GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

August 11, 2014

Dear LDCF/SCCF Council Member:

UNDP as the Implementing Agency for the project entitled: ***Timor Leste: Strengthening Community Resilience to Climate-induced Disasters in the Dili to Ainaro Road Development Corridor, Timor Leste***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by LDCF/SCCF Council in May 2013 and the proposed project remains consistent with the Instrument and LDCF/SCCF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee

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REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: LDCF

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Strengthening Community Resilience to Climate-induced disasters in the Dili to Ainaro Road Development Corridor, Timor-Leste.			
Country(ies):	Timor-Leste	GEF Project ID:[1]	5056
GEF Agency(ies):	UNDP (select) (select)	GEF Agency Project ID:	5108
Other Executing Partner(s):	National Disaster Management Directorate (Ministry of Social Solidarity), National Directorate for International Environmental Affairs and Climate Change (Ministry of Commerce, Industry and Environment), National Institute for Public Administration (Ministry of State Administration), Ministry of Agriculture and Fisheries	Submission Date:	August 1, 2014
GEF Focal Area (s):	Climate Change	Project Duration(Months)	48
Name of Parent Program (if applicable): ➢ For SFM/REDD+ ☐ ➢ For SGP ☐ ➢ For PPP ☐	N/A	Project Agency Fee ($):	498,750

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount ($)	Cofinancing ($)
CCA-2 (select)	2.2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses	2.2.1: Adaptive capacity of national and regional centres and networks strengthened to rapidly respond to extreme weather events	LDCF	2,325,000	16,548,145
CCA-2 (select)	2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	2.3.1: Targeted population groups participating in adaptation and risk reduction awareness activities	LDCF	2,925,000	20,818,635
		Total project costs		5,250,000	37,366,780

B. PROJECT FRAMEWORK

Project Objective: 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

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount ($)	Confirmed Cofinancing ($)
1.Enabling	TA	1. Knowledge and	1.1 National training and	LDCF	900,000	4,192,003

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area Results Framework and LDCF/SCCF Framework when completing Table A.

improved climate and disaster risk management		understanding of local drivers of climate induced natural disasters enhanced, and consequent impacts on economic infrastructure better understood and available to policy makers, planners and technical staff	knowledge hub established and providing services for at least 200 district officials, DDOC/DDMC members and community facilitators in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management. 1.2 National DRM policy and institutional roles extended to address climate change and disaster risk reduction measures, including assessment methods, institutional and implementation modalities, functional and technical capacities and M&E systems			
2.Strengthened climate and disaster risk planning, budgeting and delivery	Inv	2. Subnational DRM institutions able to assess, plan, budget and deliver investments in climate change related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor	2.1 Capacities of district and sub-district Disaster Management Committees and District Disaster Operation Centres strengthened to plan, budget and deliver climate induced disaster prevention financing in at least two districts (eg. for resilient shelter, improved grain storage and seed replacement, windbreaks, storm drains, small scale flood protection) benefitting at least 5,000 households. 2.2 Community to district level EWS systems for climate induced extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000	LDCF	1,300,000	9,010,332

			vulnerable rural households, with a focus on women.			
3.Investments in climate resilient community based adaptation measures	Inv	3. Community driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy	3.1 Watershed-level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 sucos, informing district and sub-district level planning, prioritisation and budgeting (linked to WB hazard assessments). 3.2 Micro-watershed management plans designed and implemented to deliver community-driven resilience measures for reducing the impacts of climate-induced disasters (flooding and landslides) in vulnerable micro-watersheds along the Dili-to-Ainaro Road Development Corridor, covering at least 50,000 hectares outside of the WB road project RoW.	LDCF	2,800,000	23,000,000
				Subtotal		5,000,000	36,202,335
				Project management Cost (PMC)[3]	LDCF	250,000	1,164,445
				Total project costs		5,250,000	37,366,780

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

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount ($)
GEF Agency	UNDP	In-Kind	650,000
National Government	Ministry of Social Solidarity	In-Kind	10,026,780
National Government	Ministry of Agriculture and Fisheries	In-Kind	3,000,000
Global Facility for DRR	World Bank	In-Kind	990,000
Policy and Human Resources Development Fund	World Bank	In-Kind	2,700,000
IDA Grant	World Bank	In-Kind	20,000,000
Total Co-financing			**37,366,780**

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(in $)		
				Grant Amount (a)	Agency Fee (b)[2]	Total c=a+b

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

UNDP	LDCF	Climate Change	Timor-Leste	5,250,000	498,750	5,748,750
Total Grant Resources				5,250,000	498,750	5,748,750

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

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount ($)	Cofinancing ($)	Project Total ($)
International Consultants	607,775	4,325,828	4,933,603
National/Local Consultants	-	-	-

G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

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

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF[4]

No significant changes in alignment with the project design of the original PIF have been made. The following summarizes the most significant changes in terms of the project's outcomes/outputs and cofinancing activities:

While the wording of the project Outcomes have been altered to make them more specific, they remain based on the same underlying principles. In addition, revisions to the outputs that were proposed in the original PIF have been made to fit needs outlined in consultations held during the PPG. These revisions are presented in the table below.

Output as written in PIF	Output revised during the PPG
Output 1.1 National training and knowledge hub established and providing services for at least 200 district officials, DDOC/DDMC members and community facilitators in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management.	Output 1.1 National training facility established, providing services for at least 200 district officials, DDOC/DDMC members and community facilitators, in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management.
Output 2.2 Community to district level EWS systems for climate induced extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000 vulnerable rural households, with a focus on women.	Output 2.2 Community to district-level EWS for climate-induced extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000 vulnerable rural households, with a focus on women.
Output 3.1 Community level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 *Sucos*, informing district and sub-district level planning, prioritization and budgeting, with a specific focus on gender, linked to WB hazard assessments. Estimate cost is USD 150,000.	Output 3.1 Watershed-level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 *sucos*, informing district and sub-district level planning, prioritisation and budgeting (linked to WB hazard assessments).
Output 3.2 Community level watershed management measures designed and implemented to reduce direct physical impacts of high intensity rainfall events (flooding	Output 3.2 Micro-watershed management plans designed and implemented to deliver community-driven resilience measures for reducing the impacts of climate-induced

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

and landslides) in climate vulnerable hotspots along the Dili to Ainaro development corridor, covering at least 50,000 hectares outside of the WB road project RoW. Measures to include: reforestation of degraded lands; contour stone walls; farm ponds, check dams and percolation ponds; seasonal behaviour and agricultural behaviour change.	disasters (flooding and landslides) in vulnerable micro-watersheds along the Dili-to-Ainaro Road Development Corridor, covering at least 50,000 hectares outside of the WB road project RoW.

The indicative cofinancing in the PIF totalled US$ 78,726,780. This estimate was made based on discussions with relevant co-financing initiatives at the time the PIF was formulated. Further consultation with relevant initiatives during the PPG phase allowed for these figures to be adjusted reflecting the actual co-financing that was available and the total value of co-financing from these partners has consequently changed. This change was primarily a result of World Bank being unable to offer the same amount of support originally envisaged. The total amount of co-financing has therefore been adjusted to US$ 37,366,780.

The additionality of LDCF resources, as related to the baseline initiatives included in the proposal is clearly explained in the project documents and is in line with what was proposed at PIF stage.

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

There have been no significant changes in alignment with relevant national strategies and plans since the original PIF.

The proposed LDCF project remains aligned with:
- Timor-Leste's National Adaptation Plan of Action (NAPA);
- National Policy on Disaster Risk Management;
- Timor-Leste's Sustainable Land Management Strategy and Guidelines (2010);
- National Biodiversity Strategy and Action Plan (NBSAP, 2011);
- Strategic Programme for Promoting Agriculture Growth and Sustainable Food Security (2010);
- Strategic Development Plan (SDP, 2011–2030); and
- National Development Plan and National Development Goals.

For additional information on the proposed LDCF project's alignment with national strategies please refer to Section 2.2 of the UNDP PD.

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

There have been no changes in the GEF focal areas or eligibility since the original PIF.

By increasing the resilience of communities and road infrastructure and enhancing the adaptive capacity of national and sub-national governments to plan, budget and deliver DRM interventions, the project is consistent with Objective CCA-2 of the LDCF Programme Framework – *Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including reducing vulnerability, at local, national, regional and global level*. Within this Objective, the project is consistent with Outcome 2.2 *Strengthening adaptive capacity to reduce risk to climate-induced economic losses*, and Outcome 2.3 *Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level.*

In line with the LDCF eligibility criteria, Timor-Leste is a Least Developed Country that has ratified the United Nations Framework Convention on Climate Change (UNFCCC)[5] and has formulated its National Adaptation Programme of Action (NAPA). Under the UNFCCC and the Hyogo Framework for Action (HFA), Timor-Leste has committed to: i)

[5] Ratification occurred on 16 October 2006.

adapt to climate change; and ii) manage existing climate risks including enhancing preparedness for and response to climate-induced disasters. The proposed LDCF project will contribute towards achieving these goals. In addition, the project: i) is consistent with country priorities identified in the NAPA (see Section 2.2); ii) is directly aligned with the LDCF's strategic objectives to "reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level" and "increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global levels"[6]; iii) has been designed through stakeholder consultations; iv) includes adaptation and baseline costs; and v) delivers adaptation benefits to vulnerable communities – particularly women.

For additional information on the GEF Focal Area and eligibility criteria please refer to Section 2.1 of the UNDP PD.

A.3 The GEF Agency's comparative advantage:

NA.

For additional information on the GEF Agencies' comparative advantage please refer to Section 2.3 of the UNDP PD.

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

There have been no changes in the baseline projects and the problems that they seek to address since the original PIF.

The proposed LDCF project will build on the following baseline projects and ongoing initiatives:

- UNDP's Strengthening Disaster Risk Management in Timor-Leste, Phase II Project;
- World Bank's Road Climate Resilience Project (WB-RCRP);
- World Bank's Building Climate and Disaster Resilience Project (WB-BCDRP);
- The ongoing activities of the National Directorate for Disaster Management; and
- The ongoing activities of the National Directorate of Forestry.

For additional information on the baseline scenario, baseline projects and the problems that they seek to address please refer to Sections 2.2 and 2.4 of the UNDP PD.

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

The additional cost reasoning has been updated since the original PIF. The revised additional cost reasoning is described below.

COMPONENT 1. ***Enabling improved climate and disaster risk management***
OUTCOME 1. *Knowledge and understanding of local drivers of climate induced natural disasters enhanced, and consequent impacts on economic infrastructure better understood and available to policy makers, planners and technical staff.*

LDCF resources will be used to strengthen national capacity to plan and implement DRM measures in Timor-Leste. This capacity development will focus on: i) developing human resource capacities; ii) enhancing information management, communication and advocacy; and iii) strengthening policy support and coordination.

The proposed LDCF project will support strengthening of INAP as a more comprehensive training provider to capacitate DRM practitioners to deliver improved services at national, sub-national and community levels. Training will be provided to NDMD staff, district administration officials, deconcentrated line ministry officials, DDOC/DDMC

[6]GEF 2010. Updated results-based management framework for the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) and adaptation monitoring and assessment tool. GEF/LDCF.SCCF.9/Inf.4 Available at: http://www.thegef.org/gef/sites/thegef.org/files/documents/LDCFSCCF-RBM-UpdateFramework-Oct%202010%20final.pdf.

members, *chefes de suco* and community-based facilitators. Participants in the training programmes will have an improved capacity for *inter alia*: i) climate vulnerability assessments; ii) design of community-based DRM interventions; and iii) contingency planning for DRM. The training developed under this component will improve provision of DRM services under Components 2 and 3, particularly with regard to: i) performing community-based vulnerability assessments and action plans; ii) planning, budgeting and delivering interventions for DRM; iii) strengthening community-level EWS; and iv) investing in community-based landscape management. As a result of these strengthened capacities, decision makers and technical staff will be better able to assess climate risks and prioritise investments necessary for DRM at all levels.

In addition to the capacity development described above, the proposed LDCF project will review current institutional roles with regard to DRM. This review will be used to propose revisions of the NDRM policy that explicitly outline institutional roles and responsibilities for DRM. Revisions will also be proposed to the NDRM strategy and action plans. A series of information and advocacy products will be prepared to raise awareness of policy- and decision makers concerning the importance of DRM to their specific mandates.

The outputs and activities within Component 1 are:
Output 1.1 National training facility established, providing services for at least 200 district officials, DDOC/DDMC members and community facilitators, in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management.
1.1.1 Assess INAP's capacity for developing and presenting training on DRM and climate change adaptation, including: i) in-house capacity; ii) outsourcing to service providers; and iii) online training courses on virtual platforms.
1.1.2 Develop an organisational strategy to strengthen INAP's capacity for delivering training on DRM and climate change adaptation.
1.1.3 Conduct a comprehensive needs assessment for DRM training. This will be initiated by NDMD and coordinated by INAP following its standard procedures.
1.1.4 Update and extend the portfolio of training modules to include aspects that are not sufficiently covered within the current portfolio.
1.1.5 Provide training on DRM to national and district officials – including deconcentrated line ministry officials, district administration officials, DDOC/DDMC members and disaster focal points – as well as chefes de suco, based on the extended portfolio of training modules.
1.1.6 Develop an organisational strategy for a national disaster database to coordinate the knowledge management of NDMD (under UNDP-SDRM), NDIEACC (under UNDP-SSRI) and the National Climate Change Centre.
1.1.7 Develop and disseminate knowledge and awareness products documenting good practices for DRM from the LDCF project as well as other national and international projects/initiatives.

Output 1.2 National DRM policy and institutional roles extended to address climate change and disaster risk reduction measures, including assessment methods, institutional and implementation modalities, functional and technical capacities and M&E systems.
1.2.1 Integrate climate change adaptation into the ongoing revision of the NDRM Policy. This will include the implications of climate change adaptation for women and other vulnerable groups.
1.2.2 Conduct capacity assessments of NDMD, NDIEACC, MAF and other DRM stakeholders to identify institutional and organisational capacity gaps.
1.2.3 Develop gender-sensitive recommendations for relevant sector policies, plans and strategies describing institutional and implementation modalities, functional and technical capacities, assessment methods and M&E systems for DRM.

COMPONENT 2. ***Strengthened climate and disaster risk planning, budgeting and delivery.***
OUTCOME 2. *Subnational DRM institutions able to assess, plan, budget and deliver investments in climate change related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor.*

With LDCF resources, DDMC/DDOCs and disaster focal points will be provided with capacity development support to strengthen their functionality to integrate climate risk management approaches into existing planning and budgeting processes at district and sub-district levels. This support will build on skills acquired under Component 1 whereby DRM

staff and other stakeholders will be trained to: i) assess risks posed by climate-induced disasters; ii) prepare and use hazard and vulnerability maps; and iii) identify cost-effective investments to reduce the risk of damage and losses to assets and livelihoods.

Additional grants will be provided to support improved planning for disaster prevention and preparedness within the DARDC. This funding will act as a top up to existing baseline funding already provided for disaster response (~US$10,000 per district per annum). The additional grants will allow DDMCs/DDOCs and disaster focal points to follow a more proactive approach to DRM. This will also build long-term capacity for administering larger amounts of funding for DRM. The additional grants will provide a total of US$50,000 per district per annum. The grants will be made available against a list of positive interventions based on priorities identified by local communities in DARDC. These interventions will be outside of the RoW and could include: i) erosion and flood control works such as slope stabilisation measures; ii) wind breaks; iii) climate-resilient infrastructure such as emergency warehouses and evacuation routes; iv) replacement seed distribution following crop loss; and v) routine drainage and channel clearance maintenance. Disaster prevention financing will give preference to activities proposed by women's organisations and activities that benefit women and children.

Development and institutionalisation of EWSs will also be supported by the project. Existing district- and local-level disaster response communication systems will be assessed to determine their suitability for wider application. This work will actively involve the communities at risk to: i) build requisite capacities; ii) facilitate public education and awareness of risks; and iii) disseminate disaster warnings effectively and in a timely manner. A suitable EWS will be developed, installed and tested in at least four sub-districts – one each in Aileu, Ainaro, Ermera and Manufahi Districts – to provide warnings to ~5,000 households at risk from climate-induced disasters.

The outputs and activities within Component 2 are:

Output 2.1 Capacities of district and sub-district Disaster Management Committees and District Disaster Operation Centres strengthened to plan, budget and deliver climate induced disaster prevention financing in at least two districts (eg. for resilient shelter, improved grain storage and seed replacement, windbreaks, storm drains, small scale flood protection) benefitting at least 5,000 households.

2.1.1 Develop a top-up grant system to local DRM institutions and local administrations for increased finance of disaster prevention and -preparedness activities as well as general resilience measures.

2.1.2 Develop guidelines and operational manuals for the top-up grant system to deliver disaster prevention and preparedness interventions.

2.1.3 Support the formation of women's groups in each *suco/aldeia* applying for DRM funding. These groups will prioritise interventions that cater specifically for the needs of women and other vulnerable groups.

2.1.4 Develop a menu of interventions for disaster prevention and preparedness that reduce vulnerability of communities to climate-induced disasters. These interventions will be tailored to reflect the context of communities in DARDC concerning community livelihood strategies as well as the type of disaster risk.

2.1.5 Sensitise communities on the availability of financing for disaster prevention and preparedness. Topics to be covered include: i) criteria for selection of proposals; ii) the menu of interventions to be financed (based on the menu developed above); iii) financial and other management aspects; and iii) the process for prioritising community-level investments (following the UNDP-SSRI modality).

2.1.6 Conduct participatory Community Vulnerability Capacity Assessments that identify: i) unsustainable land-use practices; ii) vulnerable community assets and livelihood strategies; and iii) at-risk ecosystems.

2.1.7 Develop community-driven and gender-focused Community Action Plans that prioritise measures to reduce the risks and vulnerabilities identified in CVCAs. CAPs may outline investments into both 'hard' approaches (for implementation under Output 2.1) and watershed management approaches (for implementation under Output 3.2).

2.1.8 Deliver community-level disaster prevention investments according to the operational manuals of the top-up grant system.

Output 2.2. Community to district-level EWS for climate-induced extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000 vulnerable rural households, with a focus on women.

2.2.1 Assess the current state of early warning and response systems currently operated by NDOC, DDMCs/DDOCs, CVTL, PNTL, MAF, PIG and ND Met to identify best practices, traditional knowledge, gender considerations and capacity gaps.

2.2.2 Develop a model and SOPs for EWS through stakeholder consultation and expert analysis.

2.2.3 Conduct public awareness and training campaigns on EWS.

COMPONENT 3. ***Investments in climate resilient community based adaptation measures.***

OUTCOME 3. *Community driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy.*

The LDCF project will strengthen the capacity of the National Directorate of Forestry within MAF to develop watershed management strategies and plans as well as to design and implement resilience measures. MAF national staff and district extension officers – who will be involved in implementation of Outcome 3 – will have their capacity strengthened through on-the-job support, training by NGOs and consultants working on the project as well as targeted training provided under Component 1.

To address the anticipated effects of climate change on the DARDC, the LDCF project will restore degraded ecosystems – such as floodplain and hillside ecosystems – at the sub-watershed level. In addition, the project will promote best practices of land use that reduce the vulnerability of road infrastructure to climate-induced disasters. Such best practices will include the implementation of reforestation and agricultural activities that will maintain more permanent vegetation cover in the watersheds, whether on agricultural fields or mountain slopes. Re-vegetation will stabilise the soil, thereby reducing soil erosion and improving the infiltration of water into the soil profile. This will reduce the occurrence of flood and landslide events within the DARDC. In addition, the increase in tree cover will provide opportunities for planting of coffee and other shade crops that will in turn provide economic and livelihood opportunities for communities. As a result, the risk of damage to the road infrastructure resulting from climate-induced disasters will be reduced. At the same time, the interventions will improve agricultural productivity and consequently strengthen the livelihoods of local communities.

The design of the proposed LDCF project builds on lessons learned from other initiatives with experience of *inter alia* permaculture, agro-forestry and conservation agriculture in Timor-Leste. Examples of such initiatives include the MAF-FAO Conservation Farming Project, Asia Development Bank's Bio-engineering work and various NGOs such as CARE, Oxfam, Permatil and RAEBIA. The adaptation interventions proposed in this project have been designed as a package of complementary activities that: i) incorporate traditional and modern techniques for crop farming; ii) require few inputs; and iii) respond to the anticipated effects of climate change on women, youth and other vulnerable groups.

