities.

## 10) Diversifying culture species

Species selection will be based on resilience to projected conditions under likely climate change scenarios, ensuring resilient food systems and livelihoods.

Moving away from monoculture reduces disease risk. Productive mangrove systems and inshore areas will see their value appreciated by communities, increasing incentives for conservation.

**Seaweed species diversification:** During a recent scoping mission to Atauro Island by WorldFish, MAF and a regional seaweed consultant, seaweed farmers conveyed substantial issues with obtaining propagules, and disease relating to water temperature. A very limited number of cultivars are currently used, and learning from West Timorese experience, there is scope for diversifying culture systems that can cope with, or thrive in, diverse conditions.

**Indigenous fish species:** Indigenous small fish species grown in freshwater aquaculture systems have had transformative impacts on nutrition security in parts of the world<sup>[28]</sup>. Diversifying production systems, particularly with indigenous species, provides a range of benefits including providing low-value fish, more likely to be consumed directly by farming households, reducing disease risk associated with mono-cultural systems, and improving biodiversity benefits from culture systems. This component will start with a stock take of local freshwater species, and desk-based investigation of plausibility of culture. It will progress to piloting if appropriate species can be identified.

## C) Aquatic Ecosystems

### 11) Local Marine Management Areas (LMMA)/Marine Protected Areas (MPA development)

Effective local management provides the necessary feedback systems to detect change, communicate issues and needs, and ultimately to support adaptation.

Promotes effective and community-driven local management of biodiversity resources.

The project will work with a smaller number of communities (at least 6), alongside government, to develop and implement LMMA and MPA plans. Scaling the positive outcomes from recent pilots,

notably including the integration of 'tara bandu' – a traditional approach to natural resources management – into LMMA development where appropriate, will be a focus of project activities. Existing LMMA areas on Atauro Island have followed a model whereby resource use and protection rules developed and agreed at the community level are formally approved at district level, giving legal status to these agreements, while allowing for periodic review and adaptive management. The project will work with these communities initially to review positive and negative outcomes from this model, functioning of the review and adaptive management approaches, and with MAF staff, we will optimise and institutionalize a model for scaling. We will work with MAF to develop a set of standards for implementation of LMMAs as an approach to ensure genuine co-leadership by communities, and consultation with diverse, disadvantaged and marginalized groups as part of all LMMA and marine protected area work by NGOs and government agencies.

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## 12) Restoration and mitigation in key ecosystems

Ensures both provisioning and regulating ecosystem services from coastal habitats are intact, improving resilience of ecosystems and coastal communities to climate change.

Improves resilience to climate change of key areas for biodiversity conservation.

Supports livelihoods dependent on ecosystem services from vulnerable systems.

For communities reliant on, and adjacent to, vulnerable or degraded habitats, we will work with local stakeholders, service providers, and youth groups on options for mitigating damage and restoring ecosystem function. This will integrate closely with (11) above. Scoping will include integrating local knowledge and scientific research on habitats and species, and will build on, and scale out, outputs and outcomes from recent projects and national activities focused on coastal system resilience (notably the GEF funded *'Building Shoreline Resilience of Timor-Leste to Protect Local Communities and their Livelihoods'* project implemented by UNDP). Activities highlighted during early scoping by communities include reducing plastic pollution in lagoon areas, replanting of mangroves to improve coastal protection and provide habitats for fish and terrestrial species, mitigation of local human-induced stressors on ecosystems, and environmental awareness raising activities. Opportunities for carbon sequestration will also be investigated, particularly in association with mangrove restoration and seagrasses.

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## 13) Improved spatial management of nearshore habitats

A climate vulnerability 'layer' included in models will aid the development of spatial management approaches that integrate climate projections.

Provides the tools to include vulnerable ecosystems and species in approaches to coastal management and zonation

Tools are increasingly available for biodiversity conservation planning and spatial management in the coastal zone. The project will build on recent comprehensive coastal habitat mapping undertaken by NOAA's *Coral Reef Ecosystems Program*, to develop an aquaculture suitability spatial model/map using *recommendation domains* GIS-based modelling approaches (WorldFish has completed a matched

exercise for inland aquaculture suitability). An innovation will be in including spatial layers on biodiversity and climate change vulnerability in this model. As Timor-Leste is currently developing a new legal basis for aquaculture management, this output will not only guide project interventions, but also have impact at the national planning level. It will be pre-adapted for incorporation into a broader coastal zone spatial planning exercise.

#### 14) Alternative livelihoods

Diversifies livelihoods, reducing reliance on climate-vulnerable resources and building resilience to diverse shocks.

Bundled as part of a package with improved management, can provide equitable and just pathways to reduced exploitation of natural resources and ecosystems.

Coastal and riparian environments create opportunities for livelihoods not directly associated with fisheries and aquaculture. Productive supplemental livelihoods can provide a strong household resilience factor in rural communities. Where these livelihoods provide income to natural resource-dependent households, they can be part of a package that acts to reduce exploitation pressure on vulnerable ecosystems and natural resources. In the right location, productive assets associated with fish-based livelihoods can contribute to development of supplemental and alternative income sources. Examples include the tourism sector, where boat transport, snorkel charters, home stays may be viable alternatives. The livelihood integration of agriculture and fishing in Timor-Leste is exceptionally strong<sup>29</sup> and when agriculture failures occur due to increasingly unpredictable wet seasons, gardens may be abandoned and pressure increases on fisheries as a remaining viable livelihood. As a component of community resilience planning, the project will provide opportunity for the development or strengthening of alternate non-extractive alternative and supplemental livelihoods.

### Output 2.3. National level programmes based on CC vulnerabilities developed to promote more resilient economies

The project will facilitate the upscaling of climate resilient fisheries management approaches, aquaculture approaches and technologies to additional pilot communities. This will be done through the coordination and networking capacity of NFDA staff and in partnership with other projects and agencies. As good practice is developed within the project this will be communicated through national networks and training and extension services. As a part of scaling up strategy, the proposed project will carry out community exchange visits to surrounding communities that are not the direct beneficiaries of the LDCF/BD resources. A strategy to upscale the project will be developed in partnership with NFDA.

Activities under this output will include:

- Establishment of a community network of the fisherfolk organizations (with potential sub-groups for women fishers and processors) to promote adaptation and biodiversity conservation in coastal and inland areas and share knowledge and practices related to tested livelihood diversification options.

#### **Output 2.4. Community capacity development programme to support the design of ecosystem (EAFM/EbA) strategies and plans for fishery and aquaculture dependent communities in coastal and freshwater areas**

This is expected to lead to Biodiversity conservation practices implemented in the 7 municipalities that will result in better MPA implementation that is effectively integrated into broader land and seascape governance approaches including ecosystem services, cultural and heritage management as well as land use planning. This will be done through participatory processes for site base management and planning. Based on site level needs, community capacities will be strengthened to increase their understanding on biodiversity values and their management, considering climate change impacts. Ways to reduce land/seascape use pressure will be jointly developed with community participation. This approach also involves exchanging of information and relevant data while enabling the practitioners to formulate protection zones and establish integrated databases of information. The project will take into account the 6 levers of behaviour change<sup>30</sup> when designing activities aimed at changing behaviour. These levers include the i) provision of material incentives, ii) the use of rules and regulations, and iii) the provision of information on the desired behaviour and why it is important. In addition to these, the project will also take into consideration iv) choice architecture, through a better understanding of the underlying decision-making process, as well as v) emotional appeals, and vi) social influences. Based on the community consultation processes, the project will support effective conservation in at least 1000 ha of marine/coastal areas that will include 6 MPA's/LMMA's in coastal districts of Timor-Leste, following recommendations of good practice. These will follow the existing good practice developed in Timor-Leste. The locations will be decided after analysis undertaken above and on the remaining priority areas in the NBSAP Priority Strategies for Biodiversity Conservation. The project will also support implementation of vulnerable species action plans for turtles. With regards to enforcement, the communities will continue to receive government support in monitoring and enforcement through the PeskaAS catch monitoring system. Enforcement will be done through the co-management approach, and the national plan on co-management, which will be applied for marine fisheries. Inland fisheries are very seasonal and subsistence only, without current enforcement ? the

focus will be to improve management and data gathering. The project will also focus on institutional strengthening as well, since institutions need support to better address these issues.

Activities will include:

- Development of new or strengthening of existing MMAs through the inclusion of Ecosystem-Based Approaches, discussions and revision of existing community monitoring and enforcement protocols, and establishment of strategies for improved compliance and adherence to locally established management rules and regulation (*e.g. Tara Bandu*).
- Implementation of MMA community-based dialogues focused on strengthening development and adherence to local marine management protocols;
- Community level implementation of the conservation plans (1 wetland and 2 ETP species) ? linked with Output 1.2.

*Component 3: Strengthening institutional capacity through the development of climate and biodiversity related information systems, information management and monitoring operations*

The proposed project aims to develop NDFA's staff capacity to manage fishery related information and data. The LDCF/BD project will undertake a capacity needs assessment with respect to statistics reporting and data management for fisheries and aquaculture and biodiversity. The capacity development plan implemented by the project will enable the project to monitor and report climate and biodiversity data for policy making.

**Outcome 3: Institutional capacity strengthened through the development of climate and biodiversity related information management and monitoring system.**

**Key results under this Outcome will be:**

**CC and BD indicators**

- Fully operational CC impact and biodiversity monitoring system integrated into national fisheries and aquaculture statistics
- Joint activities planned by MAF and MIEC
- Published lessons learned and best practices
- Assessment of the capacity of stakeholders and has improved 70 % pre-project levels
- Enhanced capacity of 2920 people on climate change and biodiversity conservation

These indicators will be achieved through a combination of several Outputs, which are described below.

### **Output 3.1. Climate risk information system developed to enhance coordination and communication practices**

Currently there is weak coordination among the different bodies dealing with climate change in the country. Until now climate risk information relating to the fisheries and aquaculture sectors is scattered across different ministries and sectors at the national level and there is no clear repository for this information. NDFA has been unable in the past to participate in inter-ministerial bodies related to climate change.

The project will enable NDFA and the sector to engage in such national planning and policy development through sector-specific vulnerability assessments and adaptation options undertaken in Components 1 and 2. In addition, the project will support NDFA with advocacy and awareness-raising with government and national level development partners and the public. The proposed project will assist the NDFA to improve its capacity in communication and information flows. Communications and provision of information/data as well as knowledge sharing (such as climate change impacts, assessments, good practices, and others) within the NDFA as well as in climate change related inter-ministerial bodies including the **Biodiversity and Climate Change Network** are vital for developing evidence-based policy and policy tools.

**Fish and fish-farmers require high-quality climate information and targeted forecast that directly address their sectors, particularly those that can help predict changes in water temperature (such as increases that can lead to levels beyond the physiological tolerance of some species, or sudden**

temperature fluctuations), erratic or intense rainfall or wind events, or floods and droughts. Activities related to Early Warning Systems will build on the findings and recommendations of a previous study conducted by the WorldFish in Bangladesh, that developed a decision support framework to help small-scale fish farmers to better manage climate risks. This was done first through the identification of climate sensitive aquaculture operations (based on the response of farmers and key informants, and literature review), and the identification of temperature and rainfall thresholds of key aquaculture species. The study also took into consideration social perceptions as a key element for developing resilience of aquaculture systems, which highlighted the need for capacity development of fish farmers, along with raising awareness on weather impacts on aquatic systems. The work done by WorldFish in Bangladesh provided a good example for the use of Climate Information Systems (CIS) for small aquaculture farmers, and highlighted the need to provide clear actionable information in response to forecasted local climate conditions, with the aim of managing climate risks and ensuring livelihoods as well as food and nutrition security.

The EWS will integrate multiple data sources to provide long and short-term indicators of environmental conditions, in numeric or graphic formats co-developed with fishers and key stakeholders. The system will integrate multiple data sources including available remote sensed and down-scaled modelled data, and locally gathered real-time data. Consultation on formats, data needs and communication will be with both men and women in communities, as needs are dependent on livelihood structures and priorities. We will work with a least one local private enterprise currently providing climate and remote sensing data to farmers, with possibilities of expanding private services, or integrating data collected through this system into a government-supported EWS. Depending on funding outcome, the project will work closely with an FAO led project (?Enhancing Early Warning Systems to build greater resilience to hydro-meteorological hazards in Timor-Leste?) currently under development, in the areas of EWS delivery, capacity building and improved monitoring/forecasting systems.

There is clearly opportunity to integrate the EWS with the existing national fisheries data system (PeskaAS) developed by WorldFish, MAF and collaborators. A current focus with the PeskaAS system is improving the ?fisher facing? elements, providing communication channels back to communities and fishers. There are many global examples where smartphone apps have been used for such communication, and these systems can be adopted. However, smartphone penetration in rural Timor-Leste is still very limited. Providing local solutions that integrate with expanded communication systems that will be implemented to support co-management communication provides an alternative pathway for information, and ensures information flows are bi-directional.

Activities related to EWS would take into consideration the lessons and perspectives from other countries and stakeholders, particularly on gender aspects to be included in the system, as environmental impacts often affect men and women in different ways. [31]<sup>31</sup>

Activities under this component will include:

- Institutional analysis of existing climate risk information systems and support interagency coordination.
- Community level climate risk reduction strategy (including Early Warning systems) for fisheries and aquaculture dependent communities.
- Participatory community monitoring system to assess impacts of climate change on marine and freshwater ecosystems and aquatic biodiversity and incorporate this into the PeskAAS catch monitoring system.

### **Output 3.2. Project monitoring system established and midterm and final evaluations conducted**

This output will ensure systematic data collection from project pilot sites to effectively monitor and evaluate project progress through the use of gender-sensitive indicators, and monitoring risk mitigation measures.

Activities under this output will include

- IKAN Adapt Monitoring and Evaluation framework, including gender-specific indicators and targets and ensure a link to on-going government M&E systems.
- Baseline for the project (based on agreed gender-sensitive indicators).
- Conduct mid-term review for the project.
- Conduct final project evaluation

### **Output 3.3. IKAN Adapt Project Communications, Stakeholder Engagement and Gender Strategies established and implemented**

The project will prepare a communication strategy to improve internal communication and information flow on climate change and biodiversity within NDFA. Approaches will include use of social media, newsletters, web site and frequent meetings. Decision makers as well as NDFA staff will constantly be updated with progress made in the proposed project. Field visits to project sites will also be conducted as a part of internal communications. Improvement of communication with external stakeholders is crucial in supporting climate change resilient strategies among target communities.

The project will help build partnerships with other ministries and development partners. Communication channels with target fishing communities will be reinforced by introducing mobile phone-based weather alert and early warning (linked to Output 3.1). Depending on the availability of remote-sensing data, information on water-temperature will also be made available to fishers. The results of vulnerability assessments will be displayed in common areas for awareness raising. Information on climate change, its impacts, adaptation strategies and good practices as well as progress of pilot activities will also be communicated with information materials. In order to communicate with socially vulnerable people such as those who cannot read nor write, the information materials will use photos and pictures as much as possible. In addition, information will be given to schools so that school pupils including youths who are more conversant with new information technologies and usually more eager to understand climate change and its impact will be able to communicate with their parents.

This output will also focus on the development of the IKANAdapt stakeholder engagement strategy, by identifying synergies that will facilitate regular consultations with other relevant projects/programs and agencies working on similar issues (climate change, fisheries and environment, aquatic biodiversity, gender issues, etc.). During early implementation, the project will also ensure that the Free, Prior and Informed Consent Guidelines are being followed, by documenting communities' willingness to participate in the project (this process was initiated during the PPG phase, but was halted due to Covid-19 restrictions).

The project will address women's lack of representation in decision-making related to fisheries management and biodiversity conservation, by enhancing women's direct participation in project activities by addressing gender issues identified in the Gender Analysis and the implementation of the Gender Action Plan (see Section 3 below on Gender Equality and Women's Empowerment).

Activities under this output **will** include:

- Project website established
- Knowledge products, including 'best-practices' and 'lessons-learned' assessed, published and disseminated

- Knowledge sharing through participation in regional and global workshop(s) on climate resilient policies and practices for fisheries and aquaculture communities
- Develop an IKANAdapt stakeholder engagement strategy including synergies and regular consultations with other relevant projects/programs and agencies who are working on similar issues, and ensure implementation of the Free, Prior and Informed Consent Guidelines
- Develop and implement a Gender Strategy for the IKAN Adapt Project, including gender analyses during the planning of activities and follow up during implementation through gender-sensitive indicators

**Output 3.4. A monitoring system to assess impacts of climate change on marine and freshwater ecosystems and aquatic biodiversity incorporated in the **PeskaAAS catch monitoring system****

Data gathering campaigns will be launched to integrate climate change coastal and marine impact monitoring data. The project will assist the NDFA to acquire skills to monitor data as well as climate change impacts on fishery resources (and biodiversity) and link such data to climate change database in the country through on-the-job and formal training. Progress as well as results of activities carried out to achieve this output will inform activities on Output 1.

There are opportunities in Timor-Leste to efficiently incorporate participatory biodiversity monitoring in partnership with a range of groups. Post-COVID, partnership with dive tourism and ?voluntourism? organisations provide opportunities for citizen science and ?visitor-science? approaches to collecting basic biodiversity information. Standardised protocols including ReefCheck, Seagrasswatch and Coral Watch are already in operation with a number of groups in Timor-Leste, and provide an existing framework for reporting. Current research being undertaken by WorldFish country partners is investigating opportunities for women gleaners to be engaged in participatory monitoring without substantially increasing labour burdens. The project will provide additional training where necessary to these groups, and will develop centralised platform for data collection, linked to the PeskaAAS fishery monitoring system. This activity will directly support MPA/LMMA implementation under output 2.2 and can potentially be implemented on a wider scale covering important fishing grounds. Ultimately, these data can be linked with the NOAA-initiated dataset on coastal habitats, to compare trajectories to baselines. Additionally, the project will append a threatened species data page to PeskaAAS, and will provide training and resources for PeskaAAS data collectors to identify and monitor catches of, and interactions with, vulnerable species.

Activities under this output **will** include:

- Review of existing monitoring networks in Timor-Leste
- Design of participatory monitoring systems
- Implementation of participatory CC and BD monitoring systems

4) Alignment with GEF focal area and/or Impact Program strategies

The project is fully aligned with GEF focal areas for the LDCF and Biodiversity focal areas.

**LDCF/SCCF Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation.**

This objective is principally addressed under Component 2 of the project, which will address the lack of capacity in Timor- Leste to support communities to plan and implement climate change adaptation strategies for the fisheries and aquaculture sector. Specifically, the project will strengthen the existing fisheries co-management units and aquaculture clusters and develop them where they are absent. The fishery co-management units and aquaculture clusters will be the entry point for the project to mobilize community members and improve people's awareness on climate change adaptation, develop and adapt resilient strategies, and promote decentralized decision- making processes and technologies. A range of innovative tools and technologies will be developed to help the communities address the issues identified.

**LDCF/SCCF Objective 2: Mainstream Climate Change Adaptation and Resilience for Systemic Impact.**

The project will mainstream climate change adaptation planning in the fisheries and aquaculture sectors and at national, district and community levels. Stakeholders will be empowered to support the development and implementation of participatory climate change strategies for fisheries and aquaculture clusters. The strategies will enable integration of climate change adaptation (CCA) and

biodiversity conservation into adaptive fisheries and aquaculture management planning and implementation of ecosystem-based approaches. Appropriate policy tools will be adapted and developed during this process, based on needs and which may include recommendations on regulations, guidelines and strategy papers. Under the leadership of NDFA, the outputs of vulnerability assessment, aquatic biodiversity conservation status, policy, and policy tools will be communicated to key stakeholders through participatory consultation processes. This will ensure NDFA's ownership over policies and policy tools on climate change adaptation, resilience and biodiversity conservation programs. The project will also help other ministries and institutions to benefit from the knowledge gained through the vulnerability assessment process. This will include sectors that engage in coastal and marine issues such as recreational fishing and tourism, infrastructure and transportation. The proposed project will place gender considerations as a high priority area in the planning process and in developing policy tools.