Furthermore, the design of on-the-ground interventions will follow a participatory approach. In particular, the proposed LDCF project will facilitate the involvement of local communities in selecting and prioritising interventions that are tailored to their specific conditions. This approach will promote 'buy-in' and ownership of the project's activities by local communities. This will contribute to in the long-term sustainability of the project's outcomes. In addition, the sustainability of the project will be further facilitated by establishing collaborative relationships with relevant partners such as local NGOs and MAF extension officers at the sub-national level. These partners focus on reducing ecosystem degradation and promoting agricultural productivity. Their activities are consequently complementary with the stabilisation of watershed slopes as outlined under Output 3.2 of this project.

The outputs and activities within Component 3 are:

Output 3.1 Watershed-level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 sucos, informing district and sub-district level planning, prioritisation and budgeting (linked to WB hazard assessments).

3.1.1 Collate existing data from the WB-BCDRP, UNDP-SDRM and MAF-ALGIS as well as remote-sensing imagery to develop a GIS-based database of geographical, geological and land use characteristics of the DARDC.

3.1.2 Integrate the GIS-based data with the CVCAs and CAPs (from Output 2.1) to develop watershed hazard and risk maps identifying risk areas posing a threat to road infrastructure as well as economic and livelihood assets.

Output 3.2 Micro-watershed management plans designed and implemented to deliver community-driven resilience measures for reducing the impacts of climate-induced disasters (flooding and landslides) in vulnerable micro-watersheds along the Dili-to-Ainaro Road Development Corridor, covering at least 50,000 hectares outside of the WB road project RoW.

3.2.1 Support MAF to ingrate the watershed management plans at the local level into the Strategic District Plans and the PDID process.

3.2.2 Develop watershed management plans to address the vulnerabilities of road infrastructure as well as local communities in the DARDC.

3.2.3 Implement interventions prioritised in watershed management plans, including: i) ecosystem farming that is diverse, multi-storey and mid-successional to promote climate resilience and productivity; ii) permaculture/conservation farming/agro-forestry methods applicable to local conditions that increase resilience to climate impacts such as water scarcity; iii) planting trees that will reduce the risk of erosion while also providing shade for coffee plantations; and vi) home garden and hillside farming techniques (see Annexes 12 and 15).

3.2.4 Reforest slopes using *fukuoka*-style seedballs to rehabilitate larger vulnerable slopes previously damaged by slash-and-burn agriculture, erosion and other forms of ecosystem degradation.

3.2.5 Develop and disseminate information and materials to promote public awareness on watershed management approaches to reduce hazards posed by climate-induced disasters.

For additional information on the additional cost-reasoning please refer to Section 3.3 of the UNDP PD.

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

Additional risks and appropriate mitigation measures have been identified since the original PIF. These risks are summarized in the table below.

#	Risk	Impact and Probability	Mitigation measure	Assumption
1	Technical staff and community leaders are constrained from attending training sessions.	I: 4 P: 2	Transport costs will be paid to non-Government trainees attending training sessions. DSA will be paid to Government staff only when travel outside the duty station.	Technical staff and community leaders will be willing to attend training sessions.
2	Attendance of training sessions does not translate into enhanced DRM.	I: 4 P: 3	Pre- and post-training assessments of capacity will be conducted. During training courses, uptake of material will be monitored.	Trainees leave training with improved capacity.
3	Sectoral ministries are unwilling to adopt recommendations on policies.	I: 4 P: 3	Recommendations for policy will be given after training and awareness raising activities.	Recommendations for sector policies, strategies and plans will be accepted and mainstreamed.
4	Inadequate quality of proposals mean that no community-level interventions for DRM are accepted for funding.	I: 4 P: 4	The mentorship programme will increase the capacity of communities to develop quality proposals.	Communities are able to produce project proposals that meet criteria for receiving funding.
5	DDMCs/disaster focal points are unable to procure the necessary materials to implement community-level interventions for DRM.	I: 4 P: 3	Interventions will be designed to be as simple as possible. Interventions will use locally available materials.	DDMCs/disaster focal points will be able to spend funds appropriately and timely.
6	Rugged and inaccessible terrain prevents effective installation and/or operation of EWS.	I: 4 P: 2	EWS will be tailored to suit local contexts.	Implementation sites are easily accessible.
7	Limited capacity prevents early warnings from being	I: 4 P: 3	The proposed LDCF project will develop capacity to enable EWS to	DDMCs/disaster focal points have capacity to operate EWS.

	disseminated or received in time or interpreted for taking necessary action.		operate. Capacity building will include a mentorship programme.	
8	Communities are unwilling to adopt new farming methods.	I: 4 P: 2	The benefits of new farming methods will be demonstrated to farming communities. Consultation with communities will ensure the selection of interventions that the communities need.	Communities see eco-farming, reforestation and bio-engineering methods as desirable given development imperatives and lifestyle preferences.
9	Communities not willing or able to move to settled farming.	I: 4 P: 3	As above, the benefits of conservation farming approaches will be demonstrated to communities.	Communities practicing slash-and-burn agriculture will be willing to practice settled conservation agriculture.
10	New land-use methods create a disproportionate burden of work on women.	I: 3 P: 4	Consultations with women's groups will design interventions for women that do not take too much time and are appropriate.	Interventions do not burden women and compromise their time available to fulfil their domestic duties.
11	Reforested common areas become a source of dispute for resources and community leaders are unable to negotiate the equitable distribution of benefits.	I: 4 P: 3	Community buy-in will be strengthened throughout the project through involving the community in decision making. Training and increased awareness of the community will improve their understanding of the benefits of the reforested forest. The benefits of reforestation to the community will be demonstrated to the community.	Communities see reforested areas as a common resource which will enhance their resilience to climate variability and reduce the risk of disasters affecting them and critical infrastructure such as the road.
12	Uptake of knowledge is low and resilience not significantly improved.	I: 4 P: 3	Training and knowledge transfer will be conducted throughout the life of the project. Knowledge transfer will be conducted through mentoring as well as formal training sessions.	Knowledge uptake is improved.
13	The needs of women are not analysed and addressed and they do not benefit from the project interventions	I: 3 P: 3	The project interventions have been tailored to provide specific benefits to women. A gender specialist will provide guidance on and monitoring of gender sensitivity.	Women have better access to resources to improve their livelihood.

A.7. Coordination with other relevant GEF financed initiatives

The project proposed here will coordinate with the GEF-financed "Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk" (UNDP-SSRI) project. UNDP-SSRI was approved in 2013 and support the integration of climate-resilience into local decision-making by improving sub-national administrative capacity, accountability and public participation. In addition, UNDP-SSRI has supported the development and operation of a knowledge management platform for climate change.
The project proposed here will coordinate with UNDP-SSRI in the following ways:

- *Operation of a national disaster database*. The proposed LDCF project will build on the knowledge management platform supported by UNDP-SSRI to develop a national disaster database.
- *Consolidated methodology for risk assessment.* The proposed LDCF project will build on the Climate Variability Risk and Vulnerability Assessment (CVRVA) methodology presently being developed by UNDP-SSRI. These two projects will collaborate with MSA to finalise a standardised methodology what will be used nation-wide for vulnerability and risk assessments, ensuring that all planners and decision-makers follow a uniform approach in assessing climate risks.
- *Integration of risk assessments into PDID.* The proposed LDCF project will follow a similar approach to the UNDP-SSRI project in integrating findings from the above-mentioned CVRVAs into the PDID process. This will support a standardised and harmonised approach to basing sub-national planning process on the climate-risk information generated by the CVRVAs.

- *Design and implementation of community-based adaptation measures.* The proposed LDCF project will draw from the experience and lessons learned from UNDP-SSRI in designing and implementing community-based adaptation measures. The includes development of a menu of potential DRM interventions as well as development of financial, M&E and reporting arrangements for implementation of the DRM interventions.

UNDP-SSRI project follows a (sub-) district approach and will not specifically address climate resilience issues of road development corridors nor disaster management. However, the complementarities of the projects provide opportunities for collaboration, as described above. For this reason, MCIE – the implementing partner for UNDP-SSRI – has been included on the Project Board as well as within the Technical Working Group of the proposed LDCF project to ensure ongoing alignment of activities on a policy and technical level.

Additionally, the project will closely coordinate with recently approved LDCF funded project supported by ADB - "Upscaling Climate-Proofing in the Transport Sector in Timor Leste: Sector Wide Approaches" and ADB implemented regional programme "Climate Proofing Development in the Pacific" that includes Timor Leste and addresses infrastructure resilience. While ADB implemented road project take hazard-based approach of slope stabilization in the target watersheds, UNDP implemented project promotes "watershed friendly" and climate compatible livelihoods in a broader landscape, where the new road system is trespassing. Although underlying investments of the two projects cover different geographic areas, approaches to road infrastructure resilience are fully compatible and highly complementary. ADB/LDCF project will be invited to become a member of a Technical Working Group and present in all coordination events. For additional information on coordination with other relevant initiatives, please refer to Section 2.3 of the UNDP PD.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

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

Stakeholders at all levels – national, district, sub-district and community – will be engaged during implementation of the proposed LDCF project. This process commenced during the PPG phase as detailed in Section 2.2 of the project document. During the third in-country mission and subsequent follow-up consultations, the stakeholder engagement plan presented in the table below was discussed and agreed upon during bilateral consultations and/or one-on-one meetings with the relevant stakeholders.

RELEVANT PARTNERS AND STAKEHOLDERS IDENTIFIED FOR ENGAGEMENT BY PROJECT OUTCOME/OUTPUT.

Outcome	Output	Stakeholder	Key Responsibilities
Outcome 1: Knowledge and understanding of local drivers of climate induced natural disasters enhanced, and consequent impacts on economic infrastructure better understood and available to policy makers, planners and technical staff.	**Output 1.1** National training facility established, providing services for at least 200 district officials, DDOC/DDMC members and community facilitators, in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management.	NDMD (Implementing partner)	Initiate and provide overall coordination of development of training facility. Hire training specialist to support needs assessment and module development through the UNDP Project. Provide technical input into content of training modules. Coordinate with DRM specialists and resource persons to provide additional technical inputs into training modules. Provide technical input into "training-of-trainers" courses to tailor training to national priorities. Appoint multi-disciplinary trainer team based on specific criteria through a panel comprising the CTA, DRM specialist as well as training experts from MSS-NDMD, INAP and MSA.
		INAP (Responsible party)	Coordinate needs assessment for DRM training following standard processes, including selection of representative sample group. Facilitate development of additional training modules following technical inputs from NDMD and DRM specialists. Review and approve additional training modules through the Review Committee.

			Facilitate training-of-trainers as well as deconcentrated line ministry officials, district and sub-district administrators, DDMCs/DDOCs, district disaster focal points and *chefes de suco*. Integrate, institutionalize and sustain the training facility into regular training of civil servants and ensure allocation of regular resources from the national budget.
		MSS, MSA, MPW, MCIE, MAF (Responsible parties), MoF	Participate in needs assessment to inform prioritisation of training needs. Provide technical input into development of training modules. Coordinate training of deconcentrated line ministry officials at the district and sub-district level.
		MSA and MSS district directorates (Responsible parties)	Coordinate training of district and sub-district administrators, DDMCs/DDOCs, district disaster focal points and *chefes de suco.*
	Output 1.2 National DRM policy and institutional roles extended to address climate change and disaster risk reduction measures, including assessment methods, institutional and implementation modalities, functional and technical capacities and M&E systems.	MSS-NDMD (Implementing partner)	Coordinate revisions of NDRM policy in collaboration with on-going revision under Phase I & II of the MSS-UNDP-SDRM project. Hire policy specialist to assist with integration of climate change adaptation into revised NDRM policy. Coordinate development of CCA recommendations for sector policies in collaboration with key ministries. Provide CCA technical input into policy revision, recommendations for sector policies etc. Coordinate production and dissemination of knowledge products. Submit and follow onto approval of the DRM Policy by the CoM and Parliament.
		NDIEACC (Responsible party)	Provide technical inputs on climate change adaptation into revised NDRM policy. Ensure alignment with NAPAs, NAPs and other relevant strategies.
		MSA, MPW, MCIE, MAF, MoF (Responsible parties)	Provide additional technical inputs on sectoral priorities for climate change adaptation into revised policy and sectoral recommendations.
Outcome 2: Subnational DRM institutions able to assess, plan, budget and deliver investments in climate change-related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor.	**Output 2.1** Capacities of district and sub-district Disaster Management Committees and District Disaster Operation Centres strengthened to plan, budget and deliver climate induced disaster prevention financing in at least two districts (eg. for resilient shelter, improved grain storage and seed replacement, windbreaks, storm drains, small scale flood protection) benefitting at least 5,000 households.	MSS-NDMD, MSA (Implementing partner)	Hire specialist to develop operational manuals and menu of options. Coordinate development of operational manuals and for disaster prevention and preparedness. Provide technical input into the design of measures for disaster prevention and preparedness. Coordinate development of information/training materials (e.g. brochures, posters, etc.).
		MSA (Responsible party)	Provide technical input into menu of interventions for disaster prevention and preparedness based on experience with UNDP-SSRI project. Provide technical input into design of operational manual – specifically for financial arrangements, M&E and reporting – based on experience from UNDP-SSRI project. Coordinate tracking of financing and implementation of selected options for disaster prevention and preparedness. Integrate the manuals and menu of options with sub-national development planning process (PDID, PNDS, etc).
		CARE International Timor-Leste	Conduct CVCAs and CAPs to identify priorities for implementation.

	Output 2.2 Community to district-level EWS for climate-induced extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000 vulnerable rural households, with a focus on women.	NDMD (Implementing partner)	Coordinate stocktaking of status quo and development of models and SOPs. Hire EWS specialist to conduct assessment (stocktaking) and develop models and SOPs. Provide technical input into design of community-based EWS. Coordinate with testing of EWS with MSA, CVTL, NGO and communities.
		CVTL (Responsible party)	Participate in stocktaking of current EWS operations. Provide technical input into design of EWS. Implement and coordinate testing of EWS with NDMD, MSA and communities. Conduct awareness and training campaigns on EWS.
		NDOC, DDMCs/ DDOCs, PNTL, MAF, PIG, ND Met	Participate in stocktaking of current EWS operations. Provide technical input into potential operational models and SOPs for EWS. Participate in installation and testing of EWS.
Outcome 3: Community-driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy.	**Output 3.1** Watershed-level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 sucos, informing district and sub-district level planning, prioritisation and budgeting (linked to WB hazard assessments).	MAF (Responsible party)	Provide technical input into design of watershed management plans. Provide technical input into design of GIS system.
	Output 3.2 Micro-watershed management plans designed and implemented to deliver community-driven resilience measures for reducing the impacts of climate-induced disasters (flooding and landslides) in vulnerable micro-watersheds along the Dili-to-Ainaro Road Development Corridor, covering at least 50,000 hectares outside of the WB road project RoW.	NDMD (Implementing partner)	Hire specialists to design menu of interventions for watershed management approaches. Coordinate activities with MAF, MPW, CARE and other NGOs.
		MAF: National Directorate for Agricultural Research (NDAR); National Directorate of Forestry (NDF); National Directorate for Extension Services (NDES) (Responsible parties)	Participate in training sessions to build capacity to implement project activities (all directorates). Provide technical input and support on conservation agriculture and permaculture interventions (NDAR). Implement reforestation activities identified by the local communities through CAPs (NDF). Provide advice on preventing deforestation and incentivising local communities to change land-use practices (NDF). Provide institutional support to assist the implementation of project activities (NDES). Build linkages to other MAF projects conducting similar activities (NDES). Implement project activities once the requisite capacity is built (NDES).
		NGOs: RAIBEA, NaTerra	Implement project interventions (e.g. conservation agriculture, permaculture, reforestation, etc.). Provide training to local communities on the implementation and maintenance of project interventions. Provide training and skills transfer to MAF officials on the implementation and maintenance of project interventions.

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

National and local benefits

The LDCF project will benefit the country by increasing the climate resilience of road infrastructure in the DARDC. This will be achieved through: i) strengthening capacity for DRM within local institutions and communities; and ii) managing natural resources in watersheds to improve climate risk management and long-term adaptation.

Without the project, local economies and the transportation infrastructure upon which they depend will be at increasing risk from the impacts of climate change. Furthermore, progress towards poverty reduction and economic development is likely to be hampered. The project will reduce the risk of damage to road infrastructure, thereby safeguarding associated social and economic benefits such as access to markets and essential services. Strengthening the livelihoods assets on which communities depend also safeguards household income as households are less prone to – and in a better position to recover from – climate-induced disasters. At least 5,000 households will benefit directly from LDCF resources. These households represent more than 25,000 people. The total land area benefitting from improved watershed management - that will afford increased protection against the effects of climate-induced disasters will be at least 50,000 hectares. The project will focus on areas most vulnerable to localised disasters within the DARDC, so called 'hot spots'. It is anticipated that the project interventions will increase the longevity of the investments in road infrastructure thereby contributing to sustained economic growth in the long term.

The project will also clarify the link between climate risk reduction and sustainable agricultural practices. These land-use practices include crop production methods that support soil stabilisation by rehabilitating cleared slopes, as well as climate-smart agriculture that maximises efficient use of water resources. Although local and international NGOs are actively promoting such practices, these programmes currently do not focus on the reduction of the climate change risks, nor are they systematically used within road development corridors or for making other types of infrastructure more climate resilient.

The immediate benefits of the project will be that government institutions, NGOs and vulnerable communities are: i) more aware of the risk associated with climate-induced disasters; and ii) better prepared to respond to such disasters when they occur. Increased capacity will be achieved by enhancing knowledge related to DRM in government institutions. In addition, local communities will benefit from improvements to the current suite of DRM measures. Greater competencies will also be developed amongst DRM practitioners to use this information to identify climate risks. Further, measures to strengthen the climate-resilience of road infrastructure through improved watershed management along the DARDC will also be implemented. Finally, there will be transfer of resources, knowledge and skills from national to local levels and vice versa for evidence-based policy influencing and to plan for and respond to climate-induced disasters.

Gender considerations

In least developed countries, women tend to have lower incomes and fewer opportunities than men do, and their capacity to adapt to the effects of climate change is therefore constrained[7]. Despite their capability to innovate and lead, women have historically also been marginalised from local and national decision-making processes. It is therefore important to identify gender-sensitive strategies to ensure that women are included in measures designed to improve their resilience and capacity to adapt to climate change[8].

In rural Timor-Leste, the burden of agricultural work, coffee harvesting and caring for home gardens is generally shared between men and women. However, in terms of the domestic or child-rearing sphere, there is little change from traditional gender roles. While women's' vulnerabilities to climate change and disaster are similar to those of men, they do have specific additional concerns, linked to their key roles in the society and households, for example:

- provision of water and firewood;
- destruction of and damage to the home gardens;
- damage to seeds;
- hindered access to markets and hence sale of products/ generation of cash;

[7] Lambrou, Y., & Piana, G. (2006). *Gender: the missing component of the response to climate change*. Food and Agriculture Organisation, Gender and Population Division.
[8] Denton, F. (2002). Climate change vulnerability, impacts, and adaptation: Why does gender matter? *Gender & Development*, *10*(2), 10–20. doi:10.1080/13552070215903

- diseases and access to clinics; and
- closing of schools.

As elsewhere, women's concerns are broader and related to overall family wellbeing (including access to the water, education and health in post-disaster conditions).

In Timor-Leste, women are often excluded from certain activities due to customary norms or lack of capital and ownership arrangements that confer all rights to men in the family[9]. Women hold very few leadership positions within the districts (Annex 3 of the project document). In cases where women do participate in local-level planning, they are in the minority. An important aspect of gender mainstreaming in Timor-Leste is therefore to increase involvement of women in formal and informal decision-making processes. Activities planned by the proposed LDCF project are not limited to responding to gender differences but have been designed to reduce gender inequality by empowering women and seeking their input.