#### **Biodiversity BD1: Mainstream biodiversity across sectors as well as landscapes and seascapes.**

The project will support this target through the development of biodiversity conservation action plans in the fisheries and aquaculture sectors. Implementation of these plans will ensure BD conservation in Timor-Leste is integrated into broader land and seascape governance approaches including ecosystem services, cultural and heritage management as well as land use planning. Implementation of the 6 MPA's/ LMMA's through participatory processes will assist Timor-Leste in achieving its biodiversity targets.

The project will also ensure that biodiversity considerations are included in aquaculture plans throughout the implementation of the project. The project will build on existing coastal habitat mapping completed as a component of the NOAA-led Interdisciplinary Baseline Ecosystem Assessment Surveys to Inform Ecosystem-Based Management Planning in Timor-Leste project to develop aquaculture suitability maps and models for coastal areas. These models (using a recommendation domains approach) will include GIS layers on biodiversity and climate change vulnerability as part of the decision tool. The project will append biodiversity and climate change vulnerability layers to the inland aquaculture suitability model developed by WorldFish in 2011 as a component of National Aquaculture Strategy.

The guidelines developed for aquaculture will include both marine and freshwater environments. For marine aquaculture, the project will support enhancing the production of seaweed farming, with the direct involvement of women, and linking with the seaweed processing plant in Kupang (Indonesia). The project will investigate options for mangrove friendly habitat-integrated culture, notably for mangrove oysters. For freshwater, the focus will be on building the climate change resilience of tilapia

farming systems. There are environmental trade-offs associated with tilapia farming. There is substantial donor support for the sector as a supply of micronutrients to rural households, and is set for rapid expansion over the next 5 years. The environmental risk in Timor-Leste is relatively low relative to many locations. Mozambique tilapia have been present in Timor-Leste inland waters for decades, and most rivers in Timor-Leste are ephemeral, and will not support tilapia populations. Tilapia are farmed in constructed ponds, not rivers (although escapement risks remain). The Genetically Improved Farmed Tilapia (GIFT) strain are produced as monosex (male) from the hatchery, reducing environmental risk. The project will work with tilapia farmers on climate-proofing culture systems, improving livelihood resilience, reducing escapement risk, and broader approaches to minimizing negative environmental outcomes. In addition, the project will investigate the possibility of farming small indigenous species which are currently undervalued, but have an important cultural and food security value. Other opportunities for farming system diversification, rice-fish farming will be investigated as a component of resilience planning.

- 5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

The outcomes of the project will not be realised without the LDCF/BD investments and contribution described. Fisheries resources and biodiversity will remain largely vulnerable to the impacts of climate change, directly threatening the livelihoods of fish and fish-farming communities who rely on these resources in Timor-Leste. With the lack of capacity and understanding of the climatic vulnerability of the fisheries sector and the adaptation options available for communities, planning for climate change and biodiversity will not be possible.

Without the guiding support of the LDCF/BD project, the existing supporting institutions and stakeholders will not develop the capacity to coordinate and provide the broad type of technical support required at all levels, and will remain unable to develop an integrated adaptation response, through the development of participatory climate change adaptation plans, policies and actions that are gender sensitive and responsive to the needs of fishing communities, and that conserve biodiversity. Fisheries and fish-farming communities and related stakeholders do not have the resources or capacity to develop their own CCA/BD plans and implement them. The government of Timor-Leste, as an LDC, is unable to identify additional resources in the lifetime of the project as the budget has been allocated for the period and is limited. Private sector investment in Timor-Leste is very limited at present and there are no systems to enable loans to be secured. No other donors or partners are planning similar interventions. In terms of biodiversity conservation the MEIC has some limited resources of its own but these would not be sufficient to enable focus on the fisheries and aquaculture sectors. Without the project, there will be no investments in new adaptation technologies and nature-based solutions that can reduce the vulnerability of fishing and fish-farming communities to climate change. There will also be

no sharing of knowledge or creation of networks that will disseminate good practices and promote adaptive change, and no added emphasis on, or support to, the role of women in fisheries and biodiversity conservation in the context of climate change.

The baseline scenarios described above will make some contribution to planning and development of the fisheries and aquaculture sector in the country. This is generally considered not to be sufficient especially given that Timor-Leste is largely lacking development infrastructure due to years of conflict.

With the LDCF/BD project and the co-funding mobilized by the project, there will be a coordinated approach among agencies at the national, municipal and local levels to address the barriers that have been identified by the IkanAdapt and contribute to the implementation of the NAPA, the NAP, and the NDC. In particular, the project will:

- Develop the capacity for climate change adaptation and biodiversity conservation in fishing and fish-farming dependent communities, and their supporting institutions, using ecosystem-based approaches, such as Ecosystem-based Adaptation and the Ecosystem Approach to Fisheries Management and Aquaculture. Relevant priority government policies and strategies will be supported at different levels, and the capacity of stakeholders will be supported through a wide range of capacity building activities.
- Enhance policy frameworks for the protection of biodiversity and the sustainable use of fisheries and aquaculture resources, while adapting to climate change.
- Improve coordination among stakeholders through the creation of networks to ensure alignment of approaches in climate change adaptation response and planning and for biodiversity conservation.
- Provide demonstration of critical and innovative adaptation practices and technologies to ensure resilient fisheries and aquaculture in Timor-Leste.

6) Global environmental benefits (GEFTF), and adaptation and socioeconomic benefits  
(LDCF/SCCF)

Timor-Leste is an LDC and is vulnerable to climate change impacts and variability. It currently has very low capacity to adapt at local and national levels. There is growing recognition that climate change poses a significant threat to the fisheries and aquaculture sector, through air and sea temperature increases as well as changes in rainfall and storm activity as identified in the NAPA and that, without financial and technical support, urgent adaptation actions will remain unaddressed. Timor-Leste has

exceptional biodiversity much of which is at risk from overexploitation, pollution and habitat degradation. Food security is currently a main concern in Timor-Leste. The country has one of the lowest fish consumption levels in the region. This LDCF/BD project will strengthen the management of marine and inland fisheries as well as ensure that inland capture fisheries and aquaculture are made more sustainable and resilient to the impacts of climate change through specific activities in key areas where rural communities are highly dependent on fish.

### ***Climate Change Adaptation***

The project is fully aligned with GEF focal areas for the LDCF focal area and will address the lack of capacity in Timor-Leste to support communities to plan and implement climate change adaptation strategies for the fisheries and aquaculture sector. Community awareness on climate change adaptation will be developed through development of resilience strategies and the development of innovative tools and technologies will be undertaken to help the communities address the issues identified. The project will also mainstream climate change adaptation planning in the fisheries and aquaculture sectors and at national, district and community level and support implementation of the NAPA.

The project has conscientiously been designed to deliver local, national and global environment benefits, and specifically address the GEF LDCF objectives of:

- LDCF/SCCF Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation
- LDCF/SCCF Objective 2: Mainstream Climate Change Adaptation and Resilience for Systemic Impact

Specific **adaptation benefits** include:

- 3 national strategies including climate change adaptation and biodiversity conservation developed or strengthened.
- 2 Marine Protected Areas and 4 Local Marine Managed Areas (LMMAs) plans integrating CC and fisheries /aquaculture developed and started implementation
- 20 Community led CC resilience and planning vulnerability assessments developed, strengthened and implemented.
- 10 innovative adaptation technologies and practices developed and implemented (based on community needs assessments)

- 35,000 people (50% women) with strengthened resilience to climate change from project support

### ***Biodiversity***

Timor-Leste has developed its National Biodiversity Strategic Action Plan, which is aligned to and has action under all 20 targets. Biodiversity has been incorporated into the Strategic Development Plan (SDP) 2011-2030 which has targets aligned to the CBD global targets, which include:

- Raising people's awareness on the values of biodiversity and the steps they can take to conserve and use it sustainably,
- Achieving reduction of rate of loss on natural habitats and conserving biodiversity and ecosystem services through effectively and equitably managed, ecological representative and well-connected systems of protected areas,
- Reducing anthropogenic pressures on ecosystems and biodiversity and maintain their integrity and functioning,
- Enhancing ecosystem resilience and the contribution of biodiversity to carbon stocks,
- Contributing to restoring and safeguarding health, livelihoods and wellbeing, taking into account the needs of women and children.?

The project broadly addresses mainly

- CBD Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably (Component 1 and 3)
- CBD Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems) (Component 3)
- CBD Target 6: By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits (Component 2)

Specific **biodiversity** benefits include:

- 33,540 ha of marine and coastal area effectively managed to ensure conservation and sustainable use of globally important habitats and species to increase their resilience and conservation status (related to Core Indicator 3)
- Conservation plan developed for 1 wetland
- 2 ETP conservation action plan developed
- 7 municipalities with revised strategies for climate change Adaptation and Biodiversity conservation actions under implementation

In addition, the project will also deliver specific social and gender benefits including gender sensitive and gender-responsive planning and interventions. Specific activities in this regard are mainstreamed throughout the project design (e.g. gender specific vulnerability assessment and capacity development planning, and gender sensitive and balanced pilot interventions). Such a gender focused approach does not only help empower gender balanced development in the sector, critical for long-term climate resilience, but will generate important adaptation learning which can be further integrated and addressed through the national planning processes in Timor-Leste.

The specific **Adaptation and Biodiversity** benefits include:

- Fully operational CC impact and biodiversity monitoring system integrated into national fisheries catch monitoring system
- Formal establishment of the Biodiversity and Climate Change Network
- Joint activities planned by MAF and MIEC
- Published lessons learned and best practices
- Assessment of the capacity of stakeholders and has improved 70 % pre-project levels
- Enhanced capacity of 2920 people on issues related to climate change adaptation and biodiversity conservation

### **Socioeconomic Benefits**

As indicated, the project will benefit at least 35,000 people (50% women) from communities heavily dependent on fisheries and fish farming (including fishers/fish-farmers themselves and their families) from strengthened and diversified livelihoods, and resilient coastal ecosystems. In addition, the project will support 1000 ha of MPAs and LMMAs in coastal and inland areas, as well as provide climate change adaptation capacity for local communities, to ensure food security and livelihood diversification, at the time of integrating co-management mechanisms for fishery resources and the conservation of biodiversity. **The development and implementation of community adaptation plans following the ecosystem approach to fisheries management mean that biodiversity will be conserved beyond the areas covered under MPAs/LMMAs.**

At the national level, the project will provide benefits to fishing and fish-farming communities by strengthening the capacity of the government (particularly NDFA and MCEI) and other key partners to develop and implement policies and plans related to climate change adaptation, and biodiversity conservation, by mapping climate induced risks and biodiversity status that are particularly relevant for fisheries and aquaculture (Output 1.1), and by integrating climate change adaptation and biodiversity conservation considerations into fisheries and aquaculture strategies and action plans (Output 1.2), the development of conservation plans for key vulnerable species that are important for global biodiversity (e.g. turtles). The project will provide opportunities for further work on climate change adaptation and biodiversity conservation in the country, by developing national level strategies, such as the Sustainable Fisheries Livelihoods and Climate Change Strategy, Ecosystem-based Adaptation Strategy, and a Ecosystem Approach to Fisheries Management/Aquaculture Strategy (Output 1.3), and improving the capacity to develop and implement these strategies (Output 1.4), and strengthening collaboration and information sharing networks (Output 1.5).

The socio-economic benefit from the project will include the development of community-based enterprises that respond to, and expand, the demands of the domestic markets and value-chains. To achieve this, the project will develop community level climate resilient livelihood and biodiversity conservation strategies for fishery and aquaculture dependent communities (Output 2.1), and improve the capacity of stakeholders on the development of business plans, cost-benefits analysis and cash-flow projections, adapted to the local context, and sensitive to gender issues (Output 2.2), while scaling up the lessons learned and best practices at the national level and with other non-target communities through strong networks (Output 2.3), and strengthening the implementation of co-management measures for EAFM, EAA and EbA (Output 2.4).

Both national and local project stakeholders will benefit from robust monitoring and knowledge management system (Component 3) that learns from the community monitoring, and feeds into the overall project monitoring, to share the best practices and best information for adaptation and biodiversity interventions.

The project's strong focus on gender equity and on ensuring free prior informed consent is also expected to strengthen social sustainability. With equal rights and opportunities to participate and benefit from the project, women and men (including youth and elders) can become agents of change for sustained socio-economic development in their communities, so they are more resilient to the impacts of climate change. The socioeconomic benefits of healthy and well-managed aquatic ecosystems will be felt in other sectors and locations in the country.

### Decent rural employment[32]<sup>32</sup>

The project implementing and executing agencies will ensure that the delivery of global environmental benefits and the achievement of the project development objectives are in accordance with international human rights standards and instruments, the FAO Code of Conduct for Responsible Fisheries, the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), and will take into consideration FAO's decent work pillars:

- Pillar 1. Employment generation and enterprise development. For the fisheries sector the issues and decent work deficit include: low earnings and labour productivity, threats to sustainable livelihoods and also limited data and policy gaps.

- Pillar 2. Social protection. For the fisheries sector the decent work deficit includes issues such as lack of social protection and hazardous employment environment.

- Pillar 3 Standards and the right to work. For the fisheries sector the decent work deficit includes issues such as ineffective labour regulation, flags of convenience and illegal, unreported and unregulated (IUU) fishing, child labour, vulnerable migrant labour.

- Pillar 4. Governance and social dialogue. For the fisheries sector the decent work deficit may include low levels of organization and participation.

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The implementing and executing agencies of IkanAdapt project will likewise ensure that all activities are conducted with attention to reasonable working conditions and without child and forced labour. In addition, activities such as those related to livelihoods diversification and the establishment of MPAs/LMMAs do not negatively affect the livelihoods of vulnerable populations.

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Some of the lessons learned in implementing the SSF Guidelines in other countries, that are particularly relevant for the IkanAdapt project include:

- Initiatives in support of small-scale fisheries need to be participatory and people centred, and must provide attention to ensuring access rights to resources
- Resource conservation is a key factor for the successful management of small-scale fisheries.
- Conservation of aquatic ecosystem requires strong institutional and infrastructure support.
- Good leadership is the bedrock of successful organizations for small-scale fishers. Leadership can be cultivated through practice and training
- Women's involvement must be central to any effort for small-scale fisheries development and management
- Management plans for small-scale fisheries should become a central part of any fisheries development programme ? their development and implementation processes should be participatory and with a keen understanding of local natural resources and viable governance structures.

#### 7) Innovativeness, sustainability, potential for scaling up and capacity development<sup>33</sup>

The project will develop a range of innovative tools and adaptation technologies with partners that are appropriate for Timor-Leste and for transfer to fishers and the fish-dependent communities through the project approach and as outlined in Output 2. A flexible approach will be adopted to ensure that the innovative tools are piloted and adapted to the social and cultural context of Timor-Leste. These tools will also be selected to support biodiversity conservation.

**Linking climate change adaptation and biodiversity conservation to food security.** The project is innovative in that it addresses CCA and BD issues for fishing and fish farming communities in Timor-Leste. By also taking a livelihoods and food security focus, integration of climate smart fisheries and aquaculture investments in the future will broaden food security opportunities in Timor-Leste while also enhancing SMEs and local private sector development. The project will (i) incorporate climate uncertainty and variability explicitly into fisheries and aquaculture development and management, (ii) support the development of participatory monitoring systems in the fisheries and aquaculture sector as an early warning mechanism, and (iii) develop and implement technical advances in both the harvest

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and post-harvest practices subsectors. These activities will be in line with the ecosystem approaches and will better prepare the sector to participate in national climate change and disaster risk management (DRM) discussions, including cross-sectoral water and mangrove management in adaptation planning for sustainability and scaling up.

**Engaging across the sectors for improved climate readiness within fisheries and aquaculture.** The fisheries and aquaculture sector of Timor-Leste has limited capacity to monitor and predict climate variability and change; hence has limited ability to plan and prioritize adaptation options. This project will support cross-fertilization and collaboration among the sectors, especially in terms of downscaling climate predictions and spatial planning, to allow the fisheries and aquaculture sector to benefit from the advanced skills already developed in other sectors.

**Sustainability** will be ensured through working within current structures and programmes and building the capacity of stakeholders and institutions at local and national levels. Project activities will be up-scaled through integration with the national development programmes implemented by NGO/CSO, government and partner agencies. A focus on technical capacity support at this stage is a critical foundation for future up-scaling of the work.

The project has been designed to ensure replicability and scaling up. Lessons learned from project evaluations and science-based studies will be communicated to stakeholders to ensure systematic and informed decision-making is possible. Peer-to-peer/community-to-community exchanges and coordinated efforts with government development partners will support scaling-out of the project's lessons learned. The project will be fully integrated into the government's fisheries and aquaculture development planning through the project's lead executing agency, the National Directorate of Fisheries and Aquaculture (NDFA) of the Ministry of Agriculture and Fisheries (MAF), will support the sector's involvement in longer-term national adaptation planning through capacity building of the NDFA to take part in cross-sectoral planning (e.g. NDC, NAP), as well as climate-proofing of the growing donor-supported efforts.

The project will have a strong focus on **capacity development**, at the individual, organizational, municipal and national levels. **Capacity development will be guided by FAO's corporate approach emphasizing that capacities at the individual, organization, and enabling environment are interlinked. Thus, "[c]apacity development often involves enhancing the knowledge and skills of individuals, whose work results greatly rely on the performance of the organizations in which they work. The effectiveness of organizations is influenced by the enabling environment. Conversely, the environment**

is affected by organizations and the relationships between them?<sup>34</sup> The FAO corporate approach on capacity development also gives importance to strengthening technical and functional capacities, such as formulating and implementing policies and leading reform and leading change; generating managing and exchanging information and knowledge; engaging in networks, alliances and partnerships; and implementing programmes and projects, from planning to monitoring and evaluation.

Training as one aspect of capacity development will be linked with activities on the ground, such as the strengthening of co-management committees and fish farmer clusters. The training on ecosystem approach to fisheries management and ecosystem-based adaptation will be linked to and will strengthen the implementation and use of PeskAAS<sup>35</sup> for decision-making, which is a near real-time monitoring of small-scale fisheries in Timor-Leste. The project will also work with the Biodiversity and Climate Change Network to develop training modules that can be delivered beyond the lifetime of the project.

The high turnover of government officers usually happens at the higher level; in case they move to another office or agency, the capacity stays within the country and is not lost. Many of the fisheries officers at the sub-national level have been in their jobs for a long time. The capacity of sub-national officers on EAFM and EbA needs to be strengthened in order for them to facilitate capacity development of men and women in the communities who will be engaged in the development and implementation of management plans.

FAO as the implementing agency, and WorldFish as the executing agency for the project, have a strong presence in country. WorldFish is hosted by the Government of Timor-Leste, has a long-standing relationship with the government, and has developed and implemented successful projects with them.

Component 1 will focus on capacity development at the national and municipal levels, through the strengthening of NDFA and ensuring its ownership over policies and policy tools on climate change adaptation, resilience and biodiversity conservation programs. The proposed project will develop the capacity of NDFA, MCIE, municipal actors and other ministries and institutions on the vulnerability assessment process, mapping climate and biodiversity risks, integrating fisheries and aquaculture needs into climate adaptation and biodiversity conservation strategies (and vice-versa), the development and implementation of national level strategies and plans for livelihood diversification, and ecosystem approach to fisheries and aquaculture and ecosystem-based adaptation. Output 1.4 under this component is focused on enhancing the capacity of national and sub-national government stakeholders

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in the implementation of these approaches through collaborative and participatory management. This component will facilitate the collaboration and planning between sector agencies (particularly between the agencies working on fisheries and aquaculture and those working on environment and biodiversity conservation). The proposed project will place gender considerations as a high priority area in the planning process and developing policy tools. A critical aspect of capacity development is the strengthening of the National Biodiversity and Climate Change Centre on issues related to fisheries and aquaculture. It is foreseen that NDFA will benefit from training from **the Biodiversity and Climate Change Network** and conversely, NDFA will contribute data on fisheries and aquaculture to the Network that would inform policy-making.