Gender equality issues will need to be considered throughout the duration of the proposed LDCF project, as outlined in the Gender Action Plan (Annex 3 of the project document). Outcome 1 will focus on analysing the gender-related elements of vulnerability to climate-induced disasters in Timor-Leste. These assessments will inform the tailoring of climate resilient and gender sensitive investments to be implemented under Outcomes 2 and 3. Aligning the project with the needs of women will increase the utility and longevity of the investments. Women will consequently be involved in planning and decision-making on implementing the investments and preference will be given to funding projects that benefit both men and women.

The Gender Action Plan outlines specific ways to facilitate the involvement of women in the project, including: i) consultation with women's forums on needs and requirements associated with interventions; ii) equal payment of men and women; iii) the formation of women's groups that are actively involved in decisions for DRR projects in their *sucos*; iv) the design and management of local EWS by women's groups and female-headed households supported by capacity development; and v) the implementation of home gardens and seed banks by women's groups.

Specific involvement of women and women specific activities have been mainstreamed and are fully integrated in the proposed Project Document. They are budgeted under relevant Outcomes (Section 2.4 of the project document) and are presented in the Total Budget and Workplan (Section 4 of the project document). Employment of a Gender Specialist, national, by PMU is also recommended and budgeted for under relevant Outputs. This equal participation of women and men is in line with the principles underlying UNDP's gender equality strategy as well as the GEF's own guidance and standards (Mainstreaming Gender at the GEF, 2008). Gender disaggregated indicators will be developed and used to monitor project progress. In addition to gender, the project will promote the requirements of other disadvantaged and more vulnerable groups including the elderly, children and less-abled.

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

The proposed LDCF project has been designed with an inherently cost-effective approach. The project objective is to safeguard communities' assets, livelihoods and investments into road infrastructure in the DARDC. In the absence of the project, the longevity and sustainability of these ongoing investments in road infrastructure are at risk to damage caused by climate-induced disasters. Strengthening the livelihoods assets on which communities depend also safeguards household income, as households are less prone to – and in a better position to recover from – climate-induced disasters (see Annex 3 of the project document). At least 5,000 households will benefit directly from LDCF resources. These households represent more than 25,000 people. The total land-area benefitting from improved watershed management that will afford increased protection against the effects of climate-induced disasters will be at least 50,000 hectares.

The project will invest in measures that have been shown to be cost-effective in reducing the effects of climate-induced disasters. These measures include: i) building technical capacity; ii) strengthening relevant institutions; iii)

[9] Corcoran-Nantes, Y. (2009). The politics of culture and the culture of politics—a case study of gender and politics in Lospalos, Timor-Leste. *Conflict, Security & Development*, *9*(2), 165–187.

investing in disaster prevention and preparedness; iv) establishing pilot EWS; and v) implementing priority interventions for watershed management. The cost-effectiveness of some of the proposed LDCF project's interventions are considered in further detail below.

Cost-effectiveness of disaster prevention and preparedness

Timor-Leste is expected to incur US$5.9m year^{-1} in losses to natural disasters. This is expected to increase to US$55.7m year^{-1} by 2060 unless there is investment in prevention and preparedness.[10]

In 2012, 54% of Timor-Leste's national budget was spent on infrastructure. US$167m was spent on roads alone and represents a substantial increase from US$40m spent over the previous year[11]. In 2010, the GoTL spent US$2,161m on repairs to infrastructure[12].The amount spend on repairing damages would be significantly reduced by the inclusion of disaster-resilient in the design of new construction projects. This is estimated to increase construction costs by 1%[13]. In comparison, the cost of repair and reconstruction of damage caused by climate-induced disasters is estimated to be 35-40% of total construction costs. As such, it is estimated that in Timor-Leste, an extra US$1.67m in construction costs will mitigate over US$58m worth of damage.

The project's investments will include extensive capacity building and training to strengthen national, sub-national and local capacity to plan for and manage disaster risks. The training and capacity-building activities implemented by the project will focus primarily on disaster preparedness and prevention, rather than disaster response and recovery. Analysis of cost-effectiveness of 22 international DRM case studies demonstrated that proactive investments in strengthening disaster preparedness are more cost-effective than reactive *ex post* interventions (i.e. response, recovery and reconstruction)[14,15]. In each case study, investments in disaster preparedness generated net positive benefit-to-cost ratios (BCR) and internal rates of return (IRR).

The Mercy Corps cost-benefit analysis of the disaster risk reduction project in Kailali, Nepal concluded that similar DRR activities in similarly hazard prone areas — such as those proposed in Timor-Leste — are likely to return in benefits at least 3.49 times the original cost of the investment[16]. The proposed project in Timor-Leste will invest ~US$1.3m in disaster prevention and preparedness and will return an estimated US$4.5m in benefits.

In summary, the financial benefits of investment in preparedness far outweigh the costs of responding to disasters. The economic analyses in the case studies discussed above[17,18] demonstrate that investments in disaster preparedness are cost-effective.

Cost-effectiveness of EWS

The project will design and implement pilot EWS in at least four sub-districts to cover at least 5,000 households. The guiding principles for this EWS will be affordability (low cost), low technology (to ease maintenance) and sustainability (ability of the Government to cover the long-term running cost without expecting external support).

[10] Pacific Catastrophe Risk Assessment and Financing Initiative. 2011. Country risk profile: Timor-Leste. Available at: http://pcrafi.sopac.org/uploaded/documents/TimorLeste-Small.pdf. Accessed on: 26 March 2014.
[11] UNDP & WB. 2013. Disaster risk reduction and climate change adaption in the Dili — Ainaro road corridor. Available at: http://www.undp-alm.org/sites/default/files/downloads/wb_un_drr_final2.ppt. Accessed on26 March 2014.
[12] Pacific Catastrophe Risk Assessment and Financing Initiative. 2011. Country risk profile: Timor-Leste. Available at: http://pcrafi.sopac.org/uploaded/documents/TimorLeste-Small.pdf. Accessed on: 26 March 2014.
[13] Pereira, J. 1995. Costs and Benefits of Disaster Mitigation in the Construction Industry. Caribbean Disaster Mitigation Project, available at: http://www.preventionweb.net/files/1177_CDMPCostsandBenefits.pdf. Accessed on 12 Dec 2013.
[14] Five case studies from Kellet and Peters (2013) and 17 cases from Shyam (2012).
[15] Shyam, K.C. 2012. Cost Benefit Studies on Disaster Risk Reduction in Developing Countries. EAP DRM Knowledge Notes. Working Paper Series No. 27.
[16]White, B.A., & Rorick, M.M. 2010.Cost-benefit analysis for community-based disaster risk reduction in Kailai, Nepal. Available at: http://www.mercycorps.org/sites/default/files/mc-cba_report-final-2010-2.pdf. Accessed on 26 March 2014.
[17] Five case studies from Kellet and Peters (2013) and 17 cases from Shyam (2012).
[18] Shyam, K.C. 2012. Cost Benefit Studies on Disaster Risk Reduction in Developing Countries. EAP DRM Knowledge Notes. Working Paper Series No. 27.

Local communities and district officers will be provided with training and capacity building to operate and maintain EWS and associated infrastructure. The cost-effectiveness of improved climate information and EWS investments is challenging to quantify and as result there are relatively few cost-benefit analyses of such investments[19]. However, recently presented evidence suggests that investments in EWS for disaster prevention are more cost-effective than spending on relief[20].

In developed countries, the benefits of improved weather services to generate warnings in case of severe weather exceed costs by an average of more than 10 times[21]. There is consequently potential for similar cost-benefits to be realised through investing in improved EWS in developing countries. The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) estimated that the cost-benefit ratio for EWS in Bangladesh for the 2008 Sidr Cyclone is US$40.85 over 10 years, while it was estimated that the cost-benefit ratio for the 2007 floods in Bangladesh is US$ 558.87 over 10 years.

The total benefits of investments in EWS and climate information are expected to be proportional to: i) the size of the affected population; ii) level of risk; and iii) exposure and vulnerability of infrastructure to climate-related hazards. The total benefits of such investments are estimated to be between US$4 and US$36 billion per year. The cost of improving hydro-meteorological services and producing the required warnings is estimated to be lower than US$1 billion. Therefore, the average benefit-cost ratio for developing countries is between 4 and 36[22].

Cost-effectiveness of community-based DRM

The proposed LDCF project will emphasise the participation of local communities in the selection of priority watershed management activities to be included in Community Action Plans of willing communities. This will support community ownership of the project's interventions. The benefits of the DRM interventions will be enhanced by training communities on the maintenance and improved management of the watersheds surrounding DARDC. This will reduce the overhead costs related to monitoring and maintenance of project interventions and will promote sustainability of project benefits beyond the project lifespan. This will further enhance the cost-effectiveness of the proposed interventions.

Cost-effectiveness of watershed management for DRM

The project will implement measures for watershed management to reduce risks posed by flooding and landslides along the DARDC. Despite limitations to data availability, there is growing evidence of the cost-effectiveness of such investments[23]. An economic analysis of watershed management and engineering interventions was, for example, undertaken in Lami, Fiji[24]. This study included assessments of the costs and benefits of measures based on watershed management for DRM options, engineering options and a hybrid approach combining both 'hard' engineering and 'soft' watershed management interventions. The analyses demonstrated that watershed management options are at least twice as cost-effective as hard engineering options (BCR of US$ 10.50 compared to US$ 4.80). The analysis also investigated hybrid approaches using complementary watershed management and engineering measures. Irrespective of the proportional emphasis on watershed management for DRM relative to engineering, strategies which combined both watershed management and engineering options were likely to reduce damages by 25% with a BCR of US$ 4.30–8.00.

The report on these analyses noted that accurate data are required to estimate the economic cost of inaction and

[19]Tsirkunov, V. and Rogers, D. 2010. Costs and benefits of early warning systems. Global Assessment report on Disaster Risk Reduction. The World Bank.
[20]Healy, A. and Malhotra, N. 2009. Myopic Voters and Natural Disaster Policy. *The American Political Science Review* 103(3): 387-406.
[21]Tsirkunov, V. and Rogers, D. 2010. Costs and benefits of early warning systems. Global Assessment report on Disaster Risk Reduction. The World Bank.
[22]Tsirkunov, V. and Rogers, D. 2010. Costs and benefits of early warning systems. Global Assessment report on Disaster Risk Reduction. The World Bank.
[23] Jones, H.P., D. G. Hole & E. S. Zavaleta. 2012. Harnessing nature to help people adapt to climate change. Nature Climate Change 2: 504-509.
[24] Rao N.S., Carruthers T.J.B., Anderson P., Sivo L., Saxby T., Durbin, T., Jungblut V., Hills T., Chape S. 2013. An economic analysis of ecosystem-based adaptation and engineering options for climate change adaptation in Lami Town, Republic of the Fiji Islands. A technical report by the Secretariat of the Pacific Regional Environment Programme. Apia, Samoa

determine the benefits of intervention options. These datasets are not available for Timor-Leste and as a result it is challenging to accurately determine the cost-effectiveness and likely effect of proposed interventions. However, the interventions in the proposed LDCF project represent cost-effective approaches to DRM based on the experiences in other similar projects. Furthermore, it is anticipated that the proposed LDCF project will contribute to increasing local knowledge and information to support the development of locally appropriate DRM options.

C. DESCRIBE THE BUDGETED M &E PLAN:

M&E Workplan and Budget

Type of M&E activity	Responsible Parties	Budget USD *Excluding project team staff time*	Time frame
Inception Process Workshop and Report	▪ Project Manager ▪ UNDP CO, UNDP CCA	Indicative cost: 20,000	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ UNDP CCA RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and team	None	Quarterly
Mid-term Evaluation	▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost : 40,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ local consultant	0	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	12,000 for 4 years	3,000 per year
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		USD 112,000	

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

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

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Joao Carlos Soares	Director General of Environment	MINISTRY OF COMMERCE, INDUSTRY AND ENVIRONMENT	28/01/2013

B. GEF AGENCY(IES) CERTIFICATION

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

Agency Coordinator, Agency Name	Signature	Date *(Month, day, year)*	Project Contact Person	Telephone	Email Address
Adriana Dinu UNDP-GEF Executive Coordinator and Director a.i.		August 1, 2014	Keti Chachibaia (Green-LECRDS)	+66 (2) 304 9100 ext 5091	keti.chachibaia@undp.org

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).

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: *CPAP Outcome 7: National capacity built for restoring the foundations for development following conflict or disaster with active woman participation and access to decision-making.*					
Country Programme Outcome Indicators: *Gender-sensitive policy frameworks, systems and skill-sets enhanced for DRM as per the recommendations of the DRM capacity assessment.*					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): *3. Promote climate change adaptation*					
Applicable GEF Strategic Objective and Program: *Climate Change Adaptation Objective CCA-2* *Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level*					
Applicable GEF Expected Outcomes: ***Outcome 2.2:*** *Strengthened adaptive capacity to reduce risks to climate-induced economic losses* ***Outcome 2.3:*** *Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level*					
Applicable GEF Outcome Indicators: ***Indicator 2.2.1*** *No. of targeted institutions with increased adaptive capacity to reduce risks of and response to climate variability (Number)* ***Indicator 2.3.1*** *Targeted population awareness of predicted adverse impacts of climate change and appropriate responses, disaggregated by gender (Score)*					
	Indicator	**Baseline**	**Targets** **End of Project**	**Source of verification**	**Risks and Assumptions**
Project Objective[25] **(equivalent to output in ATLAS)** 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	1. No. of targeted institutions with increased capacity for climate and disaster risk management planning, budgeting and delivery at the national and sub-national level.	1. Capacity for climate and disaster risk planning, budgeting and delivery at the national and sub-national level is limited (Level 2: Anecdotal evidence of capacity)	1. MSS, NDMD, DDMCs have capacity for climate and disaster risk management planning, budgeting and delivery strengthened at the national and sub-national (at least Level 4: Widespread, but not comprehensive, evidence of capacity)	Capacity scorecard assessment[26] of the participants trained using surveys before, after and during trainings.	**Assumptions:** Training offered by the project leads causally to improved capacity for climate and disaster risk planning, budgeting and delivery. **Risks**: Participants in training do not engage fully and/or are not able to translate training into action in performing DRM-related functions.
Outcome 1[27] **(equivalent to activity in ATLAS)** Knowledge and understanding of local	1. No. of targeted institutions with increased adaptive capacity to reduce risks of and response	MSS, NDMD, DDMCs and other institutions have limited capacity to reduce risks and	MSS, NDMD, DDMCs, MAF and other institutions have increased adaptive capacity to reduce risks and respond to climate variability	Survey of targeted institutions	**Assumptions:** • Technical staff and community leaders will be willing to attend training sessions • Recommendations for sector

[25] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*
[26] UNDP Bureau for Development Policy. 2010. Monitoring guidelines of capacity development in Global Environment Facility projects. Pretoria, South Africa.
[27] *All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.*

drivers of climate-induced disasters enhanced, and consequent impacts on economic infrastructure better understood and available to policy makers, planners and technical staff	to climate variability [AMAT 2.2.1] 2. No. of staff trained on technical CCA and DRM themes, disaggregated by gender [AMAT 2.2.1.1] 3. Type and no. of recommendations to sector policies, strategies and plans for climate change adaptation and DRM that specifically address needs of women	respond to climate variability Few staff and community leaders have received comprehensive technical training on CCA and DRM themes Sector policies, strategies and plans do not explicitly include climate change adaptation and DRM. Sector policies, strategies and plans do not specifically address the needs of women concerning climate change adaptation and DRM.	 200 staff and community leaders have receive technical training on CCA and DRM themes with at least 50% women benefiting Recommendations for at least 3 sector policies, strategies and plans that explicitly include climate change adaptation and DRM. Recommendations for at least 3 sector policies, strategies and plans specifically address the needs of women concerning climate change adaptation and DRM.	 Registers from training sessions on CCA and DRM. Questionnaires for attendees of training sessions Review of recommendations for sector policies, strategies and plans	policies, strategies and plans will be accepted and mainstreamed. **Risks:** • Technical staff and community leaders are constrained from attending training sessions • Attendance of training sessions does not translate into enhanced adaptation and DRM • Sectoral ministries unwilling to adopt recommendations
Outcome 2 (equivalent to activity in ATLAS) Sub-national DRM institutions able to assess, plan, budget and deliver investments in climate change related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor	1. Increase in amount of funds delivered on climate risk reduction measures at the sub-national / district level 2. % of women benefited from community-level, climate risk reduction measures 3. Risk reduction and awareness activities introduced at local	Few measures for community-level disaster mitigation are currently implemented[28] through DDMCs/district disaster focal points Women are rarely direct beneficiaries of measures for community-level disaster prevention and preparedness Few households currently benefit from risk reduction and awareness activities.	Full expenditure of additional funds ($50,000 per district per annum) on measures for community-level climate risk reduction implemented through DDMCs/district disaster focal points 50% of beneficiaries of community-level measures for climate related disaster risk reduction and preparedness are women At least 5,000 households will benefit from risk reduction activities and awareness activities comprising: - EWS	Expenditure reports from DDMCs/district disaster focal points and monitoring reports on community-level disaster mitigation measures, as well as household surveys to verify implementation. Household surveys to verify community-level disaster mitigation measures and women benefitting Household surveys Questionnaires to DDMC/district disaster focal points	**Assumptions:** • DDMCs/disaster focal points will be able to spend funds appropriately and timely • Communities are able to produce project proposals that meet criteria for receiving funding • DDMCs/disaster focal points have capacity to operate EWS • Women have better access to resources to improve their livelihood. **Risks:** • Poor proposals mean that no community-level measures for disaster mitigation are accepted for funding • DDMCs/disaster focal points are unable to procure the necessary materials to implement community-level measures for disaster mitigation • Rugged and inaccessible terrain

[28] Current budgets largely cover operational costs and disaster response.

	level, including: - EWS - Improved resilience of agricultural systems - Erosion control/sustainable land and water management [adapted from AMAT 2.3.1.1]		- Improved resilience of agricultural systems - Erosion control/sustainable land and water management		prevents effective installation and/or operation of EWS • Limited capacity prevents early warnings from being disseminated or received in time.
Outcome 3 (equivalent to activity in ATLAS) Community driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy	1. No. of households engaged in climate resilient land use methods and livelihoods – disaggregated by gender 2. Coverage of land with changed land use conducive to landscape stability, protecting livelihoods and physical infrastructure against climate hazard risks and disasters. 3. % of households that demonstrate an awareness between improved land use and food security/disaster mitigation through their livelihood-disaggregated by gender [adapted from AMAT 2.3.1]	Few households have access to resilient livelihood assets and methods (Score=2) Currently lands left behind in shifting, slash-and-burn agriculture are left to recover without intervention and are a major source of vulnerability for communities and the road Current understanding of the links between landuse & livelihoods, food and nutrition security and disasters is low	Score improved to 4: By the end of the project at least 50% of targeted households have engaged in climate resilient land use methods and livelihoods introduced/strengthened in the project. At least the quarter of target area of degraded lands reforested or other land stabilization methods applied (e.g. agroforestry, fodder and timber production etc.) while decreasing vulnerability of the DARDC to disasters. At least 50% of households surveyed confirm a clear link between resource management and resilience of livelihoods and physical infrastructure assets	Household surveys using an appropriately designed household livelihood asset/method index Household surveys Review of watershed management plans Household surveys	**Assumptions:** • People in hotspot areas see eco-farming, reforestation and bio-engineering methods as desirable given development imperatives and lifestyle preferences. • People in hotspot areas see reforested areas as a common resource which will enhance their resilience to climate variability and reduces the risk of disasters affecting them and critical infrastructure such as the road. **Risks:** • Communities unwilling to adopt new farming methods • Communities not willing or able to move to settled farming • New landuse methods create a disproportionate burden of work on women • Common areas reforested become a source of dispute for resources and community leaders are unable to negotiate the equitable distribution of benefits. • Uptake of knowledge is low and resilience not significantly improved. • The needs of women are not analysed and addressed and they do not benefit from the project interventions.

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).

There were no review comments to be addressed by CEO Endorsement. However, additional information is supplied in response to relevant comments for the PIF.

GEF Secretariat Review Question	GEF Secretariat Recommended Action at PIF	Response
3. Is the Agency's comparative advantage for this project clearly described and supported?	Not completely. UNDP has a comparative advantage in Timor Leste in articulating policies and strategies that integrate community based climate change related disaster risk management into its governance structure and form, and also in protecting the coastal mangroves and forests. However, the advantage that UNDP brings to the project in infrastructure investments is unclear. Recommended Action: Please provide clarifications on UNDP's advantage and experience with infrastructure invesments.	UNDP's long-standing experience in the infrastructure sector was further elaborated on, including examples from Timor-Leste and other countries. See Section 2.3.
11. Is (are) the **baseline project(s),** including problem(s) that the baseline project(s) seek/s to address, sufficiently described and based on sound data and assumptions?	Not clear. The proposal lists limited government capacity to inform and take actions to minimize disaster related risks, structural integrity of public and private infrastructure, and weak management of communal resources as underlying problems in the country. Seven different baseline projects are described. It is not clear which project addresses the baseline problem regarding the structural integrity of infrastructures in the country. Also one or more baseline projects seem to address a given baseline problem. It not clear how these projects work together collectively to address a common baseline problem. Recommended Action: Please clearly itemize the existing baseline problems that are expected to worsen due to climate change. It would be helpful to group baseline projects that address the same baseline problem. In doing so, please highlight different aspects of the problem each baseline project seeks to address. Please identify a baseline project that deals with infrastructure stability, or please make necessary changes to the stated problems that baseline projects seek to address.	The baseline scenario has been further detailed to clearly document the existing problems that are expected to worsen because of climate change. See Section 2.4. A baseline project has been identified that particularly addresses the resilience of infrastructure. See Section 2.3.1 and Section 2.4.

19. Is the project consistent and properly coordinated with other related initiatives in the country or in the region?	Not clearly. A LDCF funded and UNDP implemented "Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk" is under development in Timor Leste. Various sub-projects under Coral Triangle Initiative funded through the GEF also consider coastal systems in the country. GEFSec is also reviewing a program to be implemented by the ADB in three countries, including Timor Leste. Recommended Action: Please provide information on and identify areas of collaboration with the related projects currently on-going in the country. Where possible please build on the already on-going initiatives and assessments. Please describe measures that would be undertaken to coordinate with related projects planned in the country.	Details on the consistency of the proposed LDCF project with national strategies and plans is presented in Section 2.1 and Section 2.2. Details on the stakeholder consultations undertaken and how the results of these consultations have been reflected in the project design are presented in Section 2.9.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[29]

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

PPG Grant Approved at PIF: $ **120,000**			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF/NPIF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
Technical definition and capacity needs assessment	72,000	50,570	21,430
Institutional arrangements, monitoring and evaluation	12,000	6,179	5,821
Stakeholder Consultations	20,000	16,014	3,986
Financial planning and cofinancing	16,000	13,102	2,898
PPG management	0	-	-
Total	**$120,000.00**	**$85,865**	**$34,135**

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

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

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

NA.

United Nations Development Programme
Country: Timor-Leste
PROJECT DOCUMENT

Project Title: *Strengthening Community Resilience to Climate-induced disasters in the Dili to Ainaro Road Development Corridor, Timor-Leste.*

UNDAF Outcome(s):
Outcome 2: By 2013, vulnerable groups experience a significant improvement in sustainable livelihoods, poverty reduction and disaster risk management within an overarching crisis prevention and Recovery context[1].

UNDP Strategic Plan Primary Outcome
Outcome 5
Countries are able to reduce the likelihood of conflict and lower the risk of natural disasters, including from climate change

UNDP Strategic Plan Secondary Outcome
Outcome 6
Early recovery and rapid return to sustainable development pathways are achieved in post-conflict and post-disaster settings

Expected CP Outcomes:
Outcome 7: National capacity built for restoring the foundations for development following conflict or disaster with active women participation and access to decision-making

Expected CPAP Outputs:
Output 7.1: Institutions and communities strengthened to prevent, reduce, mitigate and cope with disease outbreaks, natural disasters and climate change

Executing Entity/Implementing Partner
UNDP

Implementing Entity/Responsible Partners
National Disaster Management Directorate (Ministry of Social Solidarity) National Directorate for International Environmental Affairs and Climate Change (Ministry of Commerce, Industry and Environment), National Institute for Public Administration (Ministry of State Administration), Ministry of Agriculture and Fisheries.

Programme Period:	48 months
Atlas Award ID:	00081757
Project ID:	00090905
PIMS #	5108
Start date:	August 2014
End date	July 2018
Management Arrangements:	DIM
PAC Meeting Date	18 Aug 2014 (Tentative date)

Total resources required:	42,616,780
Total allocated resources:	42,616,780
• Regular	
o GEF	5,250,000
Co-financing (In-kind contributions):	37,366,780

Agreed by (Government):
Date/Month/Year

Agreed by UNDP:
Date/Month/Year

[1] The new UNDAF is yet to be approved, so reference is made to UNDAF 2009-2013

Brief Description

Timor-Leste is already subjected to unpredictable extreme weather events. Furthermore, climate change projections indicate that these trends are likely to intensify in the future, increasing the frequency and severity of climate-induced disasters, such as floods and landslides. These disasters are likely to put road infrastructure and community assets at increased risk and as a consequence the vulnerability of communities will increase.

The Dili to Ainaro Road Development Corridor (DARDC) comprises a joint investment by the Government of Timor-Leste and the World Bank to upgrade and strengthen the climate resilience of the road infrastructure linking Dili to the capitals of Aileu and Ainaro Districts. The problem that the proposed LDCF project seeks to address is that **climate change is expected to increase damage to road infrastructure in the DARDC** resulting from an increased intensity of climate-induced disasters. Damage to road infrastructure is expensive to repair and restricts: i) economic development; ii) market access; iii) access to services such as education and health care; iv) evacuation during natural disasters; and v) provision of disaster relief. Furthermore, this threat of damage to road infrastructure is exacerbated by ecosystem degradation resulting from existing land-use practices. Such ecosystem degradation increases the risk of floods and landslides owing to reduced water infiltration and increased soil erosion.

The solution to this problem is to strengthen the resilience of communities living along road infrastructure in DARDC to climate-induced disasters such as floods and landslides and to reduce the risk of damage to road infrastructure. This will also safeguard associated social and economic benefits such as access to markets and essential services. Strengthening livelihoods assets on which communities depend also safeguards household income as households are less prone to – and in a better position to recover from – climate-induced disasters. The proposed project mainstreams gender considerations into its various activities and deliverables

The project aims to achieve this by specifically targeting and strengthening institutional and technical capacities of sub-national government officials to plan for and implement disaster risk management (DRM) measures using ecosystem-based approaches. Significant barriers to achieving the implementation of DRM using ecosystem-based approaches include: i) limited knowledge and understanding of climate-induced disasters; ii) limited capacity of sub-national officials to plan for and respond to disasters; and iii) insufficient financial resources to deliver DRM measures using ecosystem-based approaches.

The project will contribute to overcoming these barriers by: i) enhancing integration of climate change into national DRM policy; ii) providing access to knowledge and training on DRM; iii) strengthening institutional capacity for planning, budgeting and delivering investments into DRM, particularly at sub-national level; iv) developing early warning systems to reduce risks posed by climate-induced disasters; and v) reducing vulnerabilities of communities along the DARC by reducing damage to road infrastructure through implementing climate-resilient and ecosystem-based approaches to DRM. The ecosystem-based approach to DRM will support community livelihoods and restore ecosystems to reduce the risks posed by climate-induced disasters. Communities in the vicinity of the project area will be included in the selection and implementation of project activities, with a particular focus on ensuring that the interests of local women are adequately represented through implementation of a gender action plan. The project will also clarify the link between climate risk reduction and sustainable agricultural practices. Although local and international NGOs are actively promoting such practices, these programmes currently do not focus on the reduction of climate change risks, nor are they systematically used within road development corridors and other types of infrastructure to increase climate resilience.

The proposed LDCF project is part of a joint project with the World Bank. The implementing partner is the National Disaster Management Directorate within the Ministry of Social Solidarity. Other responsible parties include the National Directorate for International Environmental Affairs and Climate Change of the Ministry of Commerce, Industry and Environment, Ministry of State Administration, Ministry of Public Works, Ministry of Finance and the Ministry of Agriculture and Fisheries.

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LIST OF ACRONYMS

ADB	Asian Development Bank
ADPC	Asia Disaster Preparedness Centre
ALGIS	Agriculture and Land Use Geographic Information System (Timor-Leste)
AMAT	Adaptation Monitoring and Assessment Tool
APR	Annual Project Review
AusAID	Australian Agency for International Development
CC	Climate Change
CCA	Climate Change Adaptation
CCC	National Climate Change Centre
CDKN	Climate and Development Knowledge Network
COMPASIS	Community Mobilization for Poverty Reduction and Social Inclusion in Service Delivery
CRisTAL	Community-based Risk Screening Tool – Adaptation and Livelihoods
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
CSOs	Civil Society Organisations (also called NGOs)
CTA	Chief Technical Advisor
CTI	Coral Triangle Initiative
CVRVA	Climate Variability Risk and Vulnerability Assessment
CVTL	Red Cross Timor-Leste
DARDC	Dili to Ainaro Road Development Corridor
DDMC	District Disaster Management Committee
DDOC	District Disaster Operations Centre
DRM	Disaster Risk Management
ENSO	El Niño-Southern Oscillation
EWS	Early Warning System
GCM	Global Climate Model
GEF	Global Environment Facility
GHG	Greenhouse gas
GoTL	Government of Timor-Leste
INC	Initial National Communication on Climate Change
INAP	National Institute of Public Administration
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KM-system	Knowledge Management system
MAF	Ministry of Agriculture and Fisheries
MCIE	Ministry of Commerce, Industry and Environment
MDGs	Millennium Development Goals
MEAs	Multi-lateral Environmental Agreements
MoJ	Ministry of Justice
MPW	Ministry of Public Works
MSA	Ministry of State Administration
MSS	Ministry of Social Solidarity
NAPA	National Adaptation Programme of Action
NCP	National Project Coordinator
NCSA	National Capacity Self-Assessment
NDCF	National Directorate of Coffee and Forestry (of MAF)
NDFA	National Directorate of Fisheries and Aquaculture (Timor-Leste)
NDIEACC	National Directorate for International Environmental Affairs and Climate Change
NDMD	National Disaster Management Directorate
NDOC	National Disaster Operation Centre
NDP	National Development Plan

PDID	Integrated District Development Planning
PIR	Project Implementation Report
PMU	Project Management Unit
PSC	Project Steering Committee
RIMES	Regional Integrated Multi-Hazard Early Warning System
RoW	Rights of Way
SEWPC	Department of Sustainability, Environment, Water, Population and Communities (Australia)
TWG	Technical Working Group
ToT	Training of Trainers
UKCIP	UK Climate Impacts Programme
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDP: RTA	United Nations Development Programme Regional Technical Advisor
UNDP-CCA	United Nations Development Programme Climate Change Advisor
UNDP-EEG	United Nations Development Programme Environment and Energy Group
UNDP-OAI	Office of Audit and Investigation
UNDP-RCU	United Nations Development Programme Regional Coordinating Unit
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNTAET	United Nations Transitional Administration in Timor-Leste
UNTL	The University of Timor-Leste
WB	World Bank

LIST OF ANNEXES

1. SITUATION ANALYSIS

1. The Democratic Republic of Timor-Leste (hereafter Timor-Leste) is a small island developing state located in South-East Asia in the Lesser Sunda archipelago. The World Bank classifies Timor-Leste as a "lower middle income" state[2]. In 2012, Gross Domestic Product was estimated to be US$1.3 million with a growth rate of 8.6%. Since the country's independence in 2002, socio-economic development has been limited and Timor-Leste is described as being "a long way off" from achieving its Millennium Development Goals (MDGs)[3]. The main development challenges for Timor-Leste can be summarised as: i) addressing severe human and institutional capacity gaps for development; ii) stimulating stable economic growth, particularly for the domestic market; iii) addressing gender inequalities; and iv) managing the socio-economic pressures from a rapidly growing population[4].

2. Limited road infrastructure is identified as a major constraint to national economic development. In rural areas in particular, road infrastructure is underdeveloped. This results in reduced access to markets for agricultural communities, contributing to the limited agricultural productivity and rural poverty prevalent across the country[5]. The Government of Timor-Leste (GoTL) is investing in transport infrastructure as a basis for securing the country's long-term development goals. For example, the World Bank's Road Climate Resilience Project is supporting the GoTL to rehabilitate the Dili-Ainaro road, and four additional road segments linked to the Dili-Ainaro road including: Aileu-Gleno, Aitutu-Same-Aiasa, Aitutu-Hatubulico-Mt. Ramelau and Ainaro-Cassa. The Dili-Ainaro road links Dili, the capital of Timor-Leste, with the capitals of the Aileu and Ainaro districts[6], as well as the Ermera and Manufahi districts through the connecting roads. The road provides access to agricultural areas and facilitates the transport needs of other sectors, such as manufacturing and service. The interior of Timor-Leste is mountainous, with ~40% of the country having a slope greater than 20°[7]. The interior includes the districts of Ainaro, Aileu, Ermera and Manufahi that fall within the Dili-Ainaro Road Development Corridor (DARDC). The topography of the area makes the establishment and maintenance of a transport network difficult and expensive. The area of consideration for construction and management of road infrastructure – including slope stabilisation and protection – is limited to the existing legal framework of Right of Way (RoW), which extends 25 m to either side of the road. From a development and sustainability perspective, a broader road development corridor should be considered in terms of risk of climate-induced disasters. Legally, the road development corridor is not the MPW's responsibility but that of the local administration. Currently, there is no strategy in place to link wider landscape stabilisation and landscape-wide management of road development corridors to road infrastructure sustainability.

1.1 Climate change-induced problems

1.1.1 Climate change scenarios and climate variability

3. Timor-Leste has a tropical climate with relatively constant temperatures throughout the year. The northern part of the country experiences a uni-modal rainfall pattern, with four to six wet months from December to April or June. The southern part of the country experiences a bi-modal rainfall pattern comprising seven to nine wet months with two peaks, one from December and the other from May. The El Niño-Southern Oscillation (ENSO) is a strong determinant in year-to-year variations in rainfall and temperature.

4. Projections cited the Intergovernmental Panel on Climate Change (IPCC)[8], including those of the Commonwealth Scientific and Industrial Research Organisation (CSIRO)[9] project notable changes in

[2] The World Bank, Timor-Leste. 2013. http://data.worldbank.org/country/timor-leste?display=graph. Accessed on 16 October 2013.
[3] Timor-Leste National Report. 2009. The Millennium Development Goals, Timor-Leste.
[4] UNDP. Country Programme for Timor-Leste (2009–2013).
[5] UNDP. Country Programme Action Plan (CPAP) for Timor-Leste (2009-2013).
[6] These two districts comprise a third of the country's population.
[7] Global Environmental Fund. 2012. Country Portfolio Study: Timor-Leste (2004–2011). Evaluation Report No. 77. Washington D.C.
[8] IPCC. 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, 94 pp. Available at: http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml. Accessed on 19 November 2013.

the region's climate for the future. In Timor-Leste, temperature is expected to increase by 0.3–1.2 °C by 2030 and 0.8–3.6 °C by 2070. Rainfall is predicted to decrease in the dry season and increase in the wet season with overall rainfall increasing by 7–13% by 2050. Extreme rainfall events such as tropical cyclones are expected to decrease in frequency but increase in intensity[10]. Furthermore, a particular increase in rainfall is predicted for areas of high altitude. For example, the mountainous Ainaro District is projected to experience the highest increase in rainfall during the wet season[11].

1.1.2 Climate variability impacts and vulnerabilities

5. Despite a limited data set for recent decades, anecdotal evidence, current observations[12] and regional records strongly suggest that climate change is already taking place in Timor-Leste. The expected effects of climate change include sea level rise[13], ocean acidification[14], increasing annual temperature[15], greater unpredictability of rainfall patterns[16] and increased intensity of extreme rainfall events[17]. Recent examples of climate variability in Timor-Leste during 2003 include an 18-month period in which no rain fell, resulting in declines in agricultural production and severe food shortages. By contrast, throughout 2012, there was also a continuous wet season[18]. In 2010, local consultations carried out during the NAPA process revealed some of these hazards and their anticipated effects, as summarised in Table 1 below[19].

Table 1. Summary of climate change parameters and expected effects (adapted from Timor-Leste's NAPA, 2010).

Parameters	**Changes**	**Impacts**
Temperature	• Overall increase without significant variability across the seasons. • Increase in intensity and length of extreme temperature events.	• Increased incidence of respiratory infections, heatstroke, dehydration and sunburn. • Increased demand for and consumption of electricity. • Increased incidence of fires, decreased air quality and fire-related injuries.
Rainfall	• Increase in mean rainfall. • Dry season to become drier.	• Increased incidence of water- and vector-borne disease.

[9] CSIRO. 2010,.Climate change in Timor-Leste – a brief overview on future climate projections. Available at: http://www.cdu.edu.au/itl/documents/East-Timor-review-for%20submission%20to%20DCCEE.pdf. Accessed 19 November 2013.
[10] Wallace, L. Sundaram, B. Brodie, R.S. Marshal, S. Dawson, S. Jaycock, J. Stewart, G and Furness L. 2012. Vulnerability assessment of climate change impacts on groundwater resources in Timor-Leste. Department of Climate Change and Energy Efficiency, Australian Government. Available at: http://www.climatechange.gov.au/sites/climatechange/files/documents/06_2013/groundwater-timor-leste-report.pdf .Accessed 22 November 2013.
[11] Moss, J. & McGann, M. October, 2011. *Climate Change and Energy Poverty in Timor-Leste*. University of Melbourne, Social Justice Initiative. Available at: http://www.socialjustice.unimelb.edu.au/assets/files/pdf/2012/TimorLeste%20.pdf. Accessed on 21 November 2013.
[12] See also the household survey conducted as part of the PPG phase in Annex 4.
[13] UNDP 2013. http://www.undp.org/content/timor_leste/en/home/presscenter/pressreleases/2013/08/01/climate-change-report-identifies-timor-leste-s-environmental-challenges-and-opportunities-.html.
[14] International Climate Change Adaptation Initiative, Pacific Climate Change Science Program, 2011. Current and future climate of Timor-Leste. Available at: http://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/5_PCCSP_East_Timor_8pp.pdf. Accessed on 18 October 2013.
[15] UNDP 2013. http://www.undp.org/content/timor_leste/en/home/presscenter/pressreleases/2013/08/01/climate-change-report-identifies-timor-leste-s-environmental-challenges-and-opportunities-.html.
[16] Moss, J. & McGann, M. October, 2011. '*Climate Change and Energy Poverty in Timor-Leste*' http://www.socialjustice.unimelb.edu.au/assets/files/pdf/2012/TimorLeste%20.pdf University of Melbourne, Social Justice Initiative, Accessed on 17-10-2013.
[17] Barnett, J., Dessai, S. & Jones, R.N. 2007. '*Vulnerability to Climate Variability and Change in East Timor*' Ambio, Vol. 36, No. 5, pp. 372–378.
[18] Moss, J. & McGann, M. 2011. *Climate Change and Energy Poverty in Timor-Leste*. University of Melbourne, Social Justice Initiative. Available at: http://www.socialjustice.unimelb.edu.au/assets/files/pdf/2012/TimorLeste%20.pdf. Accessed on 17 October 2013.
[19] See Annex 9 for further details on expected effects of climate change in Timor-Leste.

	• Extreme rainfall events increase in intensity but decline in frequency.	• Landslide damage and blocked access to homes and public infrastructure. • Displacement owing to flooding. • Loss of access to markets and reduced household income.
Tropical cyclones	• Decrease in frequency and duration, but increase in intensity.	• Damage to livelihoods and assets and potential loss of life, although overall risk unlikely to increase.

6. Most climate-induced disasters in Timor-Leste are localised and periodic, with resultant serious impacts upon local communities. Major hazards include flash floods, droughts, landslides and destructive winds. For example, the household survey conducted during the project preparation phase identified unpredictable rain, storm wind, flooding, river-bed collapse, paddy field destruction and landslides as the most prevalent climate-induced disasters. 76% of the people interviewed had been personally affected by these disasters. Timor-Leste has been affected by cyclones multiple times in the past decades, including Cyclone Esther (1983), Bonnie (2002), Inigo (2003), and Daryl (2006) due to which crops and over 500 houses were destroyed. There are pockets of vulnerable communities living in areas with difficult road accessibility and low capacity to respond to disasters. Most of the rural population is dependent on agriculture for their livelihood. In Timor-Leste, agriculture employs 64% of the labour force and contributes 26.5% of the GDP. The PPG phase household survey indicates that in the proposed LDCF project areas, the majority of respondents are farmers and 73% indicated their dependence on agriculture for all of their annual needs. As such, even low intensity disasters will add significantly to their vulnerability and increased food insecurity.