Component 2 of the IkanAdapt project will focus on providing direct support to fishing and fish-farming communities to enhance their adaptation and biodiversity conservation capacity, by developing climate resilient livelihood strategies that also support the conservation of biodiversity, based on principles of nature-based solutions. The project will invest in innovative adaptation technologies that directly contribute to reducing vulnerability and build greater resilience of these communities. Output 2.4 under this component will focus on community capacity development, in the design and implementation of EAFM, EAA and EbA strategies at the local/municipal levels, for the benefit of fishery and aquaculture dependent communities in coastal and freshwater areas, and upscaling these beyond the life of the project.

Under Component 3, the **PeskaAAS catch monitoring system** will be strengthened through the incorporation of a monitoring system to assess impacts of climate change on marine and freshwater ecosystems and aquatic biodiversity. A key barrier identified was NDFA's lack of capacity to analyse and interpret the data and link the results to climate variability trends or to advise conservation management efforts. Through the project, the NDFA will acquire and learn these skills through on-the-job and formal training. The project will also strengthen NDFA's capacity to engage in inter-ministerial bodies related to climate change as well as in national planning and policy development related to climate change through sector-specific vulnerability assessments and adaptation options carried out in Components 1 and 2.

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- [18] Eisemberg, C. C., Costa, B. G., Guterres, E. C., Reynolds, S. J., & Christian, K. A. (2016). Notes on Chelodina mccordi timorensis Biology, Harvest, Current Threats, and Community Perceptions in the Lake Iralalaro Region, Timor-Leste. Chelonian Conservation and Biology, 15(1), 69-78.
- [19] <https://www.iucnredlist.org/species/90980848/90980856#conservation-actions>

[20] <https://www.iucnredlist.org/species/8005/12881238>

[21] <https://www.iucnredlist.org/species/39385/2918526>

[22] Tilley, A., Wilkinson, S.P., Kolding, J., Lopez-Angarita, J., Pereira, M. and Mills, D.J., 2019. Nearshore fish aggregating devices show positive outcomes for sustainable fisheries development in Timor-Leste. *Frontiers in Marine Science*, 6, p.487.

[23] Sokimi W., Blanc M., Colas B., Bertram I. and Albert J. 2020. *Manual on anchored fish aggregating devices (FADs): an update on FAD gear technology, designs and deployment methods for the Pacific Island region*. Noumea, New Caledonia: Pacific Community. 56 p

[24] Tsujimura, T.N., Alonso, E., Amaral, L.D.R., Rodrigues, P. 2012. *Safety at Sea Assessment in the Timor-Leste Small-scale Fisheries Sector*. FAO Technical report

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[27] Steenbergen, D.J., Marlessy, C. and Holle, E., 2017. Effects of rapid livelihood transitions: examining local co-developed change following a seaweed farming boom. *Marine Policy*, 82, pp.216-223.

[28] <http://blog.worldfishcenter.org/2017/08/mola-and-carp-fish-farming-a-winning-combination-to-boost-nutrient-intakes-in-bangladesh-and-beyond/>

[29] Mills, David J., et al. "Livelihood diversity and dynamism in Timor-Leste; insights for coastal resource governance and livelihood development." *Marine Policy* 82 (2017): 206-215.

[30] Metternicht, G., Carr, E., Stafford Smith, M. 2020. Why behavior change matters to the GEF and what to do about it. A STAP Advisory Document. Scientific and Technical Advisory Panel to the Global Environment Facility. Washington, D.C.

[31] FAO. 2017. Developing an Environmental Monitoring System to Strengthen Fisheries and Aquaculture Resilience and Improve Early Warning in the Lower Mekong Basin. Bangkok, Thailand, 25-27 March 2015, by Virapat, C., Wilkinson, S. and Soto, D. FAO Fisheries and Aquaculture Proceedings No. 45. Rome, Italy.

[32] Specific guidance on how FAO can promote the Four Pillars of Decent Work in rural areas is provided in the [Quick reference for addressing decent rural employment](#) (as well as in the full corresponding [Guidance document](#)). For more information on FAO's work on decent rural employment and related guidance materials please consult the FAO thematic website at: <http://www.fao.org/rural-employment/en/>.

[33] System-wide capacity development (CD) is essential to achieve more sustainable, country-driven and transformational results at scale as deepening country ownership, commitment and mutually accountability. Incorporating system-wide CD means empowering people, strengthening organizations and institutions as well as enhancing the enabling policy environment interdependently and based on inclusive assessment of country needs and priorities.

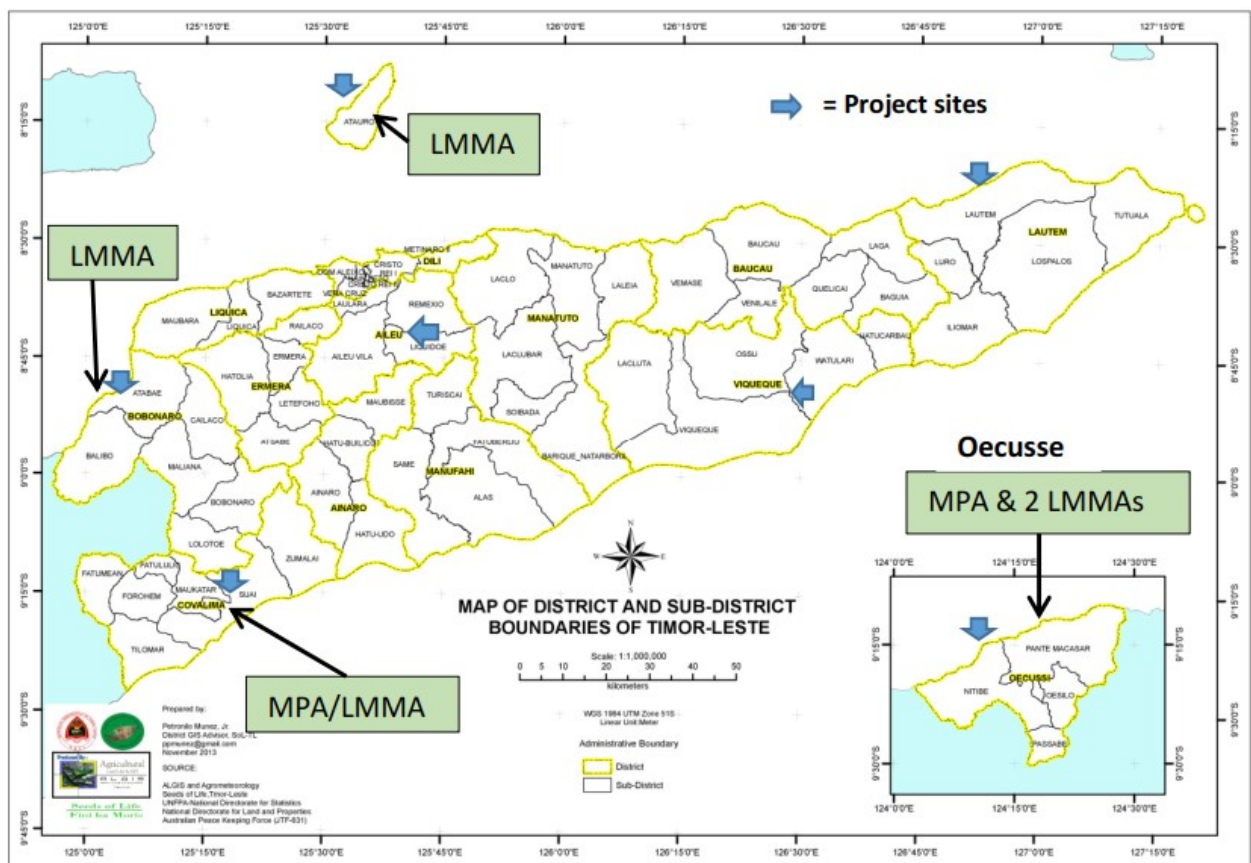
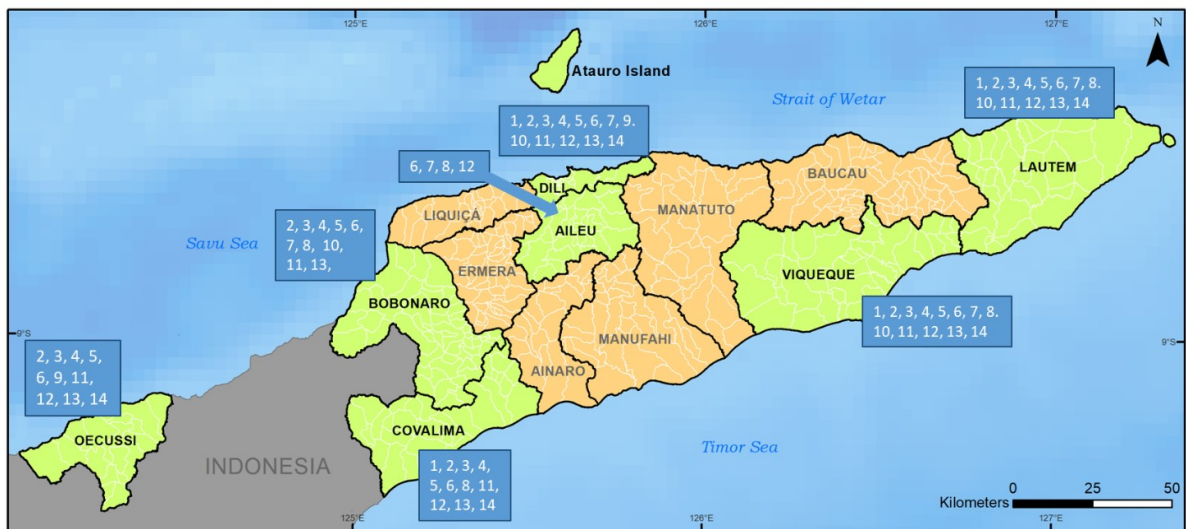
- Country ownership, commitment and mutual accountability: Explain how the policy environment and the capacities of organizations, institutions and individuals involved will contribute to an enabling environment to achieve sustainable change
- Based on a participatory capacity assessment across people, organizations, institutions and the enabling policy environment, describe what system-wide capacities are likely to exist (within project, project partners and project context) to implement the project and contribute to effective management for results and mitigation of risks.
- Describe the project's exit / sustainability strategy and related handover mechanism as appropriate.

[34] <http://www.fao.org/capacity-development/our-vision/en/>

[35] See <http://www.fao.org/3/cb2030en/CB2030EN.pdf>

#### **1b. Project Map and Coordinates**

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



1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

No

## 2. Stakeholders

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

Civil Society Organizations Yes

Indigenous Peoples and Local Communities Yes

Private Sector Entities No

If none of the above, please explain why:

### Project Development Phase

During the Project Development Phase, through a Letter of Agreement, a team from the University of Timor-Leste (UNTL) conducted the stakeholder consultations through different approaches including consultative workshops, face-to-face meetings with individual respondents and focus group discussions. The team undertook consultations to different levels of government, including at the local, municipal and national levels. Additional consultations were carried out with other development partners and NGOs.

Face-to-face consultations were conducted in all seven municipalities with the aim of providing information regarding the project and understanding the perspectives of community representatives (men, women, youth), village leaders and elders with regards to participating in the project activities. Due to COVID-19 restrictions, these meetings were difficult to follow up. Online meetings were also done with project partners owing to COVID-19 restrictions. During implementation, participatory approaches will be used to ensure that the perspectives of the poorest and most vulnerable are taken into consideration and integrated into project interventions. The project will also have a Gender Specialist who will ensure that the different needs of men and women and intersection of gender with other factors such as socioeconomic status and (dis)ability are taken into consideration.

The main stakeholder consultation events during the Project Development Phase included:

- **A National Inception Workshop** for the IkanAdapt project was organized on 3 October 2019, and was attended by 15 female and 33 male representatives of the Ministry of Agriculture and Fisheries, State Secretary for Environment, municipal representatives, FAO, WorldFish, district officers e.g. fisheries and agriculture from seven project sites, UNTL as well as other NGOs and development partners, such as GIZ, Mercy Corps, Conservation International, USAID, Australian Embassy, among others. The key topics covered during the inception workshop included an overview of the key components of the project, and discussion on the PPG process.
- **7 municipal consultations.** The people interviewed during the consultations at the village level include: (despite the efforts to involve more women to participate in the meetings, women consulted represented only 13% of the total participants):

Municipality	Dates	Location/ Village/s	Total people consulted	Women	Men
Aileu	14 and 15 of June 2020	Lausi and Lahae	49	5	44
Atauro (Dili)	10 and 11 of February 2020	Biqueli	70	10	60
Bobonaro	7 to 9 of February 2020	Sanirin	70	3	67
Covalima	7 of July 2020	Suai Loro	33	6	27
Lautem	16 to 18 of June 2020	Ililai	54	11	34
Oecusse	1 to 4 of February 2020	Citrana and Baoknana	68	12	56
Viqueque	17 to 19 of June 2020	Maloru/Bea?o	56	5	51
Total			<b>400</b>	<b>52</b>	<b>339</b>

- A **National Technical Workshop** took place on 26 June 2020 to present key results being collected from seven project sites (Lautem, Viqueque, Aileu, Dili/Atauro, Bobonaro Covalima and Oecusse/Citrana), present and share lessons learnt related to fishery/aquaculture, MPAs/LMMA, biodiversity conservation, gender and climate change issues and request feedback from key government agencies and development partners, provide an opportunity for key government agencies and development partners to discuss and agree on best management practices to conserve and protect marine and coastal resources in an acceptable way, present inter-linkages among key thematic areas (fishery/aquaculture, biodiversity conservation, MPA/LMMA, gender and climate change) and seek recommendation from all participants to ensure that all key thematic areas are inter-dependent which need comprehensive analysis and be implemented in coherent manner. The workshop was attended by a total of 63 participants (of which 13 were women) from key government agencies, academe, (students and lecturers), NGOs (both national and international), fisheries and agriculture officers from seven Municipalities.
- 
- The **National Validation Workshop** took place on 17 July 2020. The draft results framework was presented and discussed. The workshop was attended by 71 participants (of which 19 were women), from government agencies e.g. fisheries, environment, districts officers, head of village from seven project sites, lecturers, students from UNTL, Minister, Vice Minister of MAF including the State Secretary for Fisheries.

- In addition, bilateral online discussions were held with members of other development partner agencies, such as WorldFish, Blue Ventures, Conservation International, TOMAK, Oxfam and PEUMP.
- Due to Covid-19 confinement measures and travel restrictions, face-to-face meetings were replaced by online meetings.

**Please provide the Stakeholder Engagement Plan or equivalent assessment.**

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Expected timing	Comments
Fishers and fish-farming communities in the 7 municipalities	Direct beneficiary	<i>Local community</i>	<i>Follow up assessment</i>	<i>2nd quarter 2021</i>	<i>Review the issues and needs</i>
Ministry of Agriculture and Fisheries	Partner	<i>National Government Institution body</i>	<i>Meeting</i>	<i>2nd quarter 2021</i>	<i>Review policies and plans</i>
State Secretary for Environment	<i>Partner</i>	<i>National Government Institution body</i>	<i>Meeting</i>	<i>2nd quarter 2021</i>	<i>Review policies and plans</i>
Centre for Climate Change and Biodiversity	<i>Partner</i>	<i>National Government Institution body</i>	<i>Meeting</i>	<i>2nd quarter 2021</i>	<i>Review of policies and plans</i>
University of Timor-Leste (UNTL)	<i>Partner</i>	<i>Other</i>	<i>Meeting</i>	<i>2nd quarter 2021</i>	<i>Research support in fisheries and aquaculture management and livelihood diversification options</i>
Local Partners	<i>Partner</i>	<i>Civil Society Organization</i>	<i>Meeting</i>	<i>3rd quarter 2021</i>	<i>Livelihood diversification options</i>
Blue Ventures	<i>Partner</i>	<i>Non-Governmental Organization</i>	<i>Meeting</i>	<i>3rd quarter 2021</i>	<i>Livelihood diversification options (particularly in Atauro)</i>
TOMAK	<i>Partner</i>	<i>Non-Governmental Organization</i>	<i>Meeting</i>	<i>3rd quarter 2021</i>	<i>Aquaculture activities</i>
Oxfam	<i>Partner</i>	<i>Non-Governmental Organization</i>	<i>Meeting</i>	<i>3rd quarter 2021</i>	<i>Climate Change, and Disaster Risk Reduction Activities</i>

EU	<i>Partner</i>	<i>Resource Partner/Donor</i>	<i>Meeting</i>	<i>2nd quarter 2021</i>	<i>Fisheries and Aquaculture Management</i>
James Cook University	<i>Partner</i>	<i>International Government Institution/body</i>	<i>Meeting</i>	<i>3rd quarter 2021</i>	<i>Marine Habitats Conservation and Climate Change Adaptation</i>
	<i>Select a stakeholder type</i>	<i>Select a stakeholder profile</i>			

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

Please refer to the stakeholder engagement plan uploaded in the document section.

**Select what role civil society will play in the project:**

**Consulted only;**

**Member of Advisory Body; Contractor;**

**Co-financier;**

**Member of project steering committee or equivalent decision-making body; Yes**

**Executor or co-executor; Yes**

**Other (Please explain)**

Fisheries and fish-farming communities will be key co-executors of several project activities (especially under Component 2) in close coordination with government agencies. Other partners, such as Blue Ventures, TOMAK, and Oxfam, will also be invited to participate in the Project Steering Committee (PSC) to provide guidance on the work being carried out at the local level.

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

**Provide the gender analysis or equivalent socio-economic assesment.**

The principles of gender equality are reflected in the national legislation in Timor-Leste, in line with international commitments, though implementation is slow and there are still differences between the formal and traditional law. As a result, women still face discrimination in all aspects of life. Currently,

about 35% of parliamentarians are women, as are 33% of members in local Suco councils, however, only 21 (of 442) Suco Chiefs are women. In addition to less representation in political life, there is also a gender gap in pay and access to economic development, as well as cases of gender-based violence.

The ecological degradation and climate change issues Timor-Leste is exacerbating where ecological and social systems are more fragile and less resilient such as those in rural areas, where fisheries products can provide a safety net for people if agriculture fails. Nonetheless, when these alternative resources also get depleted, rural people, and particularly women, face disproportionate challenges. Women in Timor-Leste are physically burdened while collecting and processing essential commodities such as food, water, energy, and medicine while performing their care-giving roles and ensuring the nutrition and health of the family.

Women in Timor-Leste face vulnerability and limited capacity and lack the knowledge and skills to adapt to climate change or participate in decision-making related to climate change or biodiversity conservation. Three main reasons are identified as the sources of women's vulnerabilities including:

- Limited access to and control over resources (e.g. credit, land, information, and health & sanitation services)
- Gender roles/gender division of labor
- Lack of capacity and skills
- Following the Gender Action Plan (Annex O), the project will work on reducing women's vulnerability to climate change and generate socio-economic benefits. This will be done by improving the participation of women in decision-making, facilitating their participation in project activities by bringing the activities close to women and at times of the day it is easier for them to attend. The provision of support to improve women's participation in livelihood activities (e.g. fish post-harvest aquaculture), will also directly enhance their socio-economic benefits. The project will also rely on the use of networks and gender focal points, as well as the identification of success stories, to share examples of successful female entrepreneurs and participation in decision-making for fisheries management and biodiversity conservation.