7. The vulnerability of many local rural communities to climate-induced disasters within Timor-Leste's mountainous districts is exacerbated by unfavourable socio-economic conditions and limited access to service centres. This reinforces the local communities' isolation and deprivation. Women are notably at risk because of their comparatively limited education, income and ability to influence decision-making[20]. Table 2 provides a summary of historical losses caused by climate-induced disasters in these target districts.

Table 2 Losses resulting from selected climate-induced disasters in Aileu, Ainaro, Ermera and Manufahi Districts during 2001-2013. (MSS-UNDP SDRM Project Supported National Comprehensive National Hazard, Risk and Vulnerability Assessment 2013[21] from DesInventar[22]).

District	Losses owing to strong winds			Losses owing to flooding			Losses owing to landslides		
	Houses destroyed	Houses damaged	Households affected	Houses destroyed	Houses damaged	Households affected	Houses destroyed	Houses damaged	Households affected
Aileu	3	40	30	2	8	10	0	16	16
Ainaro	38	1415	1571	5	310	906	0	95	36
Ermera	3	306	364	0	168	162	0	1	0
Manufahi	3	440	439	21	2150	3597	4	0	4
Total	47	2,201	2,404	28	2,636	4,675	4	112	56

8. Negative impacts of climate change can lead to sub-optimal household- and local community responses, including pressure on already vulnerable natural resources and further increasing climate vulnerability over the long term. Women in particular have specific concerns related to their roles in society and households, such as the impact of climate change on the provision of water and

[20] See Annex 3.
[21] MSS-UNDP SDRM Project Supported Comprehensive National Hazard, Risk and Vulnerability Assessment 2012 & 2013. A Country Situation Report on Disaster Risk Assessment related initiatives. Available at: http://www.gripweb.org/gripweb/sites/default/files/disaster_risk_profiles/Country%20Situation%20Report%20on%20Risk%20Assessment%20and%20Mapping_0.pdf. Accessed on 20 November 2013.
[22] DesInventar: Timor-Leste. http://www.desinventar.net/DesInventar/profiletab.jsp?countrycode=etm. Accessed on 20 November 2013.

firewood. Increased slash-and-burn agriculture to compensate for the risk of loss of agricultural land or reduced crop yields is an example of a maladaptive response, which will further aggravate an already critical situation. The PPG phase household survey (see Annex 4) indicates a basic understanding of the causal relationship between human activities, particularly certain types of land use practices and natural disasters. 73% of survey respondents identified tree cutting (to create new farms and sell timber) and 29% slash and burn community agriculture as the root cause of natural disasters. Most of the country's primary forests have been lost as a result of commercial overexploitation of natural resources and the reliance of both urban and rural communities on fuel wood for energy. Approximately 1.1% of the country's forests are lost per year[23]. Land use activities that result in deforestation or degradation – particularly slash-and-burn agriculture, tree removal, and building of infrastructure such as roads - exacerbates soil erosion and increases the risk of future flood events and landslides[24]. The resulting decreased soil fertility will limit the regeneration of forest vegetation, and the practice thereby causes a continuous cycle of climate-induced disasters and increased climate vulnerability of infrastructure and rural communities.

9. The majority of disaster management activities in Timor-Leste are limited to ad hoc disaster response undertakings driven by immediate needs. Under the Ministry of Social Solidarity (MSS), the National Disaster Management Directorate (NDMD) is the lead agency that coordinates disaster response, and over the past decade is gradually transitioning to an agency that coordinates both *ex ante* disaster risk management and *ex post* response. NDMD's capacity to manage disaster preparedness is particularly weak, especially when it concerns understanding and addressing larger area-based challenges such as land use changes, watershed deterioration, destructive agricultural practices and deforestation.

10. Key development sectors – including transport and associated infrastructure – lack a coherent framework to address disaster and climate risks. A number of factors have contributed to increasing the vulnerability of the transport sector, including the lack of maintenance and poor design of road networks, and geological, hydrological, meteorological and human factors that trigger landslides and flash floods along the road corridors. Road infrastructure is vulnerable to damage caused by flash floods, soil erosion and landslides and the country's mountainous topography, regionally high seismic activity, and exposure to heavy monsoonal rain make transport assets especially susceptible to natural disasters. Extreme precipitation events create an engineering challenge to slope stability and drainage systems. A further challenge is that increased erosion and debris may cause blockage of streams and drains resulting in the risk of flash flood bursts. Preventing such blockages requires: i) adjacent watershed and erosion protection works; and ii) a routine and emergency maintenance system, which is adapted to increased climate risks and challenges to accessibility. Human actions, such as slope excavation, inappropriate agricultural practices and deforestation also increase the risk of flash floods and landslides[25]. The effects of disasters on Timor-Leste's transport infrastructure have multiplier negative impacts on the national and local economy, restricting connectivity and accessibility, and hindering the movement of people, goods, agricultural products and services. Women are particularly concerned with the effects of climate change damaging infrastructure such as bridges and roads that will further restrict their access to clinics and markets[26].

11. The impacts of climate change are expected to exacerbate damage to road infrastructure and increase economic losses incurred at the national and local community level (see Annexes 9 and 12). Adaptation to increased rainfall intensity during wet seasons will require improved routine maintenance, emergency repair, rehabilitation and the monsoon restoration systems (i.e. all road management systems[27]). Damage to road infrastructure isolates local communities from emergency and other services, leaving them increasingly vulnerable in times of disaster. In addition, relief teams are often unable to timeously reach sites affected by disasters, meaning that increased community resilience will be required. Damage to roads will also: i) increase transaction costs, ii) be detrimental to the tourism industry; ii) hamper the modernisation of agriculture; and iii) reduce access to markets

[23] Jeus, M., Henriques, P., Laranjeira, P., Narciso, V. & da Silva Carvalho, M.L. 2012. The Impact of Shifting Cultivation in the Forestry Ecosystems of Timor-Leste. CEFAGE-UE Working Paper 2012/16.
[24] Annex 12.
[25] Annex 12.
[26] See Annex 3.
[27] Moss, J. & McGann, M. October, 2011. *Climate Change and Energy Poverty in Timor-Leste.* University of Melbourne, Social Justice Initiative. Available at: http://www.socialjustice.unimelb.edu.au/assets/files/pdf/2012/TimorLeste%20.pdf. Accessed on 17 October 2013.

and other services. Investment in the road sector is expected to increase, opening opportunities to integrate disaster and climate resilience in the sector, and to engage the local community in the process.

12. In summary, road infrastructure in the DARDC is at risk from climate-induced disasters. This situation is further exacerbated by poor agricultural practices and excessive deforestation. With no strategy to link wider landscape and watershed management to road infrastructure management within the DARDC, road infrastructure will be increasingly vulnerable to the expected effects of climate change. This will undermine the GoTL's capacity to deliver social and economic benefits to vulnerable local communities. For this reason, proactive and coordinated interventions are needed to reduce the risks posed by climate-induced disasters to road infrastructure and local communities within the DARDC.

1.2 Long-term solution and barriers to achieving the solution

1.2.1 Long-term solution

13. The long-term preferred solution is that important economic infrastructure in Timor-Leste is more resilient to climate-induced disaster risks to secure the medium- to long-term development benefits of vulnerable local communities. This would be achieved through the implementation of prevention and preparedness measures throughout the country. To achieve the long-term preferred solution, interventions will be required, as detailed below.

14. *Disaster risk management based on up-to-date knowledge of local climate change impacts and adaptation options.* To achieve this, policy makers, planners and technical staff – including women – would be trained on a wide range of aspects of climate change adaptation and DRM. Specifically, this training would focus on climate change and its potential effects on economic infrastructure including national roads. Training on vulnerability assessment, damage and loss assessments, contingency planning, formal and informal early warning systems (EWS), climate related planning and budget management would also be included. National DRM policy and institutional disaster management roles would also be upgraded to integrate climate-induced risks and climate change resilience measures into all relevant sectors.

15. *Sub-national level capacity strengthening for climate- and disaster risk planning, budgeting and service delivery.* This would bolster the capacity of district and sub-district executive officials such District Disaster Management Committees and District Disaster Operations Centres to identify and monitor risks. There would also be a focus on the inclusion of women and women's groups. Risks could be addressed through sub-national development planning processes, for example PDID and PNDS. The financing of disaster prevention measures such as strengthened homes, improved grain storage facilities, windbreaks, storm drains, landslide stabilization measures, small-scale flood protection and river training works would be included.

16. *Local community-driven investments to reduce disaster-induced losses to critical infrastructure assets*[28] *and the wider economy*. This would see planning, prioritisation and budgeting of investments at the district and sub-district levels with a focus on the inclusion of women – based on assessments of local communities' vulnerability to climate-induced disasters. It would also introduce local community-level watershed management interventions to reduce the effects of heavy rainfall events. Interventions would include reforestation and the construction of contour stone walls, farm and percolation ponds and check dams. These measures would also promote agricultural methods that reduce the effects of climate change on crop and livestock production.

1.2.2 Barriers to implementation of long-term solutions

17. To achieve the long-term solution through implementation of the identified suite of preferred responses, the LDCF project will address the barriers described below.

[28] Assets include road infrastructure, drainage networks, irrigation and drinking water networks, dams, community-owned buildings and homes.

18. **Limited knowledge of climate information and DRM practices.** At present, national and sub-national officials have limited access to reliable and accurate data to inform the management of climate-induced disasters. Decision-makers and DRM practitioners in Timor-Leste have limited access to information and knowledge products (e.g. manuals, toolkits and policy briefs) on: i) climate risk; ii) vulnerability to climate change; iii) the drivers of climate-induced disasters; and iv) the impacts of climate change on economic infrastructure. As a result, DRM policies and practices are not guided by locally-specific information that is tailored to Timor-Leste's socio-economic and environmental context.

19. Furthermore, local communities are largely uninformed concerning best practices for increasing resilience to climate-induced disasters. This is exacerbated by the restricted literacy, media access and education of especially women within local communities[29]. Much of the meteorological and forecasting data for informing climate risk and vulnerability are only available from regional centres such as the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) or the Australian Bureau of Meteorology. Data products focused on Timor-Leste are not available. Planning institutions are therefore limited to inadequate and out-dated knowledge when planning for future climate change scenarios climate-induced disasters.

20. Climate change impacts the mandates of all sectors in Timor-Leste's the economy including the Ministries of: i) Public Works; ii) Transport and Communication; iii) Agriculture and Fisheries; iv) Commerce, Industry and Environment; v) Tourism; vi) Health; vii) Education; and viii) Social Solidarity. There is limited information available on the impacts of climate change on these sectors. Relevant impacts of climate-induced disasters include: i) damage to housing and other urban infrastructure including water supply, sanitation and electricity infrastructure; ii) damage to roads, bridges and telecommunication infrastructure; iii) loss of productivity of crops, livestock, forestry and fisheries; iv) damage to industrial infrastructure such as mining and effects on commerce including impacts on insurance companies; v) damage to tourist infrastructure and damage to tourist sites; vi) increased prevalence of diseases and the associated health costs as well as damages to hospitals and related services to hospitals; vii) damage to schools and absenteeism of learners having to work for their family's livelihoods; and viii) increased costs of managing more frequent and intense natural disasters. Adaptation options are available to address all of these climate change impacts. However, this information is not easily accessible in Timor-Leste.

21. **Limited technical capacity for data management and application.** Where information related to DRM is available, it is not systematically organised into a central database to provide ease of access for the various institutions concerned. There is insufficient co-ordination among the relevant institutions**,** including: i) the National Directorate of Meteorology and Geophysics; ii) the National Directorate of International Environmental Affairs and Climate Change; iii) the National Disaster Management Directorate; iv) Ministry of Agriculture and Fisheries; v) Ministry of Public Works; vi) Ministry of Transport and Communications; and vii) Ministry of Social Solidarity. Furthermore, there is no knowledge management system in place to allow for new knowledge to be generated, captured and shared. Currently, standard operating procedures do not exist among the relevant institutions. Without flow of information between the relevant departments, the National Disaster Management Directorate will not be able to effectively prepare for and respond to climate-induced disasters; and the Ministry of Transport and Communications will not be able to warn local communities of immanent natural disasters.

22. Technical capacity for compiling and analysing climate information for informing DRM practice – such as producing vulnerability maps and forecast bulletins – is nascent. Moreover, DRM practitioners at the national and sub-national levels are not able to use seasonal and long-term forecasts of climatic conditions to inform probabilistic assessments of risks posed by climate-induced disasters to infrastructure and livelihoods. Without such risk assessments, tailored measures for DRM and disaster preparedness cannot be developed.

23. The factors describe above all contribute to the limited technical capacity for planning for climate change adaptation in Timor-Leste, specifically with respect to: i) climate risk assessments; ii) vulnerability assessments; iii) damage and loss assessments; iv) training needs assessments; v) economic valuations that underpin different sectoral, national and subnational plans; and vi)

[29] See Annexes 3 and 4, as well as the Timor-Leste Household Income and Expenditure Survey 2011.

contingency planning. Without these necessary skills, it will not be possible for effective planning and implementation of climate change adaptation to support important infrastructure in Timor-Leste.

24. **Lack of a national EWS framework and standard operating procedures.** Currently, a strong EWS framework is absent and the role of national institutions in EWS at sub-national level is limited. Institutional barriers and management barriers prevent effective development and coordination of DRM responses at all levels. At the district level, the District Disaster Operational Centres (DDOCs) are responsible for the planning and implementation of early warning and disaster management activities. However, these are of limited efficacy as DDOCs have varying levels of functionality in different districts. For example, in some districts DDOCs only exist on paper with early warning and disaster management activities being carried out by individuals such as the District Administrator or the District Disaster Focal Point. This results in poor coordination between the main economic sectors and concomitant inefficiencies in the use of available grants to fund appropriate interventions.

25. Issue of weather advisories and early warnings is dependent on information generated at the national level. NDOC was supported by UNDP and UNOCHA in 2006 and 2009 in the development of operating manuals (including SoPs for EWS) as well as contingency plans for floods and droughts. In 2013, the National Information Portal for DRM[30] was established through the UNDP DRM Project to provide a platform through which NDOC shares alerts. However, there are currently still no standard operating procedures applied for EWS. Consequently, the distribution of early warnings for agriculture and communities is still inadequate. The lack of a structural approach to sharing climate information and warnings also hampers the development of appropriate responses to disasters and the effective use of already limited resources. Furthermore, there is no common mechanism for monitoring and reporting incidences and effects of natural disasters to feed data and information into a national knowledge management system. This is partly because there are no standardised protocols for collecting, reporting and monitoring data for DRM.

26. **Limited capacity for planning, budget and implementing DRM**. At all levels – i.e. national, sub-national and local community level – there is little technical expertise for: i) planning; ii) budgeting; iii) preparedness; iv) response; and v) implementation of DRM interventions. National and sub-national government officials have restricted budgets for DRM. As a consequence, there is little investment into disaster preparedness. Instead, DRM institutions are focused on post-disaster response and recovery. In addition, line ministries require guidance on disaster planning, monitoring and reporting within and between sectors. Poor inter-sectoral coordination results in available climate data and information not being adequately translated to provide access to all users. No standard approach to costing the effects of disasters and the associated recovery exists. This limits capacity to conduct detailed analyses of climate- and disaster-related risks.

27. Local communities in Timor-Leste also have insufficient capacity to design and implement of climate-resilient measures for preventing losses to livelihoods and community assets that result from extreme climate events. Particularly, rural communities who are at risk from climate-induced disasters are unable to conduct localised risk assessments to prepare for and respond to climate-induced disasters. In addition, they do not have trained personnel to provide support during disaster situations with regards to responses such as relocation and rescue. The current restricted capacity also prevents them from accessing available funding for DRM. There are also no formal structures to support the inclusion of particularly vulnerable groups including women, children, the elderly and people with disabilities. For example, women have specific concerns regarding the impacts of climate-induced disaster such as provision of clean water, food security and access health-care. However, women rarely are able to participate in decision-making processes to influence and participate in risk management.

28. These factors are compounded by limited capacity at the local community level to receive and use early warning information. For example, local communities may not know what action to take after receiving early warnings. If they do know what action is required, local communities often do not have the means to carry out any action. In this case, local communities require support from the district administration that is usually provided too late to protect assets and livelihoods.

[30] www.drm.tl

29. Communities require capacity development support to identify, design and implement specific resilience measures (including sustainable land management practices, reforestation and watershed management) to protect their livelihoods, assets and lives. Communities furthermore need to be facilitated to: i) empower women as part of the decision-making process for DRM; ii) engage proactively in disaster prevention, its integration into the local planning process and in changes in adverse land- and agricultural practices; and ii) development and implementation of contingency plans outlining basic procedures and actions to be taken in case of an emergency.

30. **Limited implementation of watershed management approaches to protect infrastructure and livelihoods***.* In both the short- and long-term, investments in ecosystems can protect and sustain built infrastructure and human livelihoods[31,32,33]. However, the allocation of development resources in Timor-Leste is focused on physical infrastructure. As a consequence, the value of watershed management approaches to climate change induced risk management is overlooked. The local planning process does not consider management of watersheds, especially where areas requiring management are larger than individual *sucos* (villages). In such cases, watershed management activities would not be considered in the *suco* plans nor be brought up to the district plans. In addition, the Department of Forestry has a limited budget for reforestation and watershed management activities. Consequently, there are insufficient incentives for local communities to rehabilitate degraded watersheds and adopt land-use and livelihood practices that sustainable management of watersheds. There is a limited implementation of landscape stabilisation, erosion control, sediment control and drainage control. Similarly, knowledge and awareness of the effects of unsustainable land management is not made available to local communities.

31. **Limited financial resources for increased resilience to climate-induced disasters**. Timor-Leste has a relative wealth through its oil and gas income, although the absence of diversification of economic income is a potential future risk. Despite this, there is limited investment priority for increased resilience to climate-induced disasters, especially at the local level. This is especially problematic since climate resilience costs are relatively high because of the mountainous, difficult terrain combined with a large proportion of rural-based population and relatively low population densities. At the local level the funds for covering the additional costs of strengthening the capacity of the DRM system and increasing resilience to climate-induced disasters through e.g. watershed and ecosystem based approaches are not available beyond existing operational budgets of DRM institutions. Such funds are also not available with sector budgets and measures aimed at promoting climate change resilience are thus not prioritized during the local planning and budgeting process. There is furthermore a high focus on new development activities whereas recurrent budgets for improvement, maintenance and repair of especially infrastructure works are undervalued. The latter is especially critical since e.g. with the increase of extreme weather events, the sustainability of infrastructure works will increasingly depend on adequate operation and maintenance procedures and budgets.

32. The initiatives of the proposed LDCF project will contribute to overcoming the above-mentioned barriers by delivering three integrated and complementary components. Component 1 will **support the integration of climate change adaptation into national development strategies** and sector plans by strengthening knowledge and awareness of climate-induced disasters. Component 2 will **strengthen sub-national level DRM** taking climate change into account **in DARDC** using two approaches – firstly, by enhancing the capacity of district and sub-district officials as well as to provide financial resources to plan, design, budget and deliver preventative measures for climate-induced disasters; and secondly, by strengthening local-level climate information and early warning system (EWS). Component 3 will **protect road infrastructure in DARDC from climate-induced disasters** by delivering watershed-based resilience measures.

[31] Doswald *et al*. 2014. Effectiveness of ecosystem-based approaches for adaptation: review of the evidence base. *Climate and Development.* DOI: 10.1080/17565529.23013.867247.
[32] Highland, L.M. & Bobrowsky. 2008. *The landslide handbook – A guide to understanding landslides*. U.S. Geological Survey Circular 1325. Reston, Virginia.
[33] Rao *et al*. 2012. *A comparative analysis of ecosystem–based adaptation and engineering options for Lami Town, Fiji*. A synthesis report by the Secretariat of the Pacific Regional Environment Programme.