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**• IkanAdapt alignment with the GEF and FAO Gender Policies**

The GEF Gender Policy (2017) provides the guiding principles and mandatory requirements for mainstreaming gender across the GEF's governance and operations with a view to promoting Gender Equality and the Empowerment of Women and Girls in support of the GEF's mandate to achieve global environmental benefits. Furthermore, the policy aims to ensure equal opportunities for women and men to participate in, contribute to, and benefit from GEF-Financed Activities in support of the GEF's efforts to achieve global environment benefits.

The GEF Policy on Gender Equality sets out a number of principles to ensure that gender-mainstreaming efforts are in line with national and international commitments. Those principles include:

- Efforts to mainstream gender and promote gender equality and the empowerment of women are pursued in accordance with the decisions on gender under the MEAs that the GEF serves, and in recognition of related international and national commitments to gender equality and human rights.
- GEF-Financed Activities address and do not exacerbate existing gender-based inequalities.
- Stakeholder engagement and analyses are conducted in an inclusive and gender responsive manner, so that the rights of women and men and the different knowledge, needs, roles and interests of women and men are recognized and addressed.
- GEF-Financed Activities are conducted, designed, and implemented in an inclusive manner so that women's participation and voice are, regardless of background, age, race, ethnicity or religion, reflected in decision-making, and that consultations with women's organizations, including indigenous women and local women's groups, are supported at all scales.
- A gender-responsive approach is applied throughout the identification, design, implementation, monitoring, and evaluation of GEF projects.
- Opportunities to address gender gaps and support the empowerment of women are seized in order to help achieve global environmental benefits.

The goal of FAO's Policy on Gender Equality (2012) is to achieve equality between women and men in sustainable agricultural production and rural development for the elimination of hunger and poverty. FAO puts in actions as below to achieve gender equality:

- All major FAO statistical databases incorporate sex-disaggregated data where relevant and available.
- FAO invests in strengthening member countries' capacity to develop, analyse and use sex-disaggregated data in policy analysis and programme and project planning and evaluation. In particular, technical support to in-country data collection activities, such as agricultural censuses and surveys, will promote the mainstreaming of gender issues.
- 
- For all strategic objectives, a gender analysis is carried out and a gender action plan developed; progress on gender equality is measured for all corporate outcomes.
- A financial target for resource allocation to the FAO Policy on Gender Equality is set and met.
- A country gender assessment is undertaken as part of country programming.
- A gender equality stocktaking exercise is conducted for all services, to provide a basis for better implementation of gender mainstreaming, including progress and performance measurement.
- Gender analysis is incorporated in the formulation of all field programmes and projects, and gender-related issues are taken into account in project approval and implementation processes.
- 
- All programme reviews and evaluations fully integrate gender analysis, and report on gender-related impacts in the areas they are reviewing.
- A mandatory gender equality capacity development programme is developed and implemented for all professional staff and managers.
- Minimum competencies in gender analysis are specified, and all managers and professional staff are required to meet them.
- Each technical department establishes a gender equality screening process for all normative work, programmes and knowledge products.

At the regional level in Asia and Pacific, FAO focuses on achieving gender equality through:

- Developing improved understanding of gender dynamics in changing agriculture-food systems,
- Increasing the benefits that women and men receive from FAO and partner programmes in key productive systems, including rice farming, fisheries and aquaculture
- Advancing gender equality in food and nutrition security programming, and
- Improving protection from and resilience to disasters and climate change risks for women and men

The IkanAdapt will also be aligned to and promote the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), which are a complement to the 1995 FAO Code of Conduct for Responsible Fisheries (the Code). These Guidelines have been developed to provide complementary guidance with respect to small-scale fisheries in support of the overall principles and provisions of the Code. The Guidelines are intended to support the visibility, recognition and enhancement of small-scale fisheries and to contribute to global and national efforts towards the eradication of hunger and poverty. Gender equality is a key principle for the implementation of the SSF Guidelines.

The IkanAdapt project will also promote and follow the principles of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (Land Tenure Guidelines). The purpose of these Voluntary Guidelines is to improve the governance of tenure of land, fisheries and forests with the overarching goal of achieving food security for all and to support the progressive realization of the right to adequate food in the context of national food security. The Land Tenure Guidelines also promote gender equality, and that women and girls have equal access to land, fisheries and forests.

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

Yes

**Closing gender gaps in access to and control over natural resources; Yes**

**Improving women's participation and decision making Yes**

**Generating socio-economic benefits or services or women Yes**

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

Yes

#### **4. Private sector engagement**

**Elaborate on the private sector's engagement in the project, if any.**

The IkanAdapt will collaborate with private sector actors that are interested in climate change adaptation, biodiversity conservation and sustainable fisheries and aquaculture, on a case-by-case basis.

There are several small businesses in the aquaculture sector (shrimp farming mostly), but during PPG phase, it was observed that shrimp farmers have been negatively affected by COVID-19 travel and trade restrictions due to their high dependence on imports for their inputs supply. The IkanAdapt will cooperate with the private sector aquaculture industry in Timor-Leste for the integration of climate adaptation considerations, particularly under component 2 (on adaptation technologies) and component 3 (sharing of climate risk information).

The project will work with other businesses (e.g. handicraft and tourism, particularly those involving women) within the scope of the project, for the provision of livelihood diversification options for fish and fish-farming communities, enhancing their capacity to ensure business sustainability. To this end, the project will create linkages with the existing microfinance institutions and the TL Commercial Bank for the provision of microcredit to farmers and small-medium size businesses.

## 5. Risks to Achieving Project Objectives

**Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):**

In the section below, elaborate on indicated risks **to the project**, including climate risks<sup>[1]</sup>, potential social environmental, political or fiduciary risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.

Description of risk	Impact <sup>[1]</sup>	Probability of occurrence <sup>3</sup>	Mitigation actions	Responsible party
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Frequent changing of roles and positions within the Ministries	Moderate	High	The project will ensure commitment of key posts and a core set of officers to support the project. Government ownership for the project and work planning are built into its design, and transitions will be mitigated through ongoing, adaptive management and capacity development ensuring staff under rotation have the skills and background to support core activities. Further, coordination and communication of the project will ensure that senior officers from the relevant Ministries remain engaged in the project, are regularly informed of its progress, and foreseeing human resource management needs sustaining and extending positive impacts.	PMU, Government counterparts
External factors, such as changes in market demand, input costs, land use changes, and IUU fishing impact the vulnerability context in which the targeted communities exist	Moderate	Moderate	External stressors will be further identified to define the vulnerability context affecting climate change vulnerability. Efforts will be made to address extra-fisheries and aquaculture issues through collaboration with other ministries, community groups, sectors and broader development efforts, such as the LME projects. The project will work with the stakeholders to strengthen their participation in such cross-sectoral discussions	PMU
Extreme events, such as coral reef bleaching, as well as storms and floods may harm adaptation efforts in target communities	High	Moderate	Environmental monitoring, early warning systems and climate modelling will be strengthened to support climate-proofed project interventions. Where events impact site level activities and the achievement of site level targets, project activities will be reviewed and adjusted to accommodate short-term impacts, based in part on the climate change resilience assessments that will be carried out for each pilot site.	PMU

Existing public views and cultural barriers regarding the role of women in fisheries and aquaculture may affect the willingness of some stakeholders to mainstream gender considerations into adaptation planning and implementation	Low	Low	Through the IkanAdapt Gender Action Plan, the project will improve the awareness of and support for the role of women in both fisheries and aquaculture at the management level and in adaptation activities, targeting both the general public and decision makers.	PMU
Extreme weather events have an impact on the livelihoods of stakeholders	High	Moderate	The project mitigates this risk through its support to the development of CC adaptation technologies and approaches. The project focus is on increasing the capacity of fishing and fish farming communities and the government to better deal with the ongoing climate variability including extremes and future climate change through adaptation practices, and the conservation of biodiversity.	Government (national and municipal level), as well as fishing and fish farming communities
Disruption to the sustainability financing the Biodiversity and Climate Change Network	Medium	Medium	The aim is that the network will be formally established in a national institution with the ability to support the network such as a university. The operation budget is expected to be very low, just maintaining the meetings, which will be initially covered by the project. The project will also provide support for writing up the Terms of Reference for the operation and technical work of the Network, as well as provide initial assistance for writing research grants, and accessing other forms of financial resources. This will ensure the sustainability of the Network well beyond the lifetime of the project. Ultimately, the Network will serve as a clearing house for climate activities.	University or Research Institution

<p>COVID-19 pandemic related impacts on the internal and international travel, operation of government/ partners/ project; health impacts on general population as well as economic impacts nationally and locally:</p> <ol style="list-style-type: none"> <li>1. Reduced financial (co-financing) support from Government, development partners, and private sector, due to limited overall funding availability resulting from the COVID-19-related economic downturn, and/or the reorientation of available funding to actions directly related to COVID-19</li> <li>2. Government expenditure and prioritization of different programs and sectors, including agriculture, food security and natural resources might change.</li> <li>3. Closure of offices, transport etc. will delay launch of project and its implementation.</li> <li>4. Potential or partial disruption of food system supply chains, such as logistics</li> <li>5. Increased losses and spoilage in high value commodities/perishables (fish)</li> <li>6. Disruption of demand for products and markets, due to temporary closure of hotels and restaurants</li> <li>7. Higher dependence on natural ecosystems and marine resources, as people who lose employment and income from other sectors depend more on coastal and other ecosystems for their livelihoods, thereby increasing pressures on these systems</li> </ol>	High	High	<ol style="list-style-type: none"> <li>1. If there are changes in co-finance, partners will work closely to seek alternative options for co-financing and ensure continuity of resource allocation to ongoing initiatives in project target areas.</li> <li>2. It is anticipated that the project scope will help support the Government's response to COVID-19 through its focus on food security and livelihoods diversification of vulnerable communities in coastal areas already impacted by climate risks and hazards. However, project activities will be further discussed with the Government to ensure that emerging priorities and responses, as a result of the pandemic, are well reflected in the project's target areas during implementation.</li> <li>3. It is likely that periodic closures of transport and offices as well as restrictions on organizing meetings/ training with large number of people will impact project implementation. Therefore, the project will institute local mechanisms such as local facilitators / work with local partners to ensure that some work can continue on the ground. Detailed planning will be done with the government partners to mobilize their field offices and others and the project will ensure that all recommended safe practice are followed by the project team and by communities where the project is working.</li> <li>4. Provide advice to fishers, fish farmers and government to meet immediate food needs.</li> <li>5. Conduct socio-economic impact assessment (as part of baseline assessment) to inform the project implementation</li> <li>6. Ensure close collaboration with private sector entities and logistic companies to understand emerging barriers related to the pandemic and establish feasible options</li> <li>7. Support producer organizations in linking with markets and encourage use of online markets where possible</li> <li>8. FAO is planning to undertake more detailed analysis on the impacts of COVID-19. Based on these findings, the project will prioritize work in more impacted</li> </ol>	Project executing agency, FAO and partners
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## Green Recovery and Building Back Better

The IkanAdapt project is aligned with the Plan of Economic Recovery developed by the Government of Timor-Leste to address challenges that were intensified due to the Covid-19 pandemic. The Plan has two main phases. Phase 1 is focused on the very short term (imminent actions) to support the mitigation of the impacts caused by the Covid-19 related emergency, while Phase 2 focuses in the medium term (3 to 4 years) to address structural problems (including the lack of employment). In particular, the IkanAdapt will be able to support the government's plan to support informal jobs (e.g. fisheries related jobs), such as facilitating fisher's registration in the country's social security system, and therefore allow them to access social protection measures (e.g. accessing basic food basket), and the promotion of decent jobs and new products (e.g. Nosso Produto (Our Product) can include fisheries related products). The Plan has identified agriculture as 'the fastest way to achieve economic progress for the benefit of more than two-thirds of our population living in the interior of the country', while recognizing that adequate agriculture management 'is crucial for the protection of the environment, biodiversity, water resources', and that 'improving food security and protecting our economy from future crises. The threat of COVID-19 has taught us to place greater importance on high food production to meet the basic needs of the population and to ensure that there is enough food and food'. The Plan lacks specific information on how fisheries can contribute to achieving these objectives, which can be complemented by the lessons learned and guidance provided by the IkanAdapt project, which focuses on climate change adaptation and biodiversity conservation. This will contribute directly to goals related to green recovery and building back better.

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[1] H: High; M: Moderate; L: Low.

## 6. Institutional Arrangement and Coordination

**Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

WorldFish will have the overall executing and technical responsibility for the project, with FAO providing oversight as GEF Agency as described below. WorldFish will act as the lead executing agency and will be responsible for the day-to-day management of project results entrusted to it in full compliance with all terms and conditions of the Operational Partnership Agreement signed with FAO. As OP of the project, WorldFish is responsible and accountable to FAO for the timely implementation of the agreed project results, operational oversight of implementation activities, timely reporting, and for effective use of GEF resources for the intended purposes and in line with FAO and GEF policy requirements.

The project organization structure is as follows:

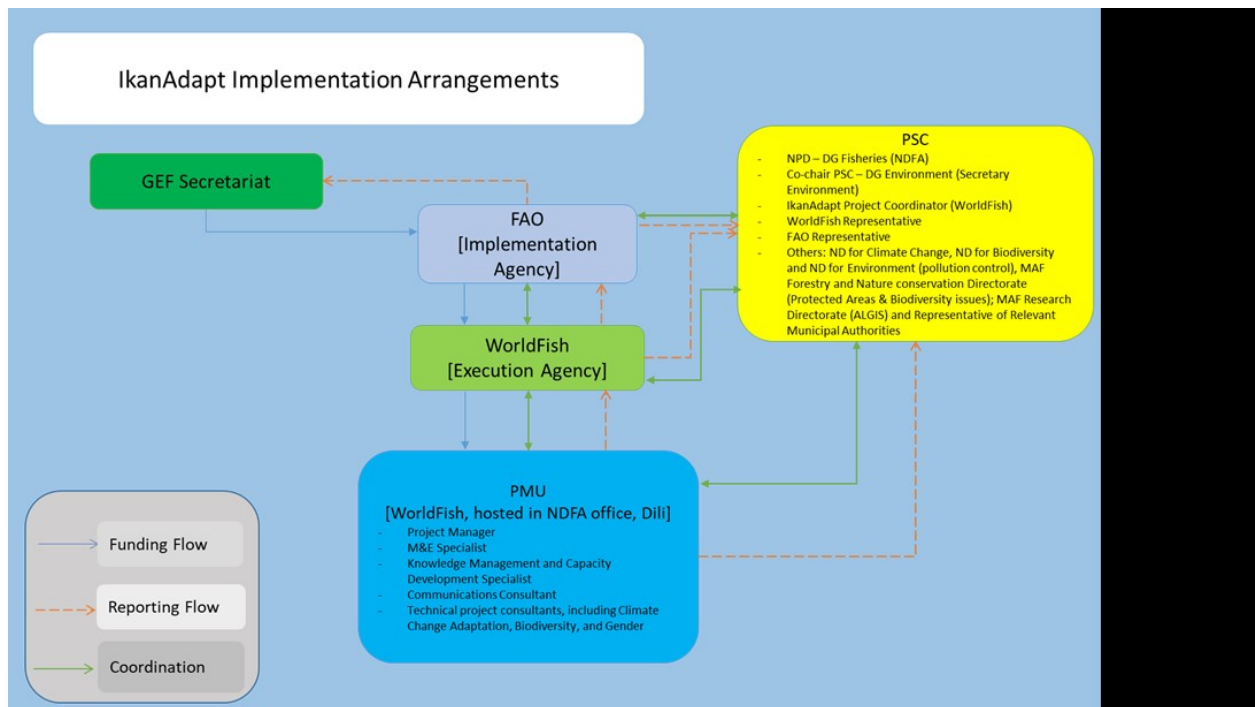


Figure 2. IkanAdapt implementation arrangements.

The government will designate a National Project Director (NPD). Located in the National Directorate of Fisheries and Aquaculture (NDFA), the NPD will be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. S/he will also be responsible for supervising and guiding the Project Coordinator (see below) on the government policies and priorities.

The Project Steering Committee (PSC) will be the main governing body of the project. The PSC will approve Annual Work Plans and Budgets on a yearly basis and will provide strategic guidance to the Project Management Team and to all executing partners.

The PSC will be co-chaired by the National Project Director from the National Directorate of Fisheries and Aquaculture and the DG of Environment (Secretary of Environment). The PSC will be comprised of the following: IkanAdapt Project Coordinator (WorldFish), representative from WorldFish, FAO Representative, ND for climate change, ND for Biodiversity, ND for Environment (pollution control), MAF Forestry and Nature Conservation Directorate (Protected Areas and Biodiversity issues), MAF Research Directorate (ALGIS) and representatives of relevant municipal authorities. The members of the PSC will each assure the role of a Focal Point for the project in their respective agencies. Hence, the

project will have a Focal Point in each concerned institution. As Focal Points in their agency, the concerned PSC members will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project.

The National Project Manager will be the Secretary to the PSC. The PSC will meet at least twice per year to ensure: i) Oversight and assurance of technical quality of outputs; ii) Close linkages between the project and other ongoing projects and programmes relevant to the project; iii) Timely availability and effectiveness of co-financing support; iv) Sustainability of key project outcomes, including up-scaling and replication; v) Effective coordination of governmental partners work under this project; vi) Approval of the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget; vii) Making by consensus, management decisions when guidance is required by the National Project Manager of the PMU.

A Project Management Unit (PMU) will be co-funded by the GEF grant and established within the Ministry of Agriculture and Fisheries in Dili. The main functions of the PMU, following the guidance of the Project Steering Committee, are to ensure overall efficient management, coordination, implementation and monitoring of the project through the effective implementation of the annual work plans and budgets (AWP/Bs). The PMU will be composed of a National Project Manager who will work full-time for the project lifetime<sup>11</sup>.

The National Project Manager will oversee daily implementation, management, administration and technical supervision of the project, on behalf of the Operational partner and within the framework delineated by the PSC. S/he will be responsible, among others, for:

- i) Coordination with relevant initiatives;
- ii) Ensuring a high level of collaboration among participating institutions and organizations at the national and local levels;
- iii) Ensuring compliance with all Operational Partners Agreement (OPA) provisions during the implementation, including on timely reporting and financial management;
- iv) Coordination and close monitoring of the implementation of project activities;
- v) Tracking the project's progress and ensuring timely delivery of inputs and outputs;
- vi) Providing technical support and assessing the outputs of the project national consultants hired with GEF funds, as well as the products generated in the implementation of the project,;

- vii) Approving and managing requests for provision of financial resources using provided format in OPA annexes;
- viii) Monitoring financial resources and accounting to ensure accuracy and reliability of financial reports;
- ix) Ensuring timely preparation and submission of requests for funds, financial and progress reports to FAO as per OPA reporting requirements;
- x) Maintaining documentation and evidence that describes the proper and prudent use of project resources as per OPA provisions, including making available this supporting documentation to FAO and designated auditors when requested;
- xi) Implementing and managing the project's monitoring and communications plans;
- xii) Organizing project workshops and meetings to monitor progress and preparing the Annual Budget and Work Plan;
- xiii) Submitting the six-monthly Project Progress Reports (PPRs) with the AWP/B to the PSC and FAO;
- xiv) Preparing the first draft of the Project Implementation Review (PIR);
- xv) Supporting the organization of the mid-term and final evaluations in close coordination with the FAO Budget Holder and the FAO Independent Office of Evaluation (OED);
- xvi) Submitting the OP six-monthly technical and financial reports to FAO and facilitate the information exchange between the OP and FAO, if needed;
- xvii) Informing the PSC and FAO of any delays and difficulties as they arise during the implementation to ensure timely corrective measure and support.

The Food and Agriculture Organization (FAO) will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the IA role, FAO will utilize the GEF fees to deploy three different actors within the organization to support the project (see Annex J for details):

- ? The Budget Holder, which is usually the most decentralized FAO office, will provide oversight of day to day project execution;
- ? The Lead Technical Officer(s), drawn from across FAO will provide oversight/support to the project's technical work in coordination with OP's representative participating in the Project Steering Committee;

- ? The Funding Liaison Officer(s) within FAO will monitor and support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.

FAO responsibilities, as GEF agency, will include:

- ? Administrate funds from GEF in accordance with the rules and procedures of FAO;
- ? Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s) and other rules and procedures of FAO;
- ? Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;
- ? Conduct at least one supervision mission per year; and
- ? Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress;
- ? Financial reporting to the GEF Trustee.



#### 6.b Coordination with other relevant GEF-financed projects and other initiatives.

The proposed project will support the government of Timor-Leste and the NFDA in coordination with other sectors and within the fisheries and aquaculture sector itself. The project supports addressing of identified priorities in the NAPA and will coordinate directly with the NAPA focal point. Synergies will be developed with projects and programmes supporting the NAPA including those of GEF/LDCF. Coordination and synergy will also be developed with relevant projects and programmes for the fisheries and aquaculture sector and national and regional level supporting development and strengthened management of the sector.

**Building Resilience of Health Systems in Asian LDCs to Climate Change.** This four-year project (initiated in 2019) is being implemented in partnership with WHO in Bangladesh, Laos, Myanmar, Nepal and Timor-Leste to strengthen institutional capacities to integrate climate risks and adaptation into health sector planning. Coordination with this project in Timor-Leste will be done through the WHO office, through improved early warning systems for effective decision-making, and knowledge sharing to promote up-scaling of best practices and lessons learned.

**Climate Proofing Development in the Pacific (CPDP).** This regional program aims to address climate-proofing concerns in the Pacific countries of Tuvalu and Vanuatu and Timor-Leste. The overall goal 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 investment losses from the negative impacts of climate change. More specifically, in Timor-Leste, the project is i) working with the National Directorate for Water Supply and Sanitation to provide safe and reliable water supply to district capitals Manatuto and Pante Macassar, and ii) Up-scaling climate-proofing in the transport sector in Timor-Leste with sector wide approaches. The IkanAdapt project is particularly interested to coordinate with this project where it is working to identify measures to catalyse greater private sector engagement, incentives for appropriate investments, and building stakeholder awareness of the challenges posed by climate change.

**Securing the Long-term Conservation of Timor Leste Biodiversity and Ecosystem Services through the Establishment of a functioning National Protected Area Network and the Improvement of Natural Resource Management in Priority Catchment Corridors.** This project, currently under implementation through Conservation International is working to develop a formal protected area network strategy and pilot PA management plans, to enhance natural resource management in two catchments areas, and to support sustainable forest management. The beneficiaries include coastal and riparian communities through improved ecosystem services provision in PA and the catchments more generally. As fisheries and aquaculture-dependent communities are stakeholders within the catchment corridors, the proposed project will work to support the enhancement of climate-related ecosystems through fisheries and aquaculture activities, and will participate as part of the protected area network strategy.

**Strengthening Community Resilience to Climate Induced Natural Disasters in the Dili to Ainaro Road Development Corridor, Timor-Leste.** The objective of this UNDP-LDCF project is to develop critical economic infrastructure for sustained human development protected from climate induced natural hazards (flooding, landslides, wind damage) through better policies, strengthened local DRM institutions and investments in risk reduction measures within the Dili to Ainaro development corridor. The Road Network Upgrading (Sector) Project, which sets up to (i) upgrade and climate proof about 70 kilometres (km) of principal national roads, (ii) expand the road maintenance program of the Ministry of Infrastructure (MOI), and (iii) prepare a roadmap and sector investment plan for the eastern region of Timor-Leste has a

component on climate change. The sectors and communities under the proposed project will directly benefit from efforts to climate proof road access to markets.

**Strengthening the Resilience of Small-Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk.** This UNDP project, funded by GEF LDCF funds, is aimed at enhancing climate resilience of critical small-scale rural infrastructure through participatory approaches and strengthened local governance systems, reflecting the needs of communities vulnerable to increasing climate risks. No coastal/marine infrastructure is envisaged but the proposed project can inform on ways to climate proof rural fisheries and aquaculture infrastructure.

**Building shoreline resilience of Timor-Leste to protect local communities and their livelihoods.** This UNDP project funded by GEF LDCF is aimed at strengthening the resilience of coastal communities by the introduction of nature-based approaches to coastal protection. It will achieve this through the development of a climate resilient coastal management framework, building climate resilient coastal livelihoods and adopting a landscape level /nature based coastal adaptation approach but will not address climate adaptation in the fisheries and aquaculture sector. Coordination between this project and the IkanAdapt project related to coastal livelihoods will allow both projects to build on synergies and optimise capacity development and community-based livelihoods interventions. The project is aimed to finish in May 2021, and the IkanAdapt will promote knowledge sharing of the lessons learned, particularly with regards to mangrove restoration, and the use of the mangrove sustainability survey map, as well as enhance the focus on seagrass conservation.

### **Haburas Foundation**

Haburas is a local environmental NGO in Timor Leste that works with local communities to conserve and protect the coastal environment. Much of its work concerns legal advocacy, institutional collaboration, drafting and upholding laws on environmental rights; more recently, they have been assisting coastal communities to identify and meet basic needs and priorities (e.g. on environmentally-friendly fishing techniques), and they have recognized the increased need to emphasize climate change resilience in their programming. Haburas also works on activities such as re-vegetation and strengthening of traditional management systems (?Tara Bandu?) for natural resource management (e.g. to manage tree felling, fruit collecting and fishing). Haburas has been working in Biacou for the past four years, providing mangrove seedlings to local communities and carrying out education and public awareness on marine and coastal issues together with local leaders and local government officers from environment, forestry and agriculture. Recently, Haburas initiated a project supporting diversification of coastal communities' livelihoods through community-based tourism development in Maubara, Liquica municipality and Tutuala, Lautem municipality.

**Arafura and Timor Seas Ecosystem Action Programme (ATSEA II)** is under the Coral Triangle Initiative covering Indonesia, Papua New Guinea and Timor-Leste. It is implemented by UNDP and executed by UNOPS together with national agencies, i.e. the Ministry of Marine Affairs and Fisheries, Indonesia, the Department of Environment and Water Resource (DEW) Australia, and the Department of Agriculture, Fisheries and Forestry (DAFF) (Timor-Leste). The project aims at ensuring the integrated, cooperative, sustainable, ecosystem-based management and use of the living coastal and marine resources, including fisheries and biodiversity, of the Arafura and Timor Seas region, through the formulation, inter-governmental adoption and initial implementation of a Regional Strategic Action Programme (SAP) and National Action Programs (NAPs). During the project development phase the proposed FAO/LDCF project will work closely with the ATSEA Programme (ATSEA II - Implementation of the Arafura and Timor Seas Regional and National Strategic Action Programs) to identify areas for collaboration and coordination. National activities in Timor-Leste will focus on extending the MPA Network for the Lessor Sunda Seascape to include an approximate 90,000 ha new MPA in Betano to Clacuc (Klakuk) in Munic?pio Manufahi, extending along 40 km coastline and out to 12 nautical miles. This area has been identified as a key biodiversity area under the Lessor Sunda seascape program, but is yet to be surveyed. Activities will also strengthen the capacity of communities in NKS NP to establish or strengthen existing LMMAs.

**Enabling transboundary cooperation for sustainable management of the Indonesian Sea Large Marine Ecosystem (ISLME)** is an FAO/GEF project with Indonesia and Timor-Leste as participating countries. The project aims to develop a sustainable programme for cooperation on anthropogenic and climatic threats to fisheries and the broader marine ecosystem in the ISLME endorsed and adopted by the participating countries that will also strengthen communities' livelihoods and engagement in fisheries management. The development and implementation of the Strategic Action Programme (SAP) based on a Transboundary Diagnostic Analysis (TDA) will be informed by pilot activities and networking coordination with ongoing initiatives within the region that are relevant to the marine ecosystem. The project will be a coordination partner and in particular covering the north coast of Timor-Leste.

**Government of Norway:** The government of Norway has supported a significant programme in Timor-Leste, focusing on improved food and nutrition security of rural households through improved inland aquaculture production systems. The Combatting Malnutrition through Inland Aquaculture (COMPAC-TL) project and a Fisheries Sector Support Programme (FSSP) are notable, and where these projects provide technical assistance on aquaculture production systems, fisheries management, market access, and policy development. More precisely:

- COMPAC-TL aims to decrease malnutrition and poverty in Timor-Leste by improving inland aquaculture production systems, enhance dietary diversity and increase incomes of 1,500 households via: i) Increased production of and access to nutritious foods from fish farming and integrated agriculture system

(IAAS) in target communities; ii) Enhanced diets through increased fish intake and crop supplements, and; iii) improved market linkages.

- The Fisheries Sector Support Programme's (FSSP) also aims to improve food security and nutrition of rural households through increased consumption of marine fish products via: i) Improved information and capacity for sustainable resource management; ii) Improved sustainable small-scale fishing technologies; iii) Assessment of market chains and social enterprise model for scaling up in the project investment phase; iv) Formal and informal capacity development for National Directorate Fishery and Aquaculture staffs, and; v) Marine fisheries strategy and policy development.

Initiated in 2013, these projects are developing and will provide the LDCF project with important baseline knowledge and sector specific development efforts. In particular, the Norway funded projects will share/afford their developing networks, sector specific training a basic but working level understanding of local fisheries and aquaculture capacities and underlying community vulnerabilities. The LDCF project is being designed to up-scale proven improved ground-level practices in Component 2 and will add value to COMPAC-TL and FSSP by climate-proofing relevant baseline development, management and policy work via Component 1.

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[1] Please attach in annexes the TOR of the members of the PMU and TOR of profiles budgeted on Project Management Costs (PMC)

## **7. Consistency with National Priorities**

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

This project is fully consistent with and supports the Government of Timor-Leste national development plans, national policies and frameworks for development, biodiversity conservation, the fisheries and aquaculture sector and climate change adaptation.

Timor-Leste is a LDC party to the UNFCCC and submitted its National Adaptation Program of Action to Climate Change (NAPA) in September 2011. Timor-Leste is eligible for LDCF funding, and the project is consistent with the NAPA priority areas of: (a) Food Security: reduce the vulnerability of farmers and pastoralists to increased drought and flood events; (b) Natural Disasters: improve institutional and

community (including vulnerable groups such as women and children) capacity to prepare for and respond to climate change induced natural disasters; (c) Forests, Biodiversity and Coastal Ecosystems: maintain and restore mangrove and forests and promote awareness raising to protect coastal ecosystems and forests from climate change impacts; (d) Supporting the ambitious national poverty reduction target in relation to the expected increased storm intensity at sea by improving the capacity to forecast and adapt offshore oil and gas infrastructure to withstand strong storms and waves; and (e) Developing National Institutional Capacity for Climate Change through which overarching programme level coherence will be ensured. The project is also fully aligned with Timor-Leste's Nationally Determined Contribution (NDC), which highlights priority areas for adaptation that are consistent with the project objectives. These include measures to improve food security and national food production as well as efforts to strengthen biodiversity and coastal ecosystem resilience, partly through mangrove protection, to enhance coastal resilience. Other adaptation priorities of relevance include disaster risk management, through early warning systems and other measures to reduce vulnerability to natural disasters as well as enhancing national institutional capacity to adequately respond to climate change risks and vulnerabilities.

The project is fully consistent with the Timor-Leste Strategic Development Plan 2011-2030, including the following strategic priorities: (a) public awareness of environmental protection will have been enhanced; (b) protecting mangrove areas and coral reefs; and (c) a policy for managing watershed areas and coastal zones will be developed that will include strategies to rehabilitate and protect mangroves in coastal areas. The LDCF project supports the Strategic Development Plan's aquaculture priority of having 'at least three types of aquaculture activities supporting coastal communities.' The Strategic Development Plan's fisheries priorities are also supported, particularly: 'strategies and actions to improve the management of coastal and inland fisheries and create a vibrant commercial fisheries sector will focus on increasing the catch from traditional fishing activities and exploiting fishing grounds in the Exclusive Economic Zone'; and 'Traditional coastal fishing activities will have increased and fishing will have increased in the Exclusive Economic Zone.' The project is consistent with Timor Leste's targets under the Sustainable Development Goals (SDGs) and its ocean Commitments.

The project is consistent with the National Biodiversity Strategy and Action Plan of Timor-Leste (2011-2020). Specifically:

- Priority strategy 2- strategic action 9: Develop and implement a comprehensive and integrated coastal and marine policy and fisheries management programme.
- Priority strategy 3- strategic action 11: Implement sustainable livelihood activities for local communities, promote traditional knowledge and practices, and enhance the role of women and youth;
- Priority strategy 5- strategic action 17: Enhance the technical and managerial capacity of officials and state on biodiversity conservation and management as laid out in the strategic action plan (SAP) and the capacity building plan on protected areas.

- Priority strategy 5- strategic action 19: Document and promote traditional knowledge practices for biodiversity conservation and environmental protection;
- Priority strategy 5- strategic action 20: Maintain and operationalize the clearing house mechanism (CHM); and
- Priority strategy 5- strategic action 21: Coordinate with donor partners, UN and regional organizations and explore ways to substantially increase levels of funding and development programmes.

The project is consistent with the new draft Timor-Leste National Oceans Policy with its vision for a healthy and secure ocean that sustains the livelihoods, prosperity, and social and cultural values of the people of Timor-Leste in a fair and equitable manner.

The project is consistent also with the newly drafted MAF Agriculture Sector Development Medium Term Operation Plan (2014-2018), which five Programs are: Sustainable increase in production and productivity; Improved market access and value addition; Improved enabling environment; Organizational development of the Ministry of Agriculture and Fisheries; and Natural resources conservation and management. The project is consistent with the new Fisheries Law and draft National Fisheries Strategy (2019). The project is consistent with the Timor-Leste Aquaculture Strategy Plan. Specifically, the project supports the following outputs: (a) viable aquaculture technologies developed and disseminated; (b) institutional capacity of the NDFA strengthened; (c) aquaculture producers connected to markets; (d) household food and nutrition security improved by aquaculture; (e) effective partnerships between government agencies, NGOs, communities, the private sector and donors created; (f) aquaculture farmer groups and representative institutions empowered; and (g) favourable policies in place for environmentally responsible aquaculture development.

In addition the project is consistent with the following additional frameworks:

- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- Minamata Initial Assessment (MIA) under Minamata Convention
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- National Communications (NC) under UNFCCC
- Technology Needs Assessment (TNA) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- National Implementation Plan (NIP) under POPs

- Poverty Reduction Strategy Paper (PRSP)
- National Portfolio Formulation Exercise (NPFE) under GEFSEC
- Biennial Update Report (BUR) under UNFCCC
- UNDAF 2015-2019

## **8. Knowledge Management**

**Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.**

The project has a strong focus on knowledge management and will develop and record lessons learned, elaborate cutting-edge training modules and train government staff and other stakeholders on climate change adaptation and biodiversity conservation approaches. It will develop practical guidelines and enhance understanding and access to improved knowledge on adaptation and biodiversity conservation practices in the fisheries and aquaculture sector at various levels and encourage peer-to-peer learning among fishers, fish farmers and dependent communities. The component will develop and strengthen capacity and information systems within existing fisheries and aquaculture sector support facilities and institutions.

FAO together with the government counterparts will ensure the preparation of the necessary documentation and publications detailing the project progress and achievement of project activities and posted on project website and other channels. At the end of the project activities, a dissemination workshop will be organized for the presentation of project achievements and suggestions for possible follow up/development interventions, to be submitted to the GEF. Knowledge management and effective communication will be a cross-cutting priority under all of the project's Outputs and Outcomes, and Component 3 will facilitate knowledge management throughout the project.

The project will develop a knowledge management and communication strategy at the outset of the project implementation, with participation of all project partners. This will be based on strategic principles presented in FAO Knowledge Strategy 2011 and GEF's KM strategy. This Strategy will aim at stimulating the generation, dissemination and application of information and knowledge, including statistics. The Knowledge Strategy will be conceptually rigorous but practical and results-based. It will both build upon successful techniques already being used and encourage innovation. The project will play a key facilitation role in ensuring that the world's knowledge resources are available to Timor-Leste but also the relevant knowledge from the IKAN Adapt project is also available to the world. The knowledge management and communication strategy will also build on best practices that have been outlined in Knowledge Sharing Toolkit (<http://www.kstoolkit.org/home>). The Knowledge Management strategy of the project will ensure that communities' experiences and perspectives are being captured during project

execution, following the Most Significant Change (MSC) methodology, based on the participatory collection and selection of stories of change, engaging project stakeholders throughout the project, and developing lessons learned.

**Traditional knowledge** will be integrated as part of the participatory approaches as well as in the co-development of technologies and early warning system. Under Output 1.4, the roles of the traditional management systems (such as *Tara Bandu*) as well as their capacity to become effective mechanisms for climate change adaptation and biodiversity conservation will be assessed and formalized in strategies and laws as appropriate. An activity under this output is: Strengthen co-management mechanism through integration of good practices in traditional management practices (e.g. *Tara Bandu*) and ecosystem approaches, such as EbA and EAFM and biodiversity conservation. Under Output 2.4, the development of new or strengthening of existing marine managed areas will be achieved, among others, through establishment of strategies for improved compliance and adherence to locally established management rules and regulation (e.g. *Tara Bandu*).

**Project Communication Strategy:** There will also be a strong focus on effective communication within the project and within the project institutional structure so that there is smooth flow of communication between the PMU, PSC, stakeholders and communities. There will also be strong focus of communication and knowledge sharing between FAO other projects in Timor-Leste. Reaching, informing, and engaging external stakeholders at local, State, national and international level. The project will also use existing government, partners, GEF, Executing Agency and FAO communication channels to disseminate knowledge. One element of knowledge management and communication will be through a project website and its use as an information sharing mechanism to support wide dissemination of Programme findings and lessons

The IkanAdapt Project will enhance communication and visibility of adaptation options for fishing and fish-farming communities, as well as biodiversity conservation. At national level, through the dissemination of best practice and lessons learned that will captured as part of Component 3, supporting the communication strategy and setting up the appropriate communication tools (website, project newsletters, social media strategy, etc.), and sharing through the different knowledge platforms (within Timor-Leste and beyond with other countries) all the technical reports, case studies, policy briefs, etc. At the field and municipal levels, the project will make use of community-led and gender differentiated dissemination systems.

In summary, the proposed tools for enhancing visibility include:

- **General aspects** ? PMU will ensure that general aspects of project visibility are fulfilled, such as: (i) visual identity of project and partners; (ii) highlighting the project partners in media interviews, press releases, etc.); (iii) supporting documents such as photos of logos in the field, photos of activities, copies of press released will be included in the progress and final reports.
- **Basic visibility at field level** ? At this level visibility strategy will consider: (i) signboards, display panels and banners; (ii) operational publications and materials such as training manuals and posters; (iii) supplies and equipment.
- **Printed publications** ? Brochures, leaflets, flyers, newsletters and other publications to project activities and results.
- **Website and webpage** ? It will include: (i) partnerships and links; (ii) project information (objectives, activities, expected results, etc.).
- **Audiovisuals** ? (i) Films for distribution by the media (mainly for television, campaigns and Internet); (ii) operational films (films to provide technical information and practices to local population, project partners and authorities).