2. STRATEGY

2.1 Country ownership: country eligibility and country drivenness

33. In line with the LDCF eligibility criteria[34], Timor-Leste is a Least Developed Country that has ratified the United Nations Framework Convention on Climate Change (UNFCCC)[35] and has formulated its National Adaptation Programme of Action (NAPA). Under the UNFCCC and the Hyogo Framework for Action (HFA), Timor-Leste has committed to: i) adapt to climate change; and ii) manage existing climate risks including enhancing preparedness for and response to climate-induced disasters. The proposed LDCF project will contribute towards achieving these goals. In addition, the project: i) is consistent with country priorities identified in the NAPA (see Section 2.2); ii) is directly aligned with the LDCF's strategic objectives to "reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level" and "increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global levels"[36]; iii) has been designed through stakeholder consultations; iv) includes adaptation and baseline costs; and v) delivers adaptation benefits to vulnerable communities – particularly women.

34. The proposed LDCF project will also build on the GoTL's policies and strategies to strengthen DRM by integrating climate risks into development planning and implementing community-based interventions for adaptation to climate change. The project's interventions are strongly aligned with the GoTL's *National Policy on Disaster Risk Management*, *Sustainable Land Management Strategy and Guidelines*, *National Biodiversity Strategy and Action Plan* and *Strategic Development Plan* (SDP, 2011–2030) as detailed in Section 2.2. In addition, the proposed LDCF project is consistent with Outcomes 4, 6 and 7 of the current UNDP Timor-Leste Country Programme Document (CPD 2009–2013). These outcomes are: i) "community-based natural resource and energy management for poverty reduction capacity strengthened"; ii) "improved capacities of government institutions and communities for environmental resource management, and implementation of adaptation strategies"; and iii) "national capacity built for restoring the foundations for development following conflict or disaster". Furthermore, the DRM focus of the proposed LDCF project is aligned with the country's United Nations Development Action Framework (UNDAF) Outcome 2.2 "local communities and national and district authorities practice more effective environmental, natural resource and disaster risk management". The design of the LDCF project is also closely aligned with the CPD Programme.

35. At the commencement of the PPG phase, a review of relevant policies, strategies, frameworks and projects was undertaken. This review was used to: i) align the objective, strategy and interventions of the LDCF project with national priorities; ii) identify climate change effects to be addressed; iii) provide baseline data; and iv) inform stakeholder consultations during the remainder of the PPG phase. Extensive stakeholder consultations were conducted through workshops, bilateral working sessions, field trips, surveys and one-to-one meetings during three in-country missions on: i) 9-21 September 2013; ii) 18-25 November 2013; and iii) 11-25 February 2014. The consultations were held with government institutions, development partners, academic institutions, NGOs and members of potential target communities. These consultations served to align the LDCF project design with national and local priorities as well as on-going initiatives. The main stakeholder consultation events during the PPG are described below.
    - An inception workshop was held in Dili on 19 September 2013. This workshop served to inform stakeholders of the outline of the LDCF project.
    - Two working group sessions were held in conjunction with the inception workshop. The working group sessions were based on two themes, namely: i) capacity building for climate change adaptation and DRM; and ii) landscape- and community-based approaches to DRM. During these sessions, stakeholders provided baseline information such as: i) priorities for climate change adaptation and DRM; ii) lessons learned from past and on-going initiatives; iii) potential

[34] Updated Operational Guidelines for the Least Developed Countries Fund. GEF/LDCF.SCCF.13/04. Available at: http://www.thegef.org/gef/sites/thegef.org/files/documents/Updated%20Operational%20Guidelines%20LDCF%20Oct.16.pdf. Accessed on 30 November 2013.
[35] Ratification occurred on 16 October 2006.
[36] GEF 2010. Updated results-based management framework for the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) and adaptation monitoring and assessment tool. GEF/LDCF.SCCF.9/Inf.4 Available at: http://www.thegef.org/gef/sites/thegef.org/files/documents/LDCFSCCF-RBM-UpdateFramework-Oct%202010%20final.pdf. Accessed on 30 November 2013.

interventions for the proposed LDCF project; and iv) potential institutional arrangements for project implementation.

- A field trip to Aileu and Ainaro Districts was held on 12-13 September 2013. During this field trip, an initial assessment of the DARDC was conducted to identify the condition of eco-systems and existing land-use practices, to discuss the impact of projected climate change and subsequent increased climate-induced risks to the road alignment and structures.
- Project Steering Committee meetings were held on 23 September 2013 and 13 February 2013. These meetings served to: i) update stakeholders on progress in project design; ii) gather information on national priorities and institutional arrangements, validate and improve upon the PPG design approach and gather support for the further stakeholder consultation process.
- A Technical Working Group meeting was held on 20 November 2013. During this meeting, stakeholders were informed of the project design phase. The Technical Working Group will provide on-going technical input and coordination support to the project board during the project implementation.
- A field trip to Aileu and Ermera Districts was held on 22 November 2013. During this trip, consultations were held with District Administration officials on: i) the operation of the district-based DRM system and especially the EWS; and ii) district/sub-district capacity for disaster prevention, preparedness and response. In addition, assessments of gender considerations in watershed management were conducted.
- Bilateral working sessions were held with NDMD, WB, MSA, MAF and INAP. These consultations served to: further explain the outline of the project design i) identify specific sector and project priorities; ii) gather baseline information; iii) identify opportunities for collaboration and leverage; and iv) discuss institutional arrangements for project implementation.

2.2 Project Rationale and Policy Conformity

36. LDCF funds will enable the GoTL to strengthen institutional capacity to address the impacts of climate change and increased climate-induced risks in the context of ongoing DRM practices, especially at the community and district level,. By doing so the project will reduce the risk of losses caused by climate-induced disasters to community livelihoods and to road infrastructure. The LDCF financed Project mainly supports implementation of NAPA Project Profile 4– Improving Institutional, Human Resource Capacity & Information Management in the Disaster Sector in Relation to Climate Change Induced Risks at National, District and Community levels. This is in line with the priorities as reflected in Timor-Leste's National Adaptation Plan of Action (NAPA) in 2010, as described below.
    - *Priority 4: Natural Disasters.* The project will support institutional development that will result in an improved understanding of the causes of climate-induced disasters in the context of existing DRM practices. It will also support improved use of climate risk information and the development of appropriate early warning systems.
    - *Priority 5: Forests, Biodiversity and Coastal Ecosystem Resilience.* The project will implement climate-resilient interventions that focus on improved watershed management.
    - *Priority 7: Physical Infrastructure.* The project will build the climate resilience of road infrastructure through the implementation of adaptation measures that reduce the risk of climate-induced disasters.
    - *Overarching priority: National Institutional Capacity*. This includes capacity building of sub-national government officials and non-governmental organizations (NGOs).

37. The main priorities of the National Policy on Disaster Risk Management[37] include: i) identifying risk zones; ii) developing EWS for flood and drought; iii) conducting training and capacity development in DRM; and iv) supporting community-based disaster risk management and community-based adaptation. The policy proposes a comprehensive framework for DRM based on the Hyogo Framework of Action. As such, the policy has a strong focus on building resilience through interventions that promote: i) sound environmental management; ii) improved livelihoods and poverty reduction; iii) investments in physical infrastructure as well as improved planning; and iv) strong networks and partnerships. This policy framework requires continuous investments to strengthen DRM institutions and increase capacity to achieve its targets. Furthermore, it acknowledges the value of involving the most vulnerable communities in the *"identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their*

[37] This policy was prepared by MSS with support from UNDP and Oxfam. It was approved by the Council of Ministers in March 2008.

capacities". Therefore, technical and institutional capacity building in DRM and the use of a community-based approach aligns the proposed LDCF project with the priorities of the NPDRM.

38. Timor-Leste's Sustainable Land Management Strategy and Guidelines (2010) and National Biodiversity Strategy and Action Plan (NBSAP, 2011) both prioritize rehabilitation of degraded watersheds. The reforestation and watershed restoration interventions of the proposed LDCF project are aligned with these policies. The objectives of the Basic Environmental Law include reducing pressures on natural resources, promoting conservation of the landscape and enabling the renewal of ecosystem services. The project has similar underlying objectives including: i) improved management of natural resources such as vegetation, soil and water; and ii) improved provision of ecosystem services such as reducing the impacts of floods through increased water infiltration and soil stabilization, iii) supporting the integration ecosystem services, land use and watershed management practices in local planning process and road corridor development plans.

39. The Strategic Programme for Promoting Agriculture Growth and Sustainable Food Security (2010) outlines the GoTL's approach to food security and agricultural growth. This approach prioritizes *inter alia* the management of watersheds and water resources by local communities. The watershed management interventions of the proposed LDCF project are aligned with this strategy, particularly: i) developing selected watershed management strategies and plans in the DARDC and promoting the use of such area-based approaches in the local planning process, ii) promotion of agroforestry and conservation farming; iii) contour planting and terracing; iv) construction of check dams; and v) reforestation of degraded watersheds.

40. The GoTL's Strategic Development Plan (SDP, 2011–2030) has a focus on infrastructural, economic, institutional and social development. The SDP considers the rehabilitation, repair and improvement of the country's road network as a foremost priority. The proposed LDCF project will support this priority by making investments in the road infrastructure more climate resilient and sustainable in the DARDC, as well as through policy influencing to link climate resilient road corridor development to sustainability of road infrastructure.

41. The GoTL integrated the MDGs into the first National Development Plan and subsequent plans and programmes. The goals of the MDG align with the National Development Goals (NDGs). The NDGs are to: i) reduce poverty and promote both rural and regional development; ii) promote agriculture, fisheries and forestry; iii) manage natural resources and the environment; and iv) improve infrastructure. The proposed LDCF project aligns with these development goals, especially the goals of improving the management of natural resources and infrastructure. Achieving this goal will lead to greater agricultural production and poverty reduction as well as a higher climate resilience of road infrastructure.

42. The proposed LDCF project is consistent with the strategic objectives of the LDCF, which are to: i) reduce vulnerability to the adverse effects of climate change; ii) increase the adaptive capacity to respond to the effects of climate change; and iii) promote transfer and adoption of adaptation technologies. The project aligns with these LDCF objectives in that it will: i) implement on-the-ground interventions that increase the resilience of infrastructure and communities to climate change and climate-induced disasters; ii) enhance national and sub-national institutional and technical capacity for DRM and disaster preparedness; iii) enhance communities' capacity for natural resource management to increase the adaptive capacity of surrounding ecosystems; iv) demonstrate innovative interventions for disaster risk management; v) improve the quality and availability of water through sustainable land use and watershed management practices; and vi) promote food security by decreasing agricultural losses.

43. The proposed LDCF project is also well-aligned with the GEF Results-Based Management Framework for Adaptation to Climate Change. By increasing the resilience of communities and road infrastructure and enhancing the adaptive capacity of national and sub-national governments to plan, budget and deliver DRM interventions, the project is consistent with Objective CCA-2 of the LDCF Programme Framework – *Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including reducing vulnerability, at local, national, regional and global level*. Within this Objective, the project is consistent with Outcome 2.2 *Strengthening adaptive capacity to reduce risk to climate-induced economic losses*, and Outcome 2.3 *Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level.* The

corresponding expected outputs of the project are Output 2.2.1 *Adaptive capacity of national and regional centres and networks strengthened to rapidly respond to extreme weather events*, and Output 2.3.1 *Targeted population groups participating in adaptation and risk reduction awareness activities*. The provision of DRM and climate change training to national and sub-national DRM practitioners, along with the integration of climate change into DRM policies and plans, will increase capacity for climate change adaptation at all levels.

2.3 Design principles and strategic considerations

2.3.1 Complementarities with on-going initiatives

World Bank's Road Climate Resilience Project (WB-RCRP)

44. According to a road condition survey in 2008, the national road network has almost entirely deteriorated and is no longer maintainable. Many roads are often impassable during the rainy season due to landslides and road failure. This situation has arisen in a large measure due to underinvestment in maintenance and has resulted in increased isolation of communities, higher vehicle operating and freight costs, and longer journey times. In many cases, however, the roads were also not properly designed, lack sufficient drainage capacity and/or are structurally unsound. Due to the steep terrain, ground conditions and local climate, slope instability is a major problem and frequent slips result in significant damage to the road network and potential risk to road users.

45. To address some of these threats to road infrastructure, the World Bank Road Climate Resilience Project (WB-RCRP) was initiated in 2011. Through this project, the World Bank is providing the GoTL financial and technical support for the construction of a climate-resilient national level road between Dili and Ainaro to improve connectivity and reduce the vulnerability of the road to climate-induced disasters. The project comprises three components, namely: i) climate-resilient road infrastructure; ii) climate-responsive maintenance and emergency planning and response systems; and iii) project support and training.

46. The WB-RCRP's interventions to increase the climate resilience of the road infrastructure within the DARDC are substantial in terms of design, investment and asset management. However, these interventions are limited to the RoW on either side of the road. At a larger scale, land-use patterns and environmental degradation outside the RoW increase the vulnerability of the road to climate-induced disasters. Therefore, the infrastructure investments in the Dili-Ainaro corridor will remain vulnerable to climate-induced natural hazards unless watershed degradation and sediment control and slope stability within the broader landscape are addressed.

World Bank's Building Climate and Disaster Resilience Project (WB-BCDRP)

47. To further strengthen the sustainability of the infrastructure investment under the WB-RCRP, as described above, the Work Bank is presently designing a complementary project entitled "Building Climate and Disaster Resilience in Communities along the Dili-Ainaro and Linked Road Corridors in Timor-Leste" (WB-BCDRP). The WB-BCDRP will build capacities in relevant sub-districts along the road stretches relating to community-based DRM measures. In addition, capacity development support to communities in the DARDC will be provided to improve the ability of these communities to plan and implement practical DRM interventions. The WB-BCDRP aims to achieve its objective along the Dili-Ainaro and linked-road corridors through three components, namely: i) "Enabling improved climate and disaster risk management"; ii) 'Strengthened climate and disaster risk planning, budgeting and delivery"; and iii) "Investments in climate resilient community based adaptation measures". The complementarity of the LDCF project with the WB-BCDRP is described below.

48. The LDCF project will complement the WB-RCRP to promote and invest in reforestation of degraded watersheds and changes in land-use practices. This will include measures designed to stabilize slopes and enhance infiltration of water into the soil profile, therewith reducing the risk of soil erosion, localized flooding and landslides. This will increase the overall resilience and sustainability of the Dili-Ainaro road and will further lead to: i) increased quality and longevity of road

infrastructure, and ii) reduced maintenance and repair costs. The LDCF investments will thus improve the Internal Rate of Return of the substantial investments of GoTL in the road construction.

49. The LDCF project and the WB-BCDRP both have the objective to increase the resilience of communities to climate-induced disasters within the DARDC through capacity development of communities and by delivering community-based DRM measures. Through these interventions both projects will improve the climate resilience of the Dili-Ainaro road (network). The LDCF project has in addition the broader objective of strengthening the capacity of national and local DRM systems and stakeholders, as well as increasing resilience through the local planning process (PDID) and land use and watershed approaches. The design of the WB-BCDRP is being prepared in parallel to the design of the LDCF project to ensure complementarity, leveraging and alignment of the projects' outcomes and implementation modalities.

50. The alignment of the proposed LDCF project with the WB-BCDRP is described below, with a summary in table 3.
    - **Climate and disaster vulnerability and risk assessments.** The WB-BCDRP will develop a methodology for assessing disaster hazards and risks on the basis of which community based DRM activities can be identified. The LDCF project will also develop such an assessment methodology for the same purpose, with the addition that it aims to integrate the methodology into GoTL's local planning process (PDID). The LDCF project will build upon the Climate Variability Risk and Vulnerability Assessment (CVRVA) methodology which is presently under development by the UNDP supported LDCF project "Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk" (UNDP-SSRI), by supporting the integration of specific DRM elements. The objective is for UNDP-SSRI and the LDCF project to jointly develop one CVRVA methodology in close collaboration with MSA, which will be integrated in the standard PDID process and be used nationwide. The integration and up-scaling process will furthermore be embedded within the UNCDF/UNDP supported Local Governance Support Project, which has a clear mandate to support MSA with strengthening the PDID nationwide. The LDCF project will closely collaborate with the WB-RCRP to ensure that the methodology the WB-RCRP will develop, is harmonized with MSA's CVRVA methodology, although for project specific demands the methodology can expand on elements. The CVRVA methodology will also be incorporated into the portfolio of training courses under Outcome 1 of the LDCF project, which will streamline capacity development interventions of both projects.
    - **Climate-resilient infrastructure and DARDC management.** The WB-RCRP and WB-BCDRP will provide technology and methodologies to develop road infrastructure in a climate resilient manner, including improved road development and corridor management. The LDCF project will support WB-RCRP and WB-BCDRP with advocacy and policy influencing to create an agreement that large infrastructure works need road development, corridor and watershed management measures to become really climate resilient and sustainable. This will include studies that larger area investments and efforts of linking road construction with climate resilient local planning and local natural disaster management are important and economically viable.
    - The **geographical areas** in which both projects will develop and apply the CVRVA methodology within the DARDC, is still to be decided, but it is likely that the WB-BCDRP will work in two of the four districts. To prevent confusion of communities and other stakeholders it will be assured that overlap on geographical working areas is avoided. The LDCF project will support broader watershed management activities, which will likely overlap with areas where the WB-BCDRP project will implement infrastructural and other resilience measures to address areas with high vulnerability to climate-induced disasters. Adequate coordination will take place on design and implementation of both projects' resilience measures in these overlapping areas.
    - Because of the relatively low investment budget available under the WB-BCDRP for **financing identified resilience measures**, the LDCF project will keep the option open of allocating financial resources for implementation of identified resilience measures in community activity plans developed in the WB-BCDRP project areas.
    - The WB-BCDRP will develop a **methodology for assessing the economic effects of hazards for sectoral assets at *suco* level.** This methodology will feed into the community level CVRVA methodology design as well as the identification and planning process of resilience measures. The LDCF project will use this methodology where appropriate and will use the assessment reports e.g. for informing (sub-) watershed management plans. The LDCF project will also facilitate the linking of the methodology and assessment report to MSA's process of developing

Strategic District Plans and the PDID, as well as the integration of the methodology in the national training courses and reference resources.

- The WB-BCDRP will develop **vulnerability profiles for various asset classes** to support decision-making and contingency planning for DRM at the district and sub-district levels. LDCF project will facilitate the linking of the vulnerability profiles to MSA's process of developing Strategic District Plans and the PDID, as well as the integration of the profiles in the national training courses and reference resources.
- The WB-BCDRP will develop a **community-based DRM manual**. This manual will guide implementation of community- and landscape approaches to DRM and will be based on the harmonized CVRVA methodology of both projects. The LDCF project will support the development of the manual to use it under the project and will facilitate that it becomes part of the PDID resource package as well as a national training reference resource.
- The WB-BCDRP will develop **standardised methods and protocols for uploading and sharing data** on climate-induced disasters. These methods will be incorporated into the local EWS design as well as the portfolio of training courses under the LDCF project.
- The WB-BCDRP will develop a **standardised GIS database outlining risk exposure** in the Aileu, Ainaro, Ermera and Manufahi Districts. This database will facilitate planning, budgeting and delivery of DRM interventions at the district and sub-district levels and will be used by the LDCF project. The LDCF project will facilitate the linking of such risk exposure data to MSA's process of developing Strategic District Plans and the PDID. The information from this database will also be integrated with the national disaster database (under Outcome 1) as well as the watershed hazard/risk maps and the watershed management plans (under Outcome 3).
- The LDCF project will also support the use of above assessment methodologies, profiles, manuals and data standards and protocols in its **capacity development approach for strengthening (local) DRM institutions.**
- In support to national level **knowledge management and DRM capacity development**, the LDCF project will closely collaborate with the WB-BCDRP on pro-actively developing, capturing and disseminating knowledge at the local and national level, as well as translating knowledge and experience into capacity development interventions and training courses.

51. A joint project steering committee (PSC) for the WB-BCDRP and the proposed LDCF project has already been established to provide guidance on project designs. This PSC will continue to oversee the implementation of the two projects to optimise leveraging of resources and intervention, and avoid overlap and duplication of efforts. This will increase the efficiency and effectiveness of both projects' interventions to maximise the protection of the road infrastructure being constructed under the WB-RCRP and the up-scaling of good practice into strengthening national systems. In addition, a Technical Working Group (TWG) has been established consisting of technical level staff from all Ministries, local representatives and NGOs. The TWG will provide technical inputs during implementation of the LDCF and WB projects. At an operational level, the Project Managers and technical staff of both projects will have frequent consultations on implementation progress and planning.

Table 3: Complementarities between the LDCF project and the WB-BCDRP (by output[38]).

Output	LDCF	WB-BCDRP
1.1 National training facility established, providing services for at least 200 district officials, DDOC/DDMC members and community facilitators, in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management.	Conduct a comprehensive needs assessment for DRM training within a sample group comprising representatives of MSS, MSA, MPW, MCIE and MAF Review and update the national portfolio of DRM training modules to provide applied technical training on best practices, integrating WB-BCDRP materials Provide knowledge and training for DRM decision makers and	Develop standardised methods for uploading and sharing data on climate-induced disasters. Build capacities in relevant district and sector agencies relating to community-based DRM measures Develop a methodology for assessing disaster hazards and risks Develop a methodology for assessing the economic effects of

[38] See Section 2.4 for more detail.

	technical staff to enable them to assess the risks posed by climate-induced disasters Develop and implement an organisational strategy for management of a national disaster database	hazards for sectoral assets at suco level
1.2 NDRM Policy and institutional roles extended to address climate change and disaster risk reduction measures, including assessment methods, institutional and implementation modalities, functional and technical capacities and M&E systems.	Revise the NDRM Policy to include Integrate climate change adaptation, with a focus on women and other vulnerable groups Develop gender-sensitive recommendations for sector policies, plans and strategies to strengthen national DRM systems Produce and disseminate policy briefs to government staff in relevant institutions and line ministries describing practical approaches for DRM	
2.1 Capacities of district and sub-district Disaster Management Committees and District Disaster Operation Centres strengthened to plan, budget and deliver climate-induced disaster prevention financing in at least two districts (eg. for resilient shelter, improved grain storage and seed replacement, windbreaks, storm drains, small scale flood protection) benefitting at least 5,000 households.	Develop Community Action Plans (CAPs) to outline priorities for addressing the risks identified in CVCAs Provide DDMC/DDOCs with support to integrate climate risk management approaches into existing planning and budgeting processes Deliver financing for disaster prevention at the community-level	Develop vulnerability profiles for various asset classes. Develop a community-based DRM manual Capacity development support of communities in the DARDC will be provided to improve the ability of these communities to plan and implement practical DRM interventions
2.2. Community to district-level EWS for climate-induced extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000 vulnerable rural households, with a focus on women.	Develop and implement a model EWS tailored to the conditions facing rural communities in Timor-Leste	Implement infrastructural and other interventions to address areas with high vulnerability to climate-induced disasters
3.1. Watershed-level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 sucos, informing district and sub-district level planning, prioritisation and budgeting (linked to WB hazard assessments).	Develop a GIS-based database of geographical, geological and land use characteristics of the DARDC. Develop watershed hazard and risk maps identifying risk areas posing a threat to road infrastructure as well as economic and livelihood assets	Develop a standardised GIS database outlining risk exposure in the Aileu, Ainaro, Ermera and Manufahi Districts
3.2 Micro-watershed management plans designed and implemented to deliver community-driven resilience measures for reducing the impacts of climate-induced disasters (flooding and landslides) in vulnerable micro-watersheds along the Dili-to-Ainaro Road Development Corridor, covering at least 50,000 hectares outside of the WB road project RoW.	Integrate watershed management plans into local level planning Promote changes in land-use and agricultural practices of local communities to strengthen sustainable land management in the DARDC .	

2.3.2 Links to national policy processes

National Directorate for Disaster Management

52. The National Directorate for Disaster Management (NDMD) has a national budget allocation of US$22,375 (2014-2018) for recurrent costs such as: i) salaries for government DRM staff; ii) operational costs national- and district-level DRM offices; and iii) various equipment, goods and services for DRM. A proportion of this budget is allocated to a few large-scale development projects as well as a number of smaller capital investments. Approximately half of the budget is allocated to disaster relief interventions, including: i) cash pay-outs to those affected by disaster events; ii) capital grants for disaster recovery; and iii) provision of emergency supplies – including food, water, medical supplies, temporary shelter and reconstruction material – to those affected. A small portion of these funds form discretionary grants that are transferred to districts for locally administered DRM interventions.

National Directorate of Forestry

53. The National Directorate of Forestry – within the Ministry of Agriculture and Fisheries (MAF) – carries out activities related to conservation and the management of forests in Timor-Leste. It works with local and international NGOs to implement and promote reforestation interventions such as the planting of firewood trees (e.g. *Casuarina*), establishment of eucalypt nurseries and restoration of mangroves. The national forestry budget (US$3 million for the period of the project) provides a baseline project for implementing community-based natural resource management. This will be the starting point for watershed management interventions proposed under Component 3. At present, forestry activities do not consider climate change adaptation and the importance of natural resource management to reduce risks posed by climate-induced disasters to infrastructure, assets and livelihoods.

National Directorate for International Environmental Affairs and Climate Change

54. The National Directorate for International Environmental Affairs and Climate Change (NDIEACC) within the Ministry of Commerce, Industry and the Environment (MCIE) has a mandate for supporting the overall implementation of Timor-Leste's NAPA. Furthermore, NDIEACC is establishing a cross-sectoral and multi-stakeholder knowledge and coordination platform and resource base on CCA. The LDCF project will facilitate that the internal knowledge management mechanisms of NDMD are closely linked to the platform to broadly share the DRM issues. The collaboration with NDIEACC will also facilitate sector policy influencing on combined DRM and CCA.

Strengthening the Resilience of Small Scale Rural Infrastructure and Local Governance project

55. The LDCF project "Strengthening the Resilience of Small Scale Rural Infrastructure" (SSRI) is currently under implementation by the Ministry of State Administration (MSA) and NDIEACC. The SSRI will implement similar climate risk resilience interventions as the LDCF project. This will be achieved through the development of a Climate Variability Risk and Vulnerability Assessment methodology and strengthening bottom-up planning processes. On the basis of these, the SSRI will improve the climate resilience of small-scale infrastructure. The SSRI project is based on a (sub-)district approach and will not specifically address climate resilience issues of road development corridors nor disaster management. Nevertheless, the two projects have many opportunities for collaboration, e.g. climate resilience measures design, capacity development, up-scaling of good practice and policy influencing. For this reason, MCIE has been engaged to serve on the project board as well as at a technical level within the TWG of the DARDC project.

National Institute for Public Administration

56. The National Institute for Public Administration (INAP) – under MSA – is responsible for capacity development of civil servants in Timor-Leste. It provides a variety of public sector-related training and also provides introductory modules on DRM. However, this training is not presented in a systematic manner to all DRM practitioners at the national and sub-national levels. In addition, the training has not recently been updated. INAP also does not have the expertise nor resources to

expand the range and content of training modules on DRM. The LDCF project will support INAP in assessing training needs related to DRM at the national and sub-national levels in order to facilitate development of a comprehensive portfolio on DRM practice that is locally specific.

The University of Timor-Leste and the National Climate Change Centre

57. The University of TL is a useful knowledge and resource base for the LDCF project and a possible partner for on-the-ground research on DRM. The GoTL recently approved the establishment of a national Climate Change Centre (CCC) which is to be hosted by the University of Timor-Leste (UNTL). The need for a CCC is borne out of a necessity to reign in rapidly increasing greenhouse gas emissions and to deal with vulnerability to climate change and climate-induced extreme weather events and disasters. Timor-Leste's commitment towards establishment of a CCC is well reflected in the SDP 2011–2030. The CCC will provide policy makers, natural resource managers and development practitioners with tools and information for developing and executing management strategies that address the impact of climate variability and change on all aspects of socio-economic development as well as reduce greenhouse gas emissions. While it has been agreed to host the CCC at UNTL, the institutional arrangements in terms of governance and management as well as its functional organisational design are still to be detailed. Strategies and plans on establishing the CCC in a phased manner are still to be developed. The establishment and strengthening of the CCC will also be supported through the Second National Communication (SNC) project, presently under development.

NGOs

58. CARE International and Oxfam carry out mapping and planning exercises with communities to identify vulnerabilities and priorities for building resilience including the role of gender among the community activities. Both organizations have extensive experience with local development, community mobilization processes and with climate variability adaptation and are therefore an important possible partner for the LDCF project. **Red Cross Timor-Leste** (CVTL) is the only NGO that has experience in installing Early Warning Systems (EWSs) that remain sustainable and operational.

National and local benefits

59. The LDCF project will benefit the country by increasing the climate resilience of road infrastructure in the DARDC. This will be achieved through: i) strengthening capacity for DRM within local institutions and communities; and ii) managing natural resources in watersheds to improve climate risk management and long-term adaptation.

60. Without the project, local economies and the transportation infrastructure upon which they depend will be at increasing risk from the impacts of climate change. Furthermore, progress towards poverty reduction and economic development is likely to be hampered. The project will reduce the risk of damage to road infrastructure, thereby safeguarding associated social and economic benefits such as access to markets and essential services. Strengthening the livelihoods assets on which communities depend also safeguards household income as households are less prone to – and in a better position to recover from – climate-induced disasters. At least 5,000 households will benefit directly from LDCF resources. These households represent more than 25,000 people. The total land area benefitting from improved watershed management that will afford increased protection against the effects of climate-induced disasters will be at least 50,000 hectares. The project will focus on areas most vulnerable to localised disasters within the DARDC, so called 'hot spots'. It is anticipated that the project interventions will increase the longevity of the investments in road infrastructure thereby contributing to sustained economic growth in the long term.

61. The project will also clarify the link between climate risk reduction and sustainable agricultural practices. These land-use practices include crop production methods that support soil stabilisation by rehabilitating cleared slopes, as well as climate-smart agriculture that maximises efficient use of water resources. Although local and international NGOs are actively promoting such practices, these programmes currently do not focus on the reduction of the climate change risks, nor are they systematically used within road development corridors or for making other types of infrastructure more climate resilient.

62. The immediate benefits of the project will be that government institutions, NGOs and vulnerable communities are: i) more aware of the risk associated with climate-induced disasters; and ii) better prepared to respond to such disasters when they occur. Increased capacity will be achieved by enhancing knowledge related to DRM in government institutions. In addition, local communities will benefit from improvements to the current suite of DRM measures. Greater competencies will also be developed amongst DRM practitioners to use this information to identify climate risks. Further, measures to strengthen the climate-resilience of road infrastructure through improved watershed management along the DARDC will also be implemented. Finally, there will be transfer of resources, knowledge and skills from national to local levels and vice versa for evidence-based policy influencing and to plan for and respond to climate-induced disasters.

Gender considerations

63. In least developed countries, women tend to have lower incomes and fewer opportunities than men do, and their capacity to adapt to the effects of climate change is therefore constrained[39]. Despite their capability to innovate and lead, women have historically also been marginalised from local and national decision-making processes. It is therefore important to identify gender-sensitive strategies to ensure that women are included in measures designed to improve their resilience and capacity to adapt to climate change[40].

64. In rural Timor-Leste, the burden of agricultural work, coffee harvesting and caring for home gardens is generally shared between men and women. However, in terms of the domestic or child-rearing sphere, there is little change from traditional gender roles. While women's' vulnerabilities to climate change and disaster are similar to those of men, they do have specific additional concerns, linked to their key roles in the society and households, for example:
    - provision of water and firewood;
    - destruction of and damage to the home gardens;
    - damage to seeds;
    - hindered access to markets and hence sale of products/ generation of cash;
    - diseases and access to clinics; and
    - closing of schools.

    As elsewhere, women's concerns are broader and related to overall family wellbeing (including access to the water, education and health in post-disaster conditions).

65. In Timor-Leste, women are often excluded from certain activities due to customary norms or lack of capital and ownership arrangements that confer all rights to men in the family[41]. Women hold very few leadership positions within the districts (Annex 3). In cases where women do participate in local-level planning, they are in the minority. An important aspect of gender mainstreaming in Timor-Leste is therefore to increase involvement of women in formal and informal decision-making processes. Activities planned by the proposed LDCF project are not limited to responding to gender differences but have been designed to reduce gender inequality by empowering women and seeking their input.

66. Gender equality issues will need to be considered throughout the duration of the proposed LDCF project, as outlined in the Gender Action Plan (Annex 3)[42]. Outcome 1 will focus on analysing the gender-related elements of vulnerability to climate-induced disasters in Timor-Leste. These assessments will inform the tailoring of climate resilient and gender sensitive investments to be implemented under Outcomes 2 and 3. Aligning the project with the needs of women will increase the utility and longevity of the investments. Women will consequently be involved in planning and decision-making on implementing the investments and preference will be given to funding projects that benefit both men and women.

[39] Lambrou, Y., & Piana, G. (2006). *Gender: the missing component of the response to climate change*. Food and Agriculture Organisation, Gender and Population Division.

[40] Denton, F. (2002). Climate change vulnerability, impacts, and adaptation: Why does gender matter? *Gender & Development*, *10*(2), 10–20. doi:10.1080/13552070215903

[41] Corcoran-Nantes, Y. (2009). The politics of culture and the culture of politics—a case study of gender and politics in Lospalos, Timor-Leste. *Conflict, Security & Development*, *9*(2), 165–187.

[42] The USAID-funded project ADAPT Asia-Pacific provided additional technical assistance by making available the services of a gender and social issues specialist in the UNDP-led project design team. This specialist was responsible for developing the Gender Action Plan that forms Annex 3 of this project document.

67. The Gender Action Plan (Annex 3) outlines specific ways to facilitate the involvement of women in the project, including: i) consultation with women's forums on needs and requirements associated with interventions; ii) equal payment of men and women; iii) the formation of women's groups that are actively involved in decisions for DRR projects in their *sucos*; iv) the design and management of local EWS by women's groups and female-headed households supported by capacity development; and v) the implementation of home gardens and seed banks by women's groups.

68. Specific involvement of women and women specific activities have been mainstreamed and are fully integrated in the proposed Project Document. They are budgeted under relevant Outcomes (Section 2.4) and are presented in the Total Budget and Workplan (Section 4). Employment of a Gender Specialist, national, by PMU is also recommended and budgeted for under relevant Outputs. This equal participation of women and men is in line with the principles underlying UNDP's gender equality strategy as well as the GEF's own guidance and standards (Mainstreaming Gender at the GEF, 2008). Gender disaggregated indicators will be developed and used to monitor project progress. In addition to gender, the project will promote the requirements of other disadvantaged and more vulnerable groups including the elderly, children and less-abled.

UNDP's comparative advantage

69. The LDCF project is aligned with UNDP's comparative advantage in the areas of capacity building, providing technical and policy support, as well as providing expertise in project design and implementation. Specifically, the LDCF project will build upon UNDP's comparative advantage stemming from experience in working with governments and communities in Timor-Leste and globally on: i) establishing and strengthening institutional, policy and legislative mechanisms; ii) building capacity; iii) undertaking risk assessments; iv) mainstreaming climate change adaptation, disaster risk reduction and early warning systems into development planning; and v) harnessing best practices and community-based approaches across different thematic areas for climate change adaptation and disaster risk reduction.

70. UNDP Timor-Leste has been playing a leading role in supporting the development of the GoTL's institutional and policy response to disaster management and disaster risk reduction over the past decade. Beginning in 2002, UNDP supported the development of Timor-Leste's first DRM policy process which culminated in the Council of Ministers' approval of the National Disaster Risk Management Policy in 2008. This led to the establishment of the National Disaster Management Directorate (Ministry of Social Solidarity) as the government agency with the primary mandate for DRM in Timor-Leste. Subsequently, UNDP initiated the ongoing support programme "Strengthening Disaster Risk Management in Timor-Leste" on the development of institutional and operational systems for DRM with a focus to activate the National DRM policy by strengthening linkages between national and sub-national levels. While this UNDP-supported project is establishing and implementing various elements of a national DRM framework, it does not explicitly take the projected climate change scenarios into consideration as an increasingly relevant underlying cause of natural disasters. The scope of the project does not currently consider intensive support for capacity development of community resilience and community-level DRM measures.

71. This project was followed by an ongoing second phase of the project within the NDMD (UNDP/DRM-2) and extends earlier work that supported development of the NDRM Policy (2008). The UNDP/DRM-2 project supports capacity strengthening of the DRM system and communities, is supporting a national risk and vulnerability assessment together with mainstreaming DRM into national planning. This includes a regional element to build national capacity for seasonal weather forecasting linked to the Regional Integrated Multi-Hazard Early Warning System (RIMES) facility based at the Asian Institute of Technology in Bangkok.

72. The assessments underlying the design of the UNDP/DRM-2 have provided an in-depth understanding of institutional challenges and opportunities for strengthening the DRM system, especially at the local level. The activities of the LDCF project have therefore been designed and leveraged by UNDP to ensure an optimal link between project implementation results (e.g. knowledge, approaches to strengthening resilience capacities, DRM assessments and planning processes and actual design of resilience measures) and strengthening of national DRM institutions overall. The same is valid for leveraging the WB-BCDRP processes and outputs. Furthermore, the

LDCF project's support to knowledge management and capacity development will be coordinated closely with the UNDP/DRM-2, which will greatly increase the scope, outreach and sustainability of knowledge management and capacity development within the DRM system at national and especially local level.

73. UNDP also has long-standing experience in the infrastructure sector in Timor-Leste. This experience includes identifying, designing, contracting and implementing infrastructural investments at the local level. UNDP is therefore accustomed to implement projects in weak institutional and organizational environments at the local level, while still maintaining quality and responsiveness to local needs. Since early 2000, UNDP managed over US$50 million of funding from the Governments of Japan, Portugal and Australia to support emergency infrastructure rehabilitation projects under the UNTAET. Subsequently, UNDP implemented "The Improvement to Markets in the Eastern Districts" (AIM) project between January 2005 and February 2008. This project supported the National Development Plan to rehabilitate and reconstruct five bridges linking the eastern districts of Viqueque and Lautem.

74. Furthermore, as part of the COMPASIS project, UNDP has implemented the "Rehabilitation of Small Rural Infrastructure Project". Seven infrastructure projects were implemented in the district of Oecusse including: i) small bridge construction in Malelat; ii) community primary school construction in Bana-Afi and Noa-Ana; iii) irrigation system retaining wall construction in Lela-Ufe; iv) paddy field and irrigation system retaining wall construction in Usi-Taco; v) community well construction in Kabana Suni-ufe; and vi) community well construction in Lamase and Bene-ufe. The Local Governance Support Programme (LGSP) began in 2007 and supports local government bodies with greater responsibilities for planning, budgeting, and implementation of infrastructure and service delivery. In 2012 alone, LGSP implemented 195 infrastructure projects totalling ~US$6.3 million in 12 of the 13 districts nationally. Finally, the "Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk" (UNDP-SSRI) project was approved in 2013 and will promote the status of climate risk in local decision-making by improving local administrative capacity, accountability and public participation.

75. UNDP is equally well positioned in relation to strengthening land management and ecosystem integrity. The UNDP supported the GoTL to develop the country's first national biodiversity policy process and document, the National Biodiversity Strategy and Action Plan (NBSAP), which was approved by the Council of Ministers in February 2012. The UNDP also supported the National Adaptation Programme of Action (NAPA), which was approved in August 2011. Together with the Ministry of Agriculture and Fisheries (Directorate for Forestry, UNDP has also implemented a Sustainable Land Management (SLM) project from 2008-2010. The goal of the SLM project was to enhance the sustainability of agricultural, forest and other terrestrial land uses in Timor-Leste. This was achieved by promoting land-use practices that maintain ecosystem productivity and ecological functions while contributing directly to the environmental, economic and social well-being of the country. With UNDP's knowledge, network and institutional insights, it will be able to develop good practice regarding land management and ecosystem measures under the LDCF project, as well as linking to this good practice to policy influencing and institutional strengthening.