**Public events** ? Many types of events are possible and attracting media interest will always be a key consideration in making the events cost-effective. Press release will be an integral part of the events

## **9. Monitoring and Evaluation**

### **Describe the budgeted M and E plan**

Project monitoring will be carried out in accordance with the established FAO, GEF, WorldFish and the Government of Timor-Leste procedures, through the Project Management Unit (PMU) and the FAO budget holder. Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception the results matrix will be reviewed to finalize identification of: i) outputs ii) indicators; and iii) missing baseline information and targets. A detailed M&E plan, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc.) will also be developed during project inception by the M&E specialist with the support the rest of the project team.

Project oversight will be carried out by the Project Steering Committee (PSC), the FAO GEF Coordination Unit, and relevant Technical Units in FAO-TL, RAP and HQ. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project global environmental benefits/adaptation benefits are being delivered.

The FAO GEF Unit and HQ Technical Units will provide oversight of GEF-financed activities, outputs, and outcomes largely through the annual Project Implementation Reports (PIRs), periodic backstopping, and supervision missions.

The project will ensure transparency in the preparation, conduct, reporting and evaluation of its activities. This includes full disclosure of all non-confidential information, and consultation with major groups and representatives of local communities. The disclosure of information shall be ensured through posting on websites and dissemination of findings through knowledge products and events. Project reports will be broadly and freely shared, and findings and lessons learned made available.

## **Reporting**

Specific reports that will be prepared under the M&E program are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) annual Project Implementation Review (PIR); (v) Technical Reports; (vi) co-financing reports; and (vii) Terminal Report. All project narrative and financial reports will follow FAO's established reporting procedures. In addition, assessment of the GEF Monitoring Evaluation Tracking Tools against the baseline (completed during project preparation) will be required at midterm and final project evaluation.

**Project Inception Report.** It is recommended that the PMU prepare a draft project inception report in consultation with the LTO, BH and other project partners. Elements of this report should be discussed during the Project Inception Workshop and the report subsequently finalized. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B, a detailed project monitoring plan. The draft inception report will be circulated to the PSC for review and comments before its finalization, no later than one month after project start-up. The report should be cleared by the FAO BH, LTO and the FAO GEF Coordination Unit and uploaded in FPMIS by the BH.

**Results-based Annual Work Plan and Budget (AWP/B).** The draft of the first AWP/B will be prepared by the PMU. The draft AWP/B should be circulated to PTF members before the inception workshop, and the updated plan should be presented at the project Inception Workshop for wider stakeholder input. The Inception Workshop (IW) inputs will be incorporated. Once finalized it is submitted to the PSC for approval. The approved AWP/B is to be delivered and it should be uploaded in FPMIS. For subsequent AWP/B, the PMU will organize a project progress review and planning meeting for its review. Once comments have been incorporated, the BH will circulate the AWP/B to the LTO and the GEF Coordination

Unit for comments/clearance prior to uploading in FPMIS by the BH. The AWP/B must be linked to the project's Results Framework indicators so that the project's work is contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The AWP/B should be approved by the Project Steering Committee and uploaded on the FPMIS by the BH. The approved AWP/B will be uploaded in the FPMIS by BH.

**Half Yearly Project Progress Reports (PPR):** Results-based Annual Work Plan and Budget (AWP/B).

The draft of the first AWP/B will be prepared by the PMU in consultation with the FAO Project Task Force and reviewed at the project Inception Workshop. The PMU will submit a final draft AWP/B to the BH, LTO and PTF members for comments. The PMU will organize a project progress review and planning meeting for its review then to finalize the draft AWP/B and submit it to the Inception Workshop for discussion by the stakeholders. After that the PMU will eventually to submit to the PSC meeting for review and final approval. The AWP/B must be linked to the project's Results Framework indicators so that the project's work is contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The AWP/B should be approved by the Project Steering Committee and uploaded on the FPMIS by the BH.

**Annual Project Implementation Review (PIR):** The OP (in collaboration with the PMU and the LTO) will prepare an annual PIR covering the period July (the previous year) through June (current year) to be submitted to the BH and Liaison Officer (FLO) for review and approval **no later than (check each year with GEF Unit but roughly end June/early July each year)**. The PIR should also be shared with the country's GEF OFP and PSC. The FAO GEF Coordination Unit will submit the PIR to the GEF Secretariat and GEF Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio. PIRs will be uploaded on the FPMIS by the TCI GEF Coordination Unit.

Key milestones for the PIR process:

- **Early July:** PMU/OP to provide draft PIR to LTO, BH and FLO in mid-July. The LTO to submit the draft PIRs (after consultations with BHs, project teams) to the GEF Coordination Unit ([faogef@fao.org](mailto:faogef@fao.org) , copying respective GEF Unit officer) for initial review;
- **Mid July:** GEF Unit responsible officers review main elements of PIR and discuss with LTO as required;
- **Early/mid-August:** GEF Coordination Unit prepares and finalizes the FAO Summary Tables and sends to the GEF Secretariat by (date is communicated each year by the GEF Secretariat through the FAO GEF Unit);
- **September/October:** PIRs are finalized. PIRs carefully and thoroughly reviewed by the GEF Coordination Unit and discussed with the LTOs for final review and clearance;

- **Mid November:** (date to be confirmed by the GEF): the GEF Coordination Unit submits the final PIR reports -cleared by the LTU and approved by the GEF Unit- to the GEF Secretariat and the GEF Independent Evaluation Office.

**Technical Reports:** Technical reports will be prepared by the project staff, national and international consultants as part of project outputs and to document and share project outcomes and lessons learned. The drafts of any technical reports must be submitted by the PMU to the BH who will share it with the LTO. The LTO will be responsible for ensuring appropriate technical review and clearance of said report. The BH will upload the final cleared reports onto the FPMIS. Copies of the technical reports will be distributed to project partners and the Project Steering Committee as appropriate.

**Co-financing Reports:** The BH, with support from the PMU, will be responsible for collecting the required information and reporting on co-financing as indicated in the Project Document/CEO Request. The PMU will compile the information received from the executing partner and transmit it in a timely manner to the LTO and BH. The report, which covers the period 1 July through 30 June, is to be submitted on or before 31 July and will be incorporated into the annual PIR. The format and tables to report on co-financing can be found in the PIR.

**Terminal Report:** Within two months before the end date of the project, and (as far as possible) one month before the Final Evaluation, the PMU will submit to the BH and LTO a draft Terminal Report. The main purpose of the Terminal Report is to give guidance at ministerial or senior government level on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. The Terminal Report is accordingly a concise account of the main products, results, conclusions and recommendations of the project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for insuring sustainability of project results.

## **Evaluation**

For full-sized projects, an independent Mid-Term Review will be undertaken at project mid-term to review progress and effectiveness of implementation in terms of achieving the project objectives, outcomes and outputs Findings and recommendations of this review will be instrumental for bringing improvement in the overall project design and execution strategy for the remaining period of the project's term. FAO will arrange for the mid-term review in consultation with the project partners. The evaluation will, *inter alia*:

- (i) review the effectiveness, efficiency and timeliness of project implementation;
- (ii) analyse effectiveness of partnership arrangements;
- (iii) identify issues requiring decisions and remedial actions;
- (iv) propose any mid-course corrections and/or adjustments to the implementation strategy as necessary; and
- (v) highlight technical achievements and lessons learned derived from project design, implementation and management.

FAO Representative will be responsible to field the mid-term review, in consultation with FAO PTF and the PSC. TOR for the mid-term review will be developed, based on guidance from FAO-GEF Coordination Unit.

An independent Final Evaluation (FE) will be carried out three months prior to the terminal review meeting of the project partners. The FE will aim to identify the project impacts and sustainability of project results and the degree of achievement of long-term results. This evaluation will also have the purpose of indicating future actions needed to sustain project results and disseminate products and best practices within the country and to neighbouring countries. FAO's Office of Evaluation (OED) will be responsible for coordinating the final evaluation. This evaluation will be based on GEF's Terminal Evaluation Guidelines<sup>[1]</sup>.

### M&E Plan

The table below presents an overview of the M&E plan. This will be detailed during project inception.

Type of M&E Activity	Responsible Parties	Timeframe	Budget	Costs (USD)
Field based impact monitoring	M&E	Periodically - to be determined at inception workshop.	USD 114,000 (National M&E Expert)	114,000
Monitoring of indicators outlined in project results chain	M&E Expert, PMU	Bi-Annually		
Sixth monthly Project Progress Reports	PMU, with inputs from project partners	Semi-annually	Covered by staff costs	-
Project Implementation Review report	PMU, with inputs from project partners as well as FAO PTM, LTO	Annually	Covered by staff costs	-
Co-financing Reports	BH with support from PMU with input from other co-financiers	Annually	Completed by PMU	-

Set the project M&E plan for the project	PMU with inputs from project partners	Set up at the beginning of the project, then as part of regular monitoring	As part of the project baseline and field based impact monitoring	-
Mid-term Review	MTR: FAO Timor-Leste, project task force, including the FAO-GEF Coordination Unit and others- in consultation with PMU and PSC	At mid-point of project implementation	USD 45,000 for independent consultants and associated costs. In addition, the agency fee will pay for expenditures of FAO staff time and travel	44,000
Final evaluation	Under the responsibility of FAO Office of Evaluation OED in consultation with the project team including the GCU and other partners	At the end of project implementation	USD 65,000 for external, independent consultants and associated costs. In addition, the agency fee will pay for expenditures of FAO staff time and travel	63,000
Terminal Report	PMU, LTO, TCSR Report Unit	At least two months before the end date of the Execution Agreement	Covered by MTR TORs	-
<b>Total Budget</b>				<b>221,000</b>

[1] <https://www.gef.io.org/sites/default/files/ieo/evaluations/files/gef-guidelines-te-fsp-2017.pdf>

## 10. Benefits

**Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCE/SCCF)?**


Please refer to earlier section with global environment benefits and adaptation benefits.

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

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

### Overall Project/Program Risk Classification \*

PIF	CEO Endorsement/Approval	MTR	TE
High or Substantial			
<b>Measures to address identified risks and impacts</b> Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.			

Safeguard Triggered	Risk Identified	Answer	Risk Classification	Reference Guidance	Additional Description (if any)
2	2.1 - Would this project be implemented within a legally designated protected area or its buffer zone?	Yes	High		The project aims to improve the
8	8.1 - Could this project risk reinforcing existing gender-based discrimination, by not taking into account the specific needs and priorities of women and girls?	No	Low		A gender analysis has been

Safeguard Triggered	Risk Identified	Answer	Risk Classification	Reference Guidance	Additional Description (if any)
8	8.2 - Could this project not target the different needs and priorities of women and men in terms of access to services, assets, resources, markets, and decent employment and decision-making?	No	Low		A gender action plan has been

#### Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
Environmental and Social Risk Classification	CEO Endorsement ESS	

**ANNEX A: PROJECT RESULTS FRAMEWORK** (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<b>Objective:</b> To enable fisheries and aquaculture stakeholders in Timor-Leste to adapt to climate change and manage biodiversity conservation through reducing vulnerabilities, piloting and adopting new practices and technologies and sharing information and knowledge							
<b>Component 1:</b> Enabling national fisheries and aquaculture related policies and programmes, legal frameworks and local management institutions to address climate change, current variability and biodiversity conservation.							
-							
<b>Outcome 1</b>  Strengthened capacity of Government of Timor-Leste, NDFA, Sector stakeholders, fishing and fish farming communities and related organizations to develop	<b>Climate Change Indicators</b>  Number of national strategies (climate change adaptation and biodiversity conservation related) developed or strengthened.	0	1	3	Published strategies	Stakeholders maintain sufficient shared interests in sustainable fisheries and conservation of biodiversity  There is sufficient resources and buy-in to engage	PMU, WorldFish

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Climate Change adaptation and biodiversity conservation policies and strategies	- Number of Marine Managed Areas/Marine Protected Areas (MMA/MPA) plans integrating CC and fisheries/aquaculture developed and started implementation	0	1 MPA 2 LMMAs	2 MPAs 4 LMMAs	Government endorsed Management plans of the MPA/MMA	with working group for the long term.  Political stability	
	<b>Biodiversity Indicators</b>  - Number of Conservation plan developed wetland under implementation	0	1	1	Government endorsed management plan  Stakeholder interviews on progress of implementation		





Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	- Number of ETP plans developed	0	1	2	Number of government endorsed species conservation plans, which are integrated in conservation and other plans		
	-Number of municipalities with revised strategies for climate change Adaptation and Biodiversity conservation actions under implementation	0	3	7 Municipalities (Aileu, Atauro/Dili, Bobonaro, Covalima, Lautem, Oecusse, Viqueque)			Government records

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
-	Formal establishment of the Biodiversity and Climate Change Network	No network	Working group created	Formal establishment of the National CC and Biodiversity Network (including operational budget)	Government endorsed Network	Project report  NDFA, MIEC, and MAF coordination meeting minutes/reports	UNTL PMU

- **Output 1.1.** Climate induced risks mapped, vulnerabilities and aquatic biodiversity status assessed for the fisheries and aquaculture sub-sectors (marine and freshwater)
- **Output 1.2.** Climate adaptation and biodiversity conservation integrated into national strategies, incorporating fisheries and aquaculture needs
- **Output 1.3** National level Sustainable Fisheries Livelihoods and Climate Change Adaptation Strategy for fishery and aquaculture dependent communities in Timor-Leste developed and implemented, based on concepts of Nature-based Solutions
- **Output 1.4.** Capacity of national and sub-national government stakeholders enhanced for collaborative management following the Ecosystem approach to Fisheries Management (EAFM) and Ecosystem based Adaptation (EbA)
- **Output 1.5.** Biodiversity and Climate Change Network strengthened through support from NDFA and sector on issues related to fisheries and aquaculture

**Component 2: Enhancing climate change adaptive capacity, practices and biodiversity conservation in fishing and fish farming communities (coastal and inland).**

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<b>Outcome 2</b> Fisheries and aquaculture dependent communities adapt to climate change and conserve biodiversity through innovative practices and technologies.	<b>CC Indicators</b> - Number of Community led CCA plans developed, strengthened and implemented.	0	10	20	MTR, FE reports	Stakeholders (specially communities) continue interested in addressing impacts of climate change	PMU, WorldFish, NDF
	- Number of Innovative adaptation technologies and practices developed and implemented	0	5	10	MTR, FE reports		
	Number of people (50% women) with strengthen resilience to climate change from project support	0	15,000	35,000	MTR, FE reports		

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	<b>BD Indicators</b>  Marine protected areas created or under improved management for conservation and sustainable use (Hectares)  Marine and coastal area effectively managed to ensure conservation and sustainable use of globally important habitats and species to increase their resilience and conservation status	0  0	 400   15,000 ha	 870   33,540 ha	FE reports  MTR, FE reports		

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<ul style="list-style-type: none"> <li>- <b>Output 2.1.</b> Climate resilient livelihood and biodiversity conservation strategies developed in fishery and aquaculture dependent communities.</li> <li>- <b>Output 2.2.</b> Innovative adaptation technologies and practices co-developed with fisheries and aquaculture communities and implemented.</li> <li>- <b>Output 2.3.</b> National level programmes based on CC vulnerabilities developed to promote more resilient economies among small-scale fishing/fish farming communities</li> <li>- <b>Output 2.4.</b> Community capacity development programme to support the design of ecosystem (EAFM/EbA/EAA) strategies and plans for fishery and aquaculture dependent communities in coastal and freshwater areas</li> </ul>							
<b>Component 3: Strengthening institutional capacity through the development of climate and biodiversity conservation related information systems, information management and monitoring operations.</b>							
<b>Outcome 3.</b> Institutional capacity strengthened through the development of climate and biodiversity conservation related information management and monitoring system.	<b>Climate Change and Biodiversity indicators</b>  - Number of Sector CC impact and biodiversity monitoring system integrated into national fisheries and aquaculture statistics	Non-existing CC impact and biodiversity monitoring system integrated into national fisheries and aquaculture statistics	Template of the monitoring system developed and tested	Fully operational CC impact and biodiversity monitoring system integrated into national fisheries and aquaculture statistics	Project report  NDFA, MIEC, and MAF coordination meeting minutes/reports	Ongoing interest by sector stakeholders on the importance of the monitoring system  Resources are made available for the continuation of the Monitoring System beyond the life of the project	NDFA, MAF, PMU, WorldFish, FAO

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	- Number of active cross-sectoral planning and coordination bodies between MAF and MIEC	Lack of coordination between MAF and MIEC	Task force created	Joint activities planned by MAF and MIEC	Project publications  NDFA, MIEC, and MAF coordination meeting minutes/reports		
	- Number of lessons learnt published	Lessons learned and results not being documented	Identification of lessons learned	Publish lessons learned and best practices	Capacity building training records and post capacity building surveys		

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	- Capacity development modules for climate change and biodiversity developed	Lack of capacity development plan	Capacity Development plan developed and agreed on, with initial training events taking place	<p>Assessment of the capacity of stakeholders and has improved 70 % pre-project levels</p> <p>People trained: TOTAL= 2920 (50 % women)</p> <p><b>Line ministries:</b> 60 Men 20 Women (there are less women in technical positions in the Ministries than men)</p> <p><b>Community/Association members:</b> Men = 1000 Women = 1100 (the project will need to make efforts to include more women at the community level to compensate the lack of participation of women in other sectors)</p> <p><b>Extension Officers</b> Men = 100 Women = 40 (there are less female extension workers)</p> <p><b>Students/Teachers (Universities and Schools)</b> Men/boys = 250 Women/girls = 250</p> <p><b>Other CSOs and partners</b> Men = 50 Women = 50</p>			

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<p><b>Output 3.1.</b> Climate risk information system developed to enhance coordination and communication practices</p> <p><b>Output 3.2.</b> Project monitoring system established and midterm and final evaluations conducted</p> <p><b>Output 3.3.</b> IKAN Adapt Project Communications, Stakeholder Engagement and IKAN Adapt Stakeholder and Gender Strategies established and implemented</p> <p><b>Output 3.4.</b> A monitoring system to assess impacts of climate change on marine and freshwater ecosystems and aquatic biodiversity incorporated in the National Fisheries Statistical System (NFSS)</p>							

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

## Responses to STAP comments

3) the proposed alternative scenario with a brief description of expected outcomes and components of the project	What is the theory of change?	Regrettably, no explicit theory of change is presented. Yet each of the three components intends to produce an outcome, emerging from 3-4 outputs produced in corresponding activities. This logical framework is expected to lead to generating the intended results. ? Properly described.	The TOC has been presented in Annex N of the project document and is elaborated in Subsection 3.
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<p>Is there a clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors?</p>	<p>There is indication of plans for scaling up but they are somewhat vague. More specific action plans would be useful</p>	<p>This is addressed in Output 2.3. Also please refer to Subsection 7 on innovativeness, sustainability, potential for scaling up and capacity development.</p>
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<p>What are the stakeholders? roles, and how will their combined roles contribute to robust project design, to achieving global environmental outcomes, and to lessons learned and knowledge?</p>	<p>Key stakeholders are the local communities, but many other government agencies, private sector, NGOs and scientific institutes have participated or at least have been consulted in the PIF preparation. The project focus is on small scale operators. To encourage long term expansion of aquaculture in the country, it may be worthwhile examining opportunities for encouraging commercial private sector organizations to participate and strengthening value chains.</p>	<p>There are several small businesses in the aquaculture sector (shrimp farming mostly), but during PPG phase, it was observed that shrimp farmers have been negatively affected by COVID-19 travel and trade restrictions due to their high dependence on imports for their inputs supply. The IkanAdapt will cooperate with the private sector aquaculture industry in Timor-Leste for the integration of climate adaptation considerations, particularly under component 2 (on adaptation technologies) and component 3 (sharing of climate risk information).</p>
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<p>Has the sensitivity to climate change, and its impacts, been assessed?</p>	<p>In general, a more systematic, broader scope social and environmental risk assessment would be needed. Climate risks will need to be assessed for the baseline and the alternative scenario so that proper measures can be designed and implemented to enhance climate resilience, reduce climate vulnerability and thus improve adaptive capacity. Evidence is emerging that the growth of aquaculture may increase greenhouse gas emissions (see for example Yuan et al. 2019). Risks of increased GHG emissions from aquaculture should be evaluated during the project preparation phase and mitigation measures (e.g. aerated systems) identified. Further attempts should be made to minimize any risks of eutrophication and disease from aquaculture.</p>	<p>Please refer to climate risk assessment summary presented in Annex K. Text from this has also been incorporated in the background section of the project document</p>
<p>What overall approach will be taken, and what knowledge management indicators and metrics will be used?</p>	<p>The knowledge management plan is very weak and needs a major improvement. No KM mechanism is specified in the PIF but the intention is there. Developing practical guidelines and a few other ideas are mentioned about KM. STAP recommends that the project team prepare a more detailed KM plan, including KM indicators and metrics. The related STAP document Managing knowledge for a sustainable future <a href="https://www.thegef.org/sites/default/files/publications/STAP%20Report%20on%20KM.pdf">https://www.thegef.org/sites/default/files/publications/STAP%20Report%20on%20KM.pdf</a> is a good source of guidance</p>	<p>This has been strengthened. Please see KM section.</p>

# Secretariat Comment at PIF/Work Program Inclusion

1) At CEO Endorsement please include time to test and revise communications strategies.

## FAO Response

The project will develop a strong communication strategy (**Output 3.3**) to facilitate a smooth flow of communication between the PMU, PSC, stakeholders and communities.

The IkanAdapt Project will enhance communication and visibility of adaptation options for fishing and fish-farming communities, as well as biodiversity conservation. At national level, through the dissemination of best practice and lessons learned that will be captured as part of Component 3, supporting the communication strategy and setting up the appropriate communication tools (website, project newsletters, social media strategy, etc.), and sharing through the different knowledge platforms (within Timor-Leste and beyond with other countries) all the technical reports, case studies, policy briefs, etc. At the field and municipal levels, the project will make use of community-led and gender differentiated dissemination systems.

In summary, the proposed tools for enhancing visibility include:

- **General aspects** ? PMU will ensure that general aspects of project visibility are fulfilled, such as: (i) visual identity of project and partners; (ii) highlighting the project? partners in media interviews, press releases, etc.); (iii) supporting documents such as photos of logos in the field, photos of activities, copies of press releases will be included in the progress and final reports.
- **Basic visibility at field level** ? At this level visibility strategy will consider: (i) signboards, display panels and banners; (ii) operational publications and materials such as training manuals and posters; (iii) supplies and equipment.
- **Printed publications** ? Brochures, leaflets, flyers, newsletters and other publications to project activities and results.
- **Website and webpage** ? It will include: (i) partnerships and links; (ii) project information (objectives, activities, expected results, etc.).
- **Audiovisuals** ? (i) Films for distribution by the media (mainly for television, campaigns and Internet); (ii) operational films (films to provide technical information and practices to local population, project partners and authorities).
- **Public events** ? Many types of events are possible and attracting media interest will always be a key consideration in making the events cost-effective. Press release will be an integral part of the events.

2) Please provide more details on how the project will actually change perceptions about the role of women in fisheries and more broadly. Awareness raising is likely insufficient.

#### **FAO Response**

The IkanAdapt project will implement a Gender Action Plan (developed during the PPG phase), and develop and implement a Gender Strategy (Output 3.3), that will help address gender issues as part of all the project components, by directly addressing women's vulnerabilities, as well as their limited capacity and lack the knowledge and skills to adapt to climate change, and by improving their participate in decision-making related to climate change and biodiversity conservation. This will be done by enhancing their access to and control over resources, creating a greater understanding regarding gender roles and the gender division of labour and by directly investing in women's skills adapting to climate change and biodiversity conservation.

3) Please clearly identify the additional climate resilience benefit of the proposed activities, given that the LDCF resources are not intended to enhance resilience generally but to the adverse impacts of climate change (including increased variability).

#### **FAO Response**

Timor-Leste is least developed country that is also vulnerable to climate change impacts and variability, due to the current low capacity to adapt at local and national levels. Climate change poses a significant threat to the fisheries and aquaculture sector, through air and sea temperature increases as well as changes in rainfall and storm activity as identified in the NAPA and that, without financial and technical support, urgent adaptation actions will remain unaddressed. Food security is also a main concern in Timor-Leste. The country has one of the lowest fish consumption levels in the region. The LDCF funds in the IkanAdapt project project will address these issues by strengthening the adaptive capacity of fishing and fish-farming communities, by equipping these communities (and their supporting institutions) to be better prepared for addressing climate change impacts and variability. This will be achieved through the mapping of climate risks and related vulnerabilities in the integration of climate adaptation considerations within fisheries and aquaculture policies and frameworks, by developing the capacity of stakeholders to be better prepared to address these challenges, and by supporting the development and implementation of climate change adaptation strategies (focus of Component 1), the deployment of adaptation technologies (focus of Component 2), and Climate Information Systems (focus of Component 3).

4) Please provide more recent climate change projections for Timor-Leste, if available.

#### **FAO Response**

Climate change is likely to impact significantly on the fisheries sector due to the altered rainfall regime and the warmer temperature. Climate projections for 2050 suggest an increase in temperatures of

1.25??1.75°C, increased duration of heatwaves, increased rainfall of 4?10 percent with an increase of up to 100?120 mm in coastal areas, increased intensity of heavy rainfall events (but decreased frequency), rise in sea level by 150?340 mm, increased cyclone intensity (but decreased frequency) and increased sea surface temperatures of 0.6?? 0.8°C by 2030[1]. The coral reef, mangrove and seagrass habitats supporting small-scale fisheries in the region are already under stress from climate change and other anthropogenic impacts[2],[3],[4]. The projected increases in air temperature, turbidity from more extreme rainfall, sea surface temperature, marine heatwaves, ocean acidification, sea level, and physical damage from more intense cyclones are expected to cause further reductions in the extent and quality of coastal habitats<sup>3,4</sup>, [5] .

5) Please discuss institutional measures to enable closer CCA-BD linkages in the country.

### **FAO Response**

The project has been designed with the aim of enabling close climate change adaptation and biodiversity linkages, as defined in the Theory of Change, which provides an integrated approach to address the impacts of climate change and biodiversity loss, by building on the ongoing adaptation options and addressing the existing key barriers that are preventing fishery and aquaculture dependent communities and their sector institutions from taking adequate action to reduce vulnerability to the impacts of climate change, increase their resilience and conserve biodiversity.

The Theory of Change of the project implies that, if sector institutions (including government and other agencies) in Timor-Leste, coordinate and collaborate on the design and implementation of climate change adaptation and biodiversity conservation related policies, plans and actions, and if there is a strong capacity development program on ecosystem approaches (for fisheries and aquaculture, and for climate change adaptation), the capacity of sector stakeholders will be strengthened.

It is also anticipated that, if women and men in fishing and fish-farming dependent communities integrate climate change adaptation and biodiversity conservation considerations into fishing and fish-farming technologies and practices, they will increase their resilience against climate change and contribute to the conservation of biodiversity and national food security. Furthermore, if climate and biodiversity conservation information systems and monitoring systems are established the institutional capacity of Timor-Leste will be enhanced for climate change and biodiversity conservation.

For this to be achieved, it is necessary to strengthen the understanding of climate risks and vulnerabilities and biodiversity status, mainstreaming adaptation and biodiversity considerations into fisheries and aquaculture sectors and vice-versa and enhance stakeholder capacity on climate change adaptation and biodiversity. It will also be required the design and implementation of climate and biodiversity resilient strategies for fisheries communities, strengthen their adaptation capacity, and develop and transfer innovative technologies and practices. It will also be necessary to develop a climate risk information system, the development of communication strategy and monitoring systems, and a stakeholder engagement and mainstreaming strategy.

The project's components and outputs have been designed with this integration in mind, through the development and implementation of Ecosystem based Approaches (on Ecosystem based Adaptation

and Ecosystem Approach to Fisheries Management), that will support addressing climate change impacts from a nature based approach that also conserves biodiversity and maintains the integrity of ecosystems services.

6) Please ensure that the direct beneficiaries for the LDCF and BD are properly estimated for each Fund, and please try to avoid double counting

### **FAO Response**

Timor-Leste is a Least Develop Country with a very limited capacity to address climate change impacts and biodiversity conservation with their existing resources and institutional framework, and the project will work on addressing these limitations. The project will be operating in 7 municipalities, as agreed during the Inception Workshop during the PPG phase, and both activities related to climate change adaptation and biodiversity conservation will be executed in the same communities. The number of beneficiaries therefore is expected to be the same (through an integrated Ecosystem approach) - this will be indicated during project reporting to avoid double counting of beneficiaries.



### **Other comments**

#### **Norway-Denmark constituency comments**

Timor-Leste (fisheries and aquaculture); IKAN Adapt: Strengthening the adaptive capacity, resilience and biodiversity ability of fisheries and aquaculture-dependent livelihoods in Timor-Leste (GEF ID 10181)

- The Project Identification Form (PIF) reveals weaknesses and challenges in an array of sectors and areas of the country. The plans seem quite ambitious in the three main project areas - laws and regulations; local community adaptation and development; and improvement of institutions? capacity to collect climate and biodiversity data.
- The appraisal suggests several improvements of information, analyses and justification of suggested interventions in the PIF. The appraisal report documents that the applicant/agency is following up on some of these issues.
- It is often not clear to what extent problems and suggested interventions are linked to the presence of anticipated future problems caused by climate change or whether they are part of a broader developmental or historical context.
- The PIF makes due reference to earlier projects of support, including a Norwegian-supported project.
- Support to the development and improvement of fisheries and aquaculture management in East Timor, however, seems justified.

## FAO Response

Timor-Leste's lack of capacity to adapt to climate change is due to the combination of geographical, historical, cultural and human resource factors, and not only to the current existing climate change impacts. The project has been designed with these issues in mind, and will focus on bringing the climate (and biodiversity) dimensions to ongoing efforts to improve fisheries and aquaculture management that have been described in the baseline. The project will jointly address issues related to food security and food safety due to environmental degradation and other climate risks (floods, droughts, etc.), as part of its adaptation and biodiversity conservation strategies at the national, municipal, and village levels.

# Comments from countries, Germany and US

## Germany comments

Comment	Agency Response
The output title of output 2.1 suggests a focus on resilient livelihood and biodiversity strategies, while the description of what output 2.1 entails then focuses on vulnerability assessments without clearly specifying how these would be translated into community strategies.	After consultations with stakeholders about the project framework, it has been agreed that the vulnerability assessments will take place under Component 1, and the development and implementation of the adaptation plans will follow under Component 2
Furthermore, output 2.2. seems to encompass both planning as well as piloting of new technologies. It is suggested to add an additional output in order first focuses on piloting of new technologies.	Thank you for the recommendation. The planning phase will be done as part of Output 2.1, while 2.2 will be focused on the deployment of the innovative technologies at the community level, based on the needs previously identified in Output 2.1.

<p>The proposal includes an output (3.3) on a project monitoring system. Germany highly recommends reviewing the description of this output, which seems to focus on communication, and provide a more robust M&amp;E strategy in support of the developed indicators. This would help to ensure that project goal will be achieved and that adaptive management of the project is ensured.</p>	<p>Thank you for the comment. The Output 3.3. is: <i>Output 3.3. IKAN Adapt Project Communications, Stakeholder Engagement and Gender Strategies established and implemented</i>, which indeed will focus on communication and stakeholder engagement (including a Gender Strategy to ensure the involvement of women).</p> <p>The project also has the <i>Output 3.2. Project monitoring system established and midterm and final evaluations conducted</i> that will include the development of the M&amp;E strategy and the follow up of the project indicators.</p>
<p>While the PIF illustrates how the project is aligned with priority areas of the country's National Biodiversity Strategy and Action Plan, and National Adaptation Program of Action, Germany recommends to update the respective sections on the policy and legal framework as well as the consistency with national priorities to confirm the project's alignment with the country's Nationally Determined Contribution at the proposal finalization stage.</p>	<p>In addition to the National Biodiversity Strategy (NBS) and the National Adaptation Program of Action (NAPA), the project is also in line with the ongoing process for the development of the National Adaptation Plan (NAP) and the Nationally Determined Contribution (NDC).</p> <p>In particular, the project will:</p> <ul style="list-style-type: none"> <li>- Develop the capacity for climate change adaptation and biodiversity conservation in fishing and fish-farming dependent communities, and their supporting institutions, using ecosystem-based approaches, such as Ecosystem-based Adaptation and the Ecosystem Approach to Fisheries Management and Aquaculture. Relevant priority government policies and strategies will be supported at different levels, and the capacity of stakeholders will be supported through a wide range of capacity building activities.</li> <li>- Enhance policy frameworks for the protection of biodiversity and the sustainable use of fisheries and aquaculture resources, while adapting to climate change.</li> <li>- Improve coordination among stakeholders through the creation of networks to ensure alignment of approaches in climate change adaptation response and planning and for biodiversity conservation.</li> <li>- Provide demonstration of critical and innovative adaptation practices and technologies to ensure resilient fisheries and aquaculture in Timor-Leste.</li> </ul>

<p>While the PIF identifies gender as an important priority and provides some examples of gender considerations could be integrated, Germany welcomes additional references on of how relevant outputs address gender considerations. For instance, output 1.4 foresees the establishment of fishery management councils but does not reveal how the representation of women will be ensured.</p>	<p>A more comprehensive Gender Action Plan has been developed (under Section 3 Gender Equality and Women?s Empowerment), which is based on the identification of gender needs during the PPG phase, and provides guidance on how to integrate gender considerations under each output.</p> <p>The project team will also comprise a national Gender Research Analyst and a Gender Research Leader to guide the work related to gender equality and women?s empowerment through full project implementation.</p>
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Further, Germany would recommend more specific information on how the project aims to ensure long term sustainability and maintenance of interventions (scaling up of pilots, capacity development of government officials, etc.)

As indicated in Section 7, the sustainability of the project will be ensured through working within current structures and programmes and building the capacity of stakeholders and institutions at local and national level. Project activities will be up-scaled through integration with the national development programmes implemented by NGO/CSO, government and partner agencies.

The project has been designed to ensure replicability and scaling up. Lessons learned from project evaluations and science-based studies will be communicated to stakeholders to ensure systematic and informed decision-making. Peer-to-peer/community-to-community exchanges and coordinated efforts with government development partners will support scaling-out of the project's lessons learned. The project will be fully integrated into the government's fisheries and aquaculture development planning through the project's lead partner agencies.

The project will have a strong focus on capacity development, at the individual, organizational, municipal and national levels. Component 1 will focus on capacity development at the national and municipal levels, through the strengthening of NDFA and ensuring its ownership over policies and policy tools on climate change adaptation, resilience and biodiversity conservation programs. The proposed project will develop the capacity of NDFA, MCIE, municipal actors and other ministries and institutions on the vulnerability assessment process, mapping climate and biodiversity risks, integrating fisheries and aquaculture needs into climate adaptation and biodiversity conservation strategies (and vice-versa), the development and implementation of national level strategies and plans for livelihood diversification, and ecosystem approach to fisheries and aquaculture and ecosystem-based adaptation. Output 1.4 under this component is focused on enhancing the capacity of national and sub-national government stakeholders in the implementation of these approaches through collaborative and participatory management. This component will facilitate the collaboration and planning between sector agencies (particularly between the agencies working on fisheries and aquaculture and those working on environment and biodiversity conservation). The proposed project will place gender considerations as a high priority area in the planning process and developing policy tools. A critical aspect of capacity development is the strengthening of the Biodiversity and Climate Change Network (BCCN) on issues related to fisheries and aquaculture. It is foreseen that NDFA will benefit from training from BCCN and conversely, NDFA will contribute data on fisheries and aquaculture to BCCN that would inform policy-making.

Finally, Germany would encourage to also include in the project proposal references to the FAO-Code of Conduct for Responsible Fisheries (CCRF), and the FAO-Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (VGSSF), which both are seen as crucial for the success of the project during the implementation.	Thank you for the comment. Reference to the CCRF and the VGSSF have been incorporated accordingly into the ProDoc.
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## USA

Comment from country	Agency Response
Consider how the vulnerability assessment results from this project will contribute to the ongoing integrated vulnerability assessment conducted by the Secretary of State for Environment.	Previous to conducting the assessment, the project will review the work done by the Secretary of State for Environment, particularly those carried out in the same municipalities/Sucos of the project.
Consider coordination with USAID's Tourism for ALL project, which is looking at doing similar activity, specially on sustainable management plan for selected protected area, as well as USAID's mission's efforts in implementation or design phase.	The project will build on the work done by other projects, including USAID's Tourism for All project, and other relevant interventions.
Expand on the coordination with the NOAA installed buoy gauges mentioned on page 27, as we are of the understanding that all the relevant data including reports and maps for the Interdisciplinary baseline ecosystem assessment surveys to inform ecosystem-based management planning in Timor-Leste were handed over to MAF accordingly.	After consultation with the relevant stakeholders, the below text had been added: From 2012 to 2016, NOAA's Coral Reef Ecosystem Program (CREP) of the Pacific Islands Fisheries Science Center provided assistance to Timor-Leste conducting baseline surveys over the period 2012 to 2016 under the partnership agreement between MAF, USAID, and NOAA[6]. The IkanAdapt will build on the work that was done by NOAA collecting data to inform ecosystem-based coastal resource management planning in the country, and will coordinate with NOAA for the implementation of activities.
Expand upon how FAO will cross-reference the work outlined in this PIF with similar or related programs and projects that are being carried out by other implementers and/or funding, and how FAO will adjust this project to make sure that it is complementary and not duplicative of ongoing activities,	The section on Baseline Information has been updated, including details about the ongoing work by other agencies. Where possible, co-finance has been indicated to acknowledge that the projects will be complementary and avoid duplicating work.
Expand on ways in which Ministries involved in this project will coordinate with other, including through planned institutional arrangements between Ministries.	The Institutional Arrangement (Section 6) information has been updated, with detail description on how the project will be executed.
In addition, we expect FAO in the development of its full proposal will:	

Provide more information on how the beneficiaries, including women, have been involved in the development of the project proposal and will benefit from this project.	Detail information on the Stakeholder Involvement during PPG phase, as well as during Project Implementation, has been provided in Section 2 of the ProDoc. Section 3 provides information on Gender Equality and Women's Empowerment.
Engage local stakeholders, including community-based organizations, environmental non-governmental organizations and the private sector in both the development and implementation of the program, and	Please refer to Section 2 on Stakeholders, which also includes a Stakeholder Engagement Plan.
Clarify on how the implementing agency and its partners will communicate results, lessons learned and best practices identified throughout the project to the various stakeholders both during and after the project.	Please refer to Section 8 on Knowledge Management for more information related to the communication Strategy of the project.
[...] Coordination with these [USAID/CTI/NOAA's] efforts in concept development and subsequent implementation with USAID would be beneficial to ensure complementarity and additionally moving forward.	The IkanAdapt will build on the work that was done by NOAA collecting data to inform ecosystem-based coastal resource management planning in the country, and will coordinate with NOAA for the implementation of activities.

[1] USAID 2017. Climate Risk Profile Timor-Leste.

[https://www.climatelinks.org/sites/default/files/asset/document/2017\\_Climate%20Change%20Risk%20Profile%20-%20Timor%20Leste.pdf](https://www.climatelinks.org/sites/default/files/asset/document/2017_Climate%20Change%20Risk%20Profile%20-%20Timor%20Leste.pdf)

[2] Bell, Johann & Johnson, Johanna & Hobday, Alistair. (2011). Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change.

[3] Johnson, J.E., Bell, J.D., Allain, V., Hanich, Q., Lehodey, P., Moore, B., Nicol, S. & Pickering, T. 2017. The Pacific Islands: fisheries and aquaculture and climate change. In B. Philips & M. Ramirez, eds. Implications of climate change for fisheries and aquaculture: a global analysis, pp. 333-379. New York, Wiley Publications.

[4] FAO 2018. Impacts of climate change on fisheries and aquaculture. FAO Fisheries and Aquaculture Technical Paper, 627. <http://www.fao.org/3/i9705en/i9705en.pdf>

[5] Bell, J.D., Ganachaud, A., Gehrke, P.C., Griffiths, S.P., Hobday, A.J., Hoegh-Guldberg, O., Johnson, J.E. et al. 2013. Mixed responses of tropical Pacific fisheries and aquaculture to climate change. Nature Climate Change, 3: 591-599.

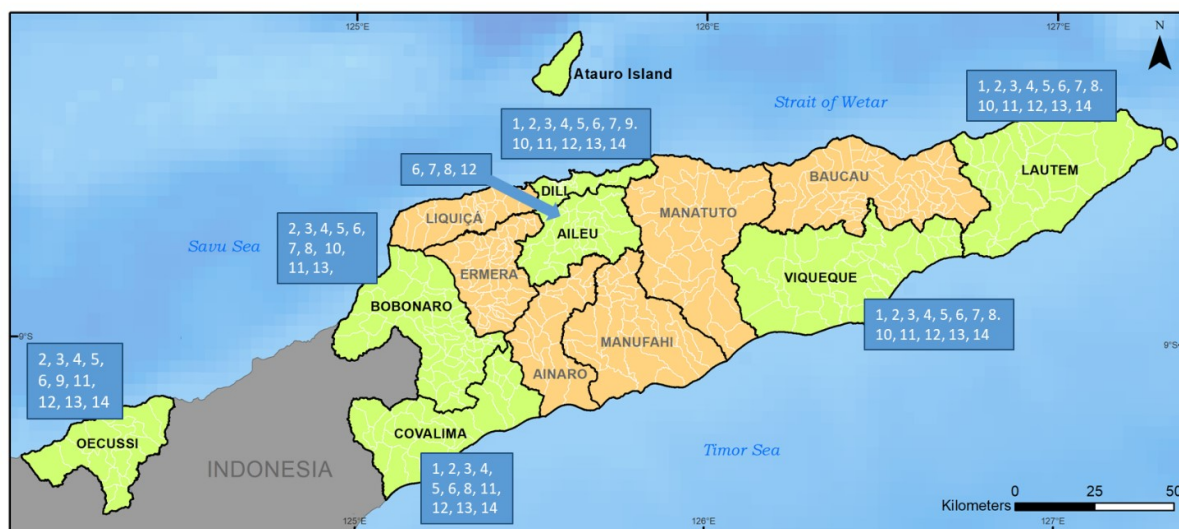
[6] <https://pifscblog.wordpress.com/2017/07/21/this-is-the-end/>

**ANNEX C: Status of Utilization of Project Preparation Grant (PPG).**  
**(Provide detailed funding amount of the PPG activities financing status in the table below:**

PPG Grant Approved at PIF:			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent to date</i>	<i>Amount Committed</i>
<p>? <b>Communication and engagement with partners</b> - Informed the GEF OFP, relevant government UN convention focal person/s, lead government institutions that are expected to be the project execution agencies, and other key partners (especially those identified as potential co-financiers in the PIF/ sub-national government) on the PPG clearance, key next steps, their expected roles and timelines.</p> <p>? Confirmation on preferred project implementation modality with lead government agency taking into consideration FAO requirements for various modalities/tools</p> <p>? PPG inception Workshop</p> <p>? Conduct capacity assessments of lead execution agency(ies)/Operational Partner(s)</p> <p>? Obtain co-finance letters</p> <p>? Stakeholders consultations both at national and municipality and community level (including FPIC Analysis)</p> <p>? Gender Analysis or equivalent socio-economic assessment</p> <p>? Prepare full project document</p> <p>? Final project validation with key stakeholders</p>	150,000	119,246 (including hard commitment)	150,000
<b>Total</b>	1	1	1

**ANNEX D: Project Map(s) and Coordinates**

**Please attach the geographical location of the project area, if possible.**



## ANNEX E: Project Budget Table

**Please attach a project budget table.**

Timor-Leste  
IKANAdapt :  
Project  
Budget  
(working  
draft)

[illegible]

Project Leader	Days	47,2593	279,686	18,000	261,686	-	-	-	-279,686	279,686	55,937	55,937	55,937	55,937	55,937	279,686
Scientist on Fisheries and Aquaculture	Days	20,0523	104,600	15,717	54,017	34,866	-	-	-104,600	104,600	20,920	20,920	20,920	20,920	20,920	104,600
Climate Change Specialist	Days	53,2435	231,473	18,000	213,473	-	-	-	-231,473	231,473	46,295	46,295	46,295	46,295	46,295	231,473
Gender Specialist	Days	73,597	43,579	8,15	34,864	-	-	-	-43,579	43,579	8,716	8,716	8,716	8,716	8,716	43,579
M&E Specialist	Days	13,379	4,932	1,645	3,287	-	-	-	-4,932	4,932	2,466	2,466	2,466	2,466	2,466	4,932
Scientist (GIS)	Days	54,220	11,887	-	5,944	5,943	-	-	-11,887	11,887	11,887	11,887	11,887	11,887	11,887	11,887
Sub-total International Staff			676,158	62,077	573,272	40,809	-	-	-676,158	676,158	146,221	131,88	134,33	131,88	131,88	676,158
In-Country Staff																
Project Manager	Days	1,080	112,300	17,433	94,867	-	-	-	-112,300	112,300	22,460	22,460	22,460	22,460	22,460	112,300

[illegible]

Project Accountant	Day s	1, 24 8 177	220, 12, 208, 734 000 734	- - -	- 220, 734	220, 734	44,1 47	44, 44, 44, 44, 220, 147 147 147 147 734
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Finance Officer	Day s	1, 02 5 67	68,7 6,0 62,7 94 00 94	- - -	- 68,7 94	68,7 94	13,7 59	13, 13, 13, 13, 68,7 759 759 759 759 94
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Sub-total Finance			289, 18, 271, 528 000 528	- - -	- 289, 528	289, 528	57,9 06	57, 57, 57, 57, 289, 906 906 906 906 528
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Project Management Unit Senior Associate-Project Implementation and Support Sub-total Project Management Unit Admin Assistants	Day s	47 0 291	136, 45, 90,9 457 515 42	- - -	- 136, 457	136, 457	27,2 91	27, 27, 27, 27, 136, 291 291 291 291 457
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HQ Admin	Day s	73 201	14,6 4,8 9,76 48 87 1	- - -	- 14,6 48	14,6 48	2,93 0	2,9 30 2,9 30 2,9 30 2,9 30 14,6 48
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In-Country Admin	Day s	41 6 187	77,6 25, 51,7 32 90 429	- - -	- 77,6 32	77,6 32	15,5 26	15, 15, 15, 15, 77,6 526 526 526 526 32
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Sub-total Admin Assistants			92,2 30, 61,4 81 791 89	- - -	- 92,2 81	92,2 81	18,4 56	18, 18, 18, 18, 92,2 456 456 456 456 81
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## Communica tion

Communica tions and Marketing	Day s	20,7 34	4,1 48	9,67 1	6,9 14	-	-	-	20,7 34	20,7 34	4,14 7	4,1 47	4,1 47	4,1 47	4,1 47	20,7 34
		35	59	2												

Team Leader, Communica tions and Marketing	Day s	18,3 57	3,6 75	8,55 8	6,1 25	-	-	-	18,3 57	18,3 57	3,67 1	3,6 71	3,6 71	3,6 71	3,6 71	18,3 57
		70	26	2												

Digital Communica tions and Marketing Specialist	Day s	25,5 74	5,1 18	11,9 26	8,5 30	-	-	-	25,5 74	25,5 74	5,11 5	5,1 15	5,1 15	5,1 15	5,1 15	25,5 74
		65	39	3												

Publication s website designer	Day s	8,94 7	1,7 93	4,16 6	2,9 88	-	-	-	8,94 7	8,94 7	1,78 9	1,7 89	1,7 89	1,7 89	1,7 89	8,94 7
		71	12	6												

Sub-total Communica tion		73,6 12	14, 73	34,3 22	24, 55	-	-	-	73,6 12	73,6 12	14,7 22	14, 72	14, 72	14, 72	14, 72	73,6 12
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## Procuremen t

Procuremen t Lead	Day s	12,5 51	4,1 88	8,36 3	-	-	-	-	12,5 51	12,5 51	2,51 0	2,5 10	2,5 10	2,5 10	2,5 10	12,5 51
		53	23	7												

Contracts Officer	Day s	4,63 7	1,5 47	3,08 9	-	-	-	-	4,63 7	4,63 7	927 927	927 927	927 927	927 927	927 927	4,63 7
		22	21	1												

Sub-total Procuremen t		17,1 88	5,7 35	11,4 53	-	-	-	-	17,1 88	17,1 88	3,43 8	3,4 38	3,4 38	3,4 38	3,4 38	17,1 88
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## IT Support

IT Consultant	Days	66	124,366	41,508	41,350	41,508	-	-	-124,366	124,366	24,873	24,873	24,873	24,873	24,873	124,366
Sub-total IT Support			124,366	41,508	41,350	41,508	-	-	-124,366	-124,366	24,873	24,873	24,873	24,873	24,873	124,366
Sub-total Professional Salaries			2,351,736	303,709	1,764,161	163,650	120,215	-	-2,351,735	-2,351,735	481,337	466,983	469,450	466,983	466,983	2,351,737
5013 Consultants																
International Consultant																
IC on Aquatic Biodiversity	Lumpsum	1	100,000	100,000	20,000	70,000	10,000	-	-100,000	100,000	20,000	20,000	20,000	20,000	20,000	100,000
IC on Vulnerability Analysis	Lumpsum	1	40,000	40,000	40,000	-	-	-	-40,000	40,000	8,000	8,000	8,000	8,000	8,000	40,000
Sub-total International Consultants			140,000	60,000	70,000	10,000	-	-	-140,000	140,000	28,000	28,000	28,000	28,000	28,000	140,000
National Consultant																
NC on Aquatic Biodiversity	Lumpsum	1	100,000	100,000	15,000	85,000	-	-	-100,000	100,000	20,000	20,000	20,000	20,000	20,000	100,000



Environmental and Social Impact Assessment (for Environmental and Social Safeguards)	Lum psu m	1	26,000	26,000	13,000	13,000	-	-	-	26,000	26,000	5,200	5,200	5,200	5,200	5,200	26,000
FAO Mid-term evaluation of the project	Lum psu m	1	44,000	44,000	-	-	44,000	-	44,000	44,000	44,000			44,000			44,000
FAO final evaluation of the project	Lum psu m	1	63,000	63,000	-	-	63,000	-	63,000	63,000							63,000
Spot checks and audits	Lum psu m	5	10,474	52,370	-	-	-	31,422	20,948	52,370	52,370	10,474	10,474	10,474	10,474	10,474	52,370
Sub-total Contracts				415,370	13,000	193,000	50,000	107,000	31,422	20,948	415,370	159,370	256,000	101,674	51,674	95,674	114,674
5021 International Travel (per diem and transport)																	
Travel for Staff	Trip s		4,225	97,170	35,542	32,055	29,574	-	-	97,170	97,170	19,434	19,434	19,434	19,434	19,434	97,170

Participatio n in global and regional knowledge sharing events	Lum psu m	5	4,0 00	20,0 00	-	- 20, 000	-	- 20,0 00	20,0 00	-	20, 000	-	20,0 00
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Sub-total Internationa l Travel				117, 35, 32,0 49, 170 542 55 574	-	-	- 117, 170	-	117, 170	19,4 19, 39, 19, 19, 117, 34 434 434 434 434 170
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National Travel (per diem and transport) Travel for Output / Annual PCS / Inception and Final workshops / Midterm and Final evaluation / Other meetings	Lum psu m	1	146 00	146, 35, 57,9 22, 000 740 01 909	-	16, 12, 562 88 146, 8 000	-	146, 000	146, 000	-	-	-	146, 000
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Sub-total National Travel				146, 35, 57,9 22, 000 740 01 909	-	16, 12, 562 88 146, 8 000	-	146, 000	146, 000	-	-	-	146, 000
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Sub-total Travel				263, 71, 89,9 72, 170 281 56 483	-	16, 12, 562 88 263, 8 170	-	263, 170	165, 19, 39, 19, 19, 263, 434 434 434 434 434 170
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5  
0 Training /  
2 Workshop /  
3 Meeting

5 0 2 4	Meetings/Training for Output / Annual PSC meetings and reflection / Inception and Final workshops	Lum psu m	1	276,000	276,29,162,83,930	737	333	-	-	-276,000	276,000	276,000	-	-	-	-	276,000
	Sub-total Training / Workshop / Meeting				276,000	29,162,83,930	737	333	-	-	-276,000	276,000	276,000	-	-	-	276,000
5 0 2 4	Expendable Procurement																
	Maps/Satellite images of coastal and riverine ecosystems (1.5)	Lum psu m	1	10,000	10,000	10,000	-	-	-	-10,000	10,000	5,000	5,000	-	-	-	10,000
5 0 2 4	Inputs for climate friendly aquaculture /mariculture (e.g.Fish broodstock/fingerlings, etc) (2.2)	Lum psu m	1	80,000	80,000	80,000	-	-	-	-80,000	80,000	21,612	18,010	14,408	14,408	11,561	80,000
	Inputs for the restoration of coastal ecosystems (mangroves, coral reefs, seagrass) (2.4)	Lum psu m	1	80,000	80,000	80,000	-	-	-	-80,000	80,000	26,667	16,000	16,000	10,667	10,667	80,000

Inputs for riparian/wetland rehabilitation/restoration (2.4)	Lum psu m	1	50,000	50,000	-	50,000	-	-	-	-	50,000	50,000	25,000	10,000	5,000	5,000	5,000	50,000
Inputs for climate smart fish processing (2.3)	Lum psu m	1	60,000	60,000	-	60,000	-	-	-	-	60,000	60,000	17,143	17,143	12,857	6,429	6,429	60,000
Inputs for establishing eco-tourism businesses (2.4)	Lum psu m	1	30,000	30,000	-	30,000	-	-	-	-	30,000	30,000	-	12,000	6,000	6,000	6,000	30,000
Inputs for early warning system tools (small-equipment, etc.) (3.1)	Lum psu m	1	50,000	50,000	-	-	50,000	-	-	-	50,000	50,000	10,000	10,000	10,000	10,000	10,000	50,000
Small-scale equipment to support implementation of community CCA management plans	Lum psu m	1	80,000	80,000	-	80,000	-	-	-	-	80,000	80,000	22,857	14,286	14,286	14,286	14,286	80,000
Equipment for biodiversity mapping (diving gears, GPS, etc.)	Lum psu m	1	10,000	10,000	-	10,000	-	-	-	-	10,000	10,000	5,000	2,500	1,250			10,000

Inputs for diversified fishing and vessel safety activities (equipment s, trials)	Lum psu m	1	70,499	70,499	-	70,499	-	-	-	70,499	70,499	20,143	12,589	12,589	12,589	12,589	70,499
Sub-total Expendable Procurement			520,499	10,400	460,499	50,000	-	-	-	520,499	520,499	153,422	117,528	92,390	80,128	77,031	520,499
Motorbikes and computers, printers, GPS, scanner, camera, other small equipments for field coordinators	Lum psu m	4	6,000	24,000	-	-	-	14,400	9,600	24,000	24,000	4,800	4,800	4,800	4,800	4,800	24,000
Computers for National Experts	Lum psu m	5	2,000	10,000	-	-	-	6,000	4,000	10,000	10,000	10,000	-	-	-	-	10,000
Early Warning System equipment	Lum psu m	1	40,000	40,000	-	40,000	-	-	40,000	40,000	40,000	-	30,000	10,000	-	-	40,000
Office furniture	Lum psu m	1	6,215	6,215	-	-	-	3,729	2,486	6,215	6,215	6,215	-	-	-	-	6,215
Sub-total Non-expendable Procurement			80,215	-	40,000	-	24,129	16,086	80,215	80,215	80,215	21,015	34,800	14,800	4,800	4,800	80,215

5 Technical  
0 Support  
2 Services  
7 (TSS)

TSS standard reporting costs	Lum psu m	1	6,5 50	6,55 0	-	-	-	5,0 38	1,5 12	6,55 0	6,5 50	-	1,31 0	1,3 10	1,3 10	1,3 10	1,3 10	1,3 10	6,55 0
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Sub-total TSS			6,55 0	-	-	-	5,0 38	1,5 12	6,55 0	6,5 50	-	1,31 0	1,3 10	1,3 10	1,3 10	1,3 10	1,3 10	6,55 0
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5 General  
0 Operating  
2 Expenses  
8 (GOE)

Phone and internet costs	Lum psu m	60	750	45,0 00	15, 35	12,2 87	12, 287	-	3,0 41	2,0 27	45,0 00	45,0 00	9,00 0	9,0 00	9,0 00	9,0 00	9,0 00	9,0 00	45,0 00
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Offices supplies (consumabl es and stationary)	Lum psu m	60	200	12,0 00	4,0 95	3,27 6	3,2 76	-	811	54 1	12,0 00	12,0 00	2,40 0	2,4 00	2,4 00	2,4 00	2,4 00	2,4 00	12,0 00
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Office renovation	Lum psu m	1	15, 292	15,2 92	-	-	-	9,1 76	6,1 16	15,2 92	15,2 92	3,05 8	3,0 58	3,0 58	3,0 58	3,0 58	3,0 58	15,2 92
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Translation costs	Lum psu m	1	10, 000	10,0 00	-	-	-	6,0 00	4,0 00	10,0 00	10,0 00	2,00 0	2,0 00	2,0 00	2,0 00	2,0 00	2,0 00	10,0 00
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Project Webpage	Lum psu m	1	1,5 40	1,54 0	-	1,5 40	-	-	1,54 0	1,54 0	1,54 0	1,54 0	-	-	-	-	-	1,54 0
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Communication products (Social media updates, Video Production, Factsheets, Brief, Posters etc)	Lum psu m	1	13,248	13,248	4,416	4,416	4,416	-	-	13,248	13,248	2,650	2,650	2,650	2,650	2,650	13,248	
Allocated MIS Costs	Lum psu m	1	81,590	81,590	31,381	25,105	25,105	-	-	81,590	81,590	16,318	16,318	16,318	16,318	16,318	81,590	
Sub-total GOE			178,670	55,251	45,084	46,624	19,028	12,684	178,670	178,670	36,966	35,426	35,426	35,426	35,426	35,426	178,670	
Grand Total			4,416,210	566,838	2,517,770	466,090	227,215	112,980	75,317	4,416,210	193,920	4,220,870	1,167,367	685,703	732,173	655,707	718,701	4,416,210
% of total GEF Funding			100.0%	12.8%	57.0%	10.6%	5.1%	2.6%	1.7%	100.0%	4.4%	95.6%	26.4%	15.5%	16.6%	14.8%	16.3%	100.0%

#### ANNEX F: (For NGI only) Termsheet

**Instructions.** Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

#### ANNEX G: (For NGI only) Reflows

**Instructions.** Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencies is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement

with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

**ANNEX H: (For NGI only) Agency Capacity to generate reflows**

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).