2.4 Project Objective, Outcomes and Outputs/activities

Project Objective: "*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.*"

76. Timor-Leste is subjected to unpredictable weather events such as high intensity rainfall, storm events, extended drought periods and variable seasonal timings. Climate change projections indicate that the country is expected to experience increased severity of climate-induced disasters[43]. These disasters increase the risk of damage to road infrastructure and community assets, increasing the vulnerability of communities to climate change. For this reason, road infrastructure along important transport corridors will be (re-)built to include disaster-resilience in design and

[43] Climate Change in the Pacific: Scientific Assessment and New Research, Vol. 2, Country Reports, Timor-Leste.

maintenance schedules[44]. However, such schedules only pertain to the road infrastructure and the Rights-of-Way (RoW) that stretches 25 m to either side of the road. Road infrastructure and the RoW remain the responsibility of the Ministry of Public Works. However, threats to road infrastructure posed by climate-induced disasters – e.g. flash floods and landslides – originate outside of the RoW. Long-term climate resilience of road infrastructure therefore requires management of watersheds on a landscape scale. At present, however, there are no strategies that link management of the wider road corridor to resilience of road infrastructure.

77. The Government of Timor-Leste has consequently requested LDCF funding to enhance the resilience of the Dili to Ainaro Road Development Corridor (DARDC) by delivering three integrated and complementary project components. Component 1 will strengthen national disaster risk management (DRM) systems and policies through capacity development and improved knowledge management and coordination. Component 2 will: i) strengthen capacity of sub-national DRM institutions to assess, design, plan, budget and deliver climate resilience measures; and ii) develop and operate an Early Warning System in the DARDC. Component 3 will protect road infrastructure in the DARDC by delivering community-based resilience measures following a watershed-management approach.

COMPONENT 1. Enabling improved climate and disaster risk management

OUTCOME 1. Knowledge and understanding of local drivers of climate induced natural disasters enhanced, and consequent impacts on economic infrastructure better understood and available to policy makers, planners and technical staff

Co-financing amounts for Outcome 1: *US$4,192,003*
LDCF project grant requested: *US$900,000*

Without LDCF Intervention (baseline)

Capacity development for Disaster Risk Management

78. At present, Timor-Leste's DRM system is unable to deal with the risks posed by climate-induced disasters. There is increasing demand from various line ministries for capacity development related to DRM. However, budget allocations within line ministries do not include DRM training. In addition, there is currently no national training facility builds technical capacity on DRM and climate change adaptation. The existing curricula on DRM[45] are inadequate to address the need for capacity development, especially at the sub-national level. There is no mechanism for updating these training courses regularly. Consequently, the present suite of training modules is in need of revision to include the latest knowledge concerning climate change adaptation and DRM, as well as to adequately reflect the specific needs of women and other vulnerable groups.

79. The UNDP-supported project "Strengthening Disaster Risk Management in Timor-Leste" (UNDP-SDRM) has supported formulation of a national DRM strategy and action plan. This plan highlights the need for decision makers at all levels to: i) better understand disaster-related risks; ii) set priorities for action; and iii) allocate resources for DRM in various sectors and districts. In addition to building capacity at the national level, the UNDP-SDRM project provides support at the district level to strengthen capacities of District Disaster Management Committees (DDMCs) and District Disaster Operations Centres (DDOCs). However, no training is presently provided to sub-district and *suco*-level stakeholders for carrying out DRM contingency and operational planning.

80. There is also an increasing demand from line ministries for access to relevant knowledge and information on climate change. Limited capacity to conduct economic analyses of climate-related risks hinders the allocation of resources to DRM. Inadequate sectoral knowledge is compounded by limited knowledge of government institutions on climate change scenarios and localised impacts of climate change as well as preparation for and response to climate-induced disasters, especially at

[44] This will be largely achieved through partnerships with donor agencies such as: i) World Bank (Dili–Ainaro road); ii) Asian Development Bank (Dili–Liquica road); and iii) JICA (Dili–Baucau Road).
[45] E.g. NDMD's courses on DRM Induction and Community-Based DRM; INAP's four DRM-related training modules.

the local level[46]. Planning for DRM is presently framed only in terms of historical climate data. As a result of this limited capacity, there is no information concerning costs associated with: i) reconstruction of damaged infrastructure; ii) losses to human livelihoods; and iii) time spent by government officials involved in disaster responses. Such information is needed to inform DRM policy and planning. There is therefore an urgent need to build capacity for the management of disaster-related information that is collated into a national disaster database.

81. The National Directorate for International Environmental Affairs and Climate Change (NDIEACC) within the Ministry of Commerce, Industry and Environment (MCIE) has already developed some capacity for knowledge management on climate change[47]. The UNDP-supported project entitled "Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk" (UNDP-SSRI)[48] has supported NDIEACC to develop and operate a knowledge management platform for climate change. In addition, the recently-established National Climate Change Centre will support cross-sectoral coordination and knowledge management to access to the knowledge for addressing the expected effects of climate change. These initiatives provide the opportunity for integration of climate-related DRM knowledge.

82. In addition to developing sectoral and cross-sector coordination, and knowledge management platforms and mechanisms, GoTL sees the recently-established National Climate Change Centre[49] as having an overarching and guiding role for national knowledge management and coordination. This will ensure that policy makers, natural resource managers, and development practitioners will have the knowledge and approaches they need to develop and execute management strategies that address the impact of climate change in Timor Leste. The CCC will be established under the University of Timor Leste.

National Disaster Risk Management Policy and institutional roles

83. The National Disaster Risk Management (NDRM) policy of 2008 cites the management of risks posed by climate change and the need for building resilience to climate change as two of its basic principles. The policy calls for investment in "climate adaptation measures" to "increase community resilience to disasters". However, it does not clearly outline how this is to be achieved. Furthermore, the NDRM policy does not define institutional roles and responsibilities related to DRM. Consequently, line ministries other than MSS are not actively engaged in planning and implementing DRM measures. These ministries do not view the mainstreaming of DRM as adding value to their own sectoral and functions. As a result, DRM is not prioritised within line ministries and there is little allocation of human and financial resources for DRM within ministry budgets.

84. Without clear elaboration of institutional roles relating to DRM, coordination between institutions is expected to remain inadequate as a result of: i) misperception of NDMD's mandates and functions; ii) limited understanding by the line ministries of their respective roles in DRM; and iii) communication gaps between various institutions[50]. Planning for and implementing DRM measures will continue in an *ad hoc* manner, which will be insufficient to address the risks posed by the expected effects of climate change on Timor-Leste.

<u>With LDCF Intervention (adaptation alternative)</u>

85. LDCF resources will be used to strengthen national capacity to plan and implement DRM measures in Timor-Leste. This capacity development will focus on: i) developing human resource capacities; ii) enhancing information management, communication and advocacy; and iii) strengthening policy support and coordination.

86. The proposed LDCF project will support strengthening of INAP as a more comprehensive training provider to capacitate DRM practitioners to deliver improved services at national, sub-national and community levels. Training will be provided to NDMD staff, district administration officials, deconcentrated line ministry officials, DDOC/DDMC members, *chefes de suco* and community-

[46] AusAID. 2012. *Functional and Organisational Review of National Directorate of Disaster Management*.
[47] E.g. through preparing the First and the Second National Communications to the UNFCCC.
[48] This project is also funded by the LDCF.
[49] The National Climate Change Centre was launched on 22 May 2014.
[50] These priorities were identified by the 2009 capacity assessment of NDMD.

based facilitators. Participants in the training programmes will have an improved capacity for *inter alia*: i) climate vulnerability assessments; ii) design of community-based DRM interventions; and iii) contingency planning for DRM. The training developed under this component will improve provision of DRM services under Components 2 and 3, particularly with regard to: i) performing community-based vulnerability assessments and action plans; ii) planning, budgeting and delivering interventions for DRM; iii) strengthening community-level EWS; and iv) investing in community-based landscape management. As a result of these strengthened capacities, decision makers and technical staff will be better able to assess climate risks and prioritise investments necessary for DRM at all levels.

87. In addition to the capacity development described above, the proposed LDCF project will review current institutional roles with regard to DRM. This review will be used to propose revisions of the NDRM policy that explicitly outline institutional roles and responsibilities for DRM. Revisions will also be proposed to the NDRM strategy and action plans. A series of information and advocacy products will be prepared to raise awareness of policy- and decision makers concerning the importance of DRM to their specific mandates.

Output 1.1 National training facility established, providing services for at least 200 district officials, DDOC/DDMC members and community facilitators, in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management.

88. Output 1.1 will provide knowledge and training for DRM decision makers and technical staff to enable them to assess the risks posed by climate-induced disasters. Training will be provided to all levels within the current institutional framework for DRM within NDMD, but will also include other stakeholders at the national, district, sub-district and community levels. Participants will include approximately district officials from all districts, all DDOC/DDMC members, District Disaster Focal Points, *chefes de suco* and the country's network of more than 100 community-based facilitators. Trainings will be delivered in a gender-equitable manner. A target of 50% female participation is set for these trainings in order to ensure meaningful participation of women in decision making forums. Where necessary, training on gender equality to government staff engaged with the project to improve their understanding of gender concerns and increase their capacity to implement project's Gender Action Plan.

89. The provision of training will occur by strengthening the scope and quality of training provision of the National Institute for Public Administration (INAP), in collaboration with NDMD. Using INAP's institutional framework, a comprehensive needs assessment for DRM training will be conducted within a sample group comprising representatives of MSS, MSA, MPW, MCIE and MAF. Based on the needs assessment, the current portfolio of DRM training will be updated and expanded. This will be informed by technical inputs from national DRM role-players – including the line ministries listed above – as well as by international best practices. Training modules developed under WB-BCDRP and UNDP-SDRM will be included in the portfolio of training to be presented under this output. The LDCF project will prioritise local-level training needs, building on the knowledge, methodologies, manuals and guidelines generated under Outcomes 2 and 3.

90. Training programmes will be run through INAP and MSA's extended network of trainers, facilitators and partners. Training will follow a "training-of-trainers" approach. A multi-disciplinary trainer team will be appointed by a panel of selectors comprising training experts from NDMD, INAP and MSA. This training team will then provide training of deconcentrated line ministry officials, district administration officials, DDMCs/DDOCs, District Disaster Focal Points and *chefes de suco*. MSA will facilitate and coordinate training at the sub-national level through its development-planning mechanisms and modalities.

91. Participants in the training courses will be taught methods on how to prioritise the types of investments necessary to reduce identified risks to acceptable levels based on specific contexts or requirements. The participants will build their knowledge and understanding of previously unfamiliar concepts, such as the importance of conserving natural ecosystems to reduce vulnerability to climate-induced disasters. The training will focus on strengthening capacities related to: i) vulnerability assessments; ii) community-based DRM approaches; iii) economic analysis of disaster

risks; iv) gender considerations for DRM; v) climate-smart agriculture tailored to Timor-Leste's projected future climate scenarios; and vi) M&E systems for DRM.

92. Furthermore, LDCF resources will be used strengthen NDMD's knowledge management system. Knowledge and awareness products[51] related to DRM will be developed and distributed to policy- and decision-makers. These knowledge products will provide guidance on: i) integrated CBDRM; ii) strengthening DRM institutions to safeguard development and investments into assets and infrastructure; iii) cost-effective DRM interventions; iv) Early Warning Systems (EWSs); v) considerations of women and other vulnerable groups in DRM; vi) community-based vulnerability assessments; and iii) watershed-management approaches to DRM. Knowledge products will be developed in a participatory way with communities, NGOs, women's groups, government institutions, development partners, knowledge centres and other stakeholders. The national information portal on DRM – developed under UNDP-SDRM – as well as the National Climate Change Centre and the knowledge management platform of NDIEACC will provide important conduits for these products..

93. Activities under Output 1.1 include:

1.1.1 Assess INAP's capacity for developing and presenting training on DRM and climate change adaptation, including: i) in-house capacity; ii) outsourcing to service providers; and iii) online training courses on virtual platforms.

1.1.2 Develop an organisational strategy to strengthen INAP's capacity for delivering training on DRM and climate change adaptation. This strategy will also outline the respective roles of INAP, MSS and MSA in developing and delivering the training.

1.1.3 Conduct a comprehensive needs assessment for DRM training. This will be initiated by NDMD and coordinated by INAP following its standard procedures. The needs assessment will include a stock-taking exercise to identify existing training materials on DRM in Timor-Leste as well as an assessment of the types of training – such as gender-sensitive DRM and climate-smart agriculture – required to build national and sub-national capacities.

1.1.4 Update and extend the portfolio of training modules to include aspects that are not sufficiently covered within the current portfolio. The training programme will be tailored to the local context with respect to: i) types of climate-induced disasters; ii) prevailing socio-economic conditions; iii) environmental considerations; iv) the needs of women and other vulnerable groups; and v) local languages.

1.1.5 Provide training on DRM to national and district officials – including deconcentrated line ministry officials, district administration officials, DDOC/DDMC members and disaster focal points – as well as chefes de suco, based on the extended portfolio of training modules. This will follow a 'training-of-trainers' approach whereby a multi-disciplinary trainer team will be capacitated to train their peers on pertinent aspects of DRM. Women will be encouraged to participate and the training will be deliver in a gender-equitable approach, targeting at least 50% of female participants.

1.1.6 Develop an organisational strategy for a national disaster database to coordinate the knowledge management of NDMD (under UNDP-SDRM), NDIEACC (under UNDP-SSRI) and the National Climate Change Centre. This will include strategies for: i) joint development of knowledge and awareness products; ii) facilitation of national and local workshops/seminars on DRM; and iii) dissemination of knowledge through national and regional platforms.

1.1.7 Develop and disseminate knowledge and awareness products documenting good practices for DRM from the LDCF project as well as other national and international projects/initiatives. Products may provide guidance on how to: i) assess the economic viability of community-based DRM solutions; ii) carry out community-based, gender sensitive vulnerability assessments for DRM; and iii) develop community-driven EbA.

Output 1.2 National DRM policy and institutional roles extended to address climate change and disaster risk reduction measures, including assessment methods, institutional and implementation modalities, functional and technical capacities and M&E systems.

94. Output 1.2 will revise existing DRM policies – including the national DRM strategy and action plan – to better reflect the risks posed by climate change. Risks specific to women and other vulnerable groups will be taken into consideration by engaging these groups in identification of specific

[51] E.g. policy briefs, guidelines, templates, brochures, assessment tools, etc.

vulnerabilities and adaptation needs. In addition, a review of current DRM roles will be carried out through institutional and human capacity assessments. This review will lead to proposals to designate new institutional roles and responsibilities in disaster risk analysis and management. This will serve to further develop the national DRM strategy and action plan to better reflect the risks posed by climate change.

95. The LDCF project will advocate at policy level for i) integration of watershed approaches into local DRM planning processes of MSA; and ii) integration of DRM resilience measures and watershed approaches into management approaches of road development corridors by MPW. NDMD will be supported to influence sectoral policies on SRM through the development of evidence-based policy briefs to inform policy- and decision-makers on the importance of DRM in their specific sectoral mandates

96. The project will also support integration of a localised EWS into the DRM institutional and organisational capacity (EWSs will be developed under project Outcome 2).

97. Activities under Output 1.2 include:

1.2.1 Integrate climate change adaptation into the ongoing revision of the NDRM Policy. This will include the implications of climate change adaptation for women and other vulnerable groups.

1.2.2 Conduct capacity assessments of NDMD, NDIEACC, MAF and other DRM stakeholders to identify institutional and organisational capacity gaps.

1.2.3 Develop gender-sensitive recommendations for relevant sector policies, plans and strategies describing institutional and implementation modalities, functional and technical capacities, assessment methods and M&E systems for DRM. This will include outlining the integration of localised EWSs into national DRM systems.

1.2.4 Produce and disseminate policy briefs to government staff in relevant institutions and line ministries describing practical approaches concerning institutional and implementation modalities, functional and technical capacities, assessment methods and M&E systems. These policy briefs will include watershed approaches to DRM (MAF), integration of community-based DRM measures into development planning processes (MSA), climate resilience of road corridors (MPW) and the functioning of localised EWSs.

COMPONENT 2. STRENGTHENED CLIMATE AND DISASTER RISK PLANNING, BUDGETING AND DELIVERY

OUTCOME 2. Subnational DRM institutions able to assess, plan, budget and deliver investments in climate change related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor.

Co-financing amounts for Outcome 2: *US$9,010,332*
LDCF project grant requested: *US$1,300,000*

Without LDCF Intervention (baseline situation)

Funding for disaster prevention and preparedness

98. Current DRM programmes are largely focused on establishing national structures for DRM in Timor-Leste. UNDP-SDRM's programme for capacity development focuses on national policy objectives and institutional coordination while also supporting some capacity development at the district level. Notwithstanding, planning and budgeting capacities for implementing DRM interventions remain weak. This is particularly the case for instituting proactive DRM interventions at the district and sub-district levels. For example, MPW and MAF undertake flood protection and reforestation respectively as part of their ongoing work. However, these activities are rarely part of an integrated DRM programme as they are not approached in a coordinated manner. Further investment in capacity development at sub-national levels is required to achieve effective implementation of DRM at the district, sub-district and community levels.

99. The District Administrator (DA) has the primary responsibility for coordinating DRM at the sub-national level. While operational capacity to implement DRM measures is being strengthened through the establishment of DDOCs/DDMCs, sub-national responses to disaster events remain

reactive and *ad hoc*. At present, district and national responses provide only partial relief to the effects of climate-induced disasters.

100. DDMCs/DDOCs face various challenges in implementing preventative measures for DRM. At present, DRM is not integrated into the Integrated District Development Planning (PDID) framework. As a result, there are limited allocations of physical and financial resources for DRM measures, as well as limited understanding of proactive approaches to preventing climate-induced disasters. At present, ~US$10,000 per year is allocated by NDMD to each district for DRM but this is mainly used for operational costs. There is limited expenditure of funds at the sub-national level for disaster prevention and preparedness. Instead, funding is administered centrally – i.e. nationally – to provide *ex post* compensation for communities affected by disaster events. While there is nascent capacity for DRM, there are insufficient resources and inadequate coordination of efforts to address climate-induced disasters effectively.

Early Warning Systems

101. Early warning systems (EWSs) are an essential and cost-effective component of disaster preparedness and response strategies. In Timor-Leste, EWSs are in a preliminary phase of implementation. At present, there are no established procedures for disseminating hazard warnings. While DDMCs/DDOCs are in principle responsible for monitoring and assessing disaster risks to communicate warnings and make contingencies for timely responses, their capacity to do this remains weak. Proper response functionality requires: i) access to EWSs that provide real-time alerts; ii) technical capacity to assess emergency situations; and iii) the ability to make timely decisions to direct emergency responses. Warnings are presently communicated through DAs or the National Operations Centre of the National Police of Timor-Leste (PNTL). Although there are relatively good communications systems between the sub-national and national levels, the standard of communication to and from the *suco*-level and further down to communities is inconsistent. More advanced stages of EWS, *viz*. monitoring and forecasting disaster events, as well as disseminating clear and timely warnings via communication protocols from the national level to the district, sub-district and community levels (especially to vulnerable populations) have yet to be developed and institutionalized. Some isolated examples of community-level EWS have been developed[52], mostly through projects and NGO support, but as a whole there are still no established procedures for disseminating hazard warnings, despite agreements on the matter having been made between government institutions.

<u>With LDCF Intervention (adaptation alternative)</u>

102. With LDCF resources, DDMC/DDOCs and disaster focal points will be provided with capacity development support to strengthen their functionality to integrate climate risk management approaches into existing planning and budgeting processes at district and sub-district levels. This support will build on skills acquired under Component 1 whereby DRM staff and other stakeholders will be trained to: i) assess risks posed by climate-induced disasters; ii) prepare and use hazard and vulnerability maps; and iii) identify cost-effective investments to reduce the risk of damage and losses to assets and livelihoods.

103. Additional grants will be provided to support improved planning for disaster prevention and preparedness within the DARDC. This funding will act as a top up to existing baseline funding already provided for disaster response (~US$10,000 per district per annum). The additional grants will allow DDMCs/DDOCs and disaster focal points to follow a more proactive approach to DRM. This will also build long-term capacity for administering larger amounts of funding for DRM. The additional grants will provide a total of US $50,000 per district per annum. The grants will be made available against a list of positive interventions based on priorities identified by local communities in DARDC. These interventions will be outside of the RoW and could include: i) erosion and flood control works such as slope stabilisation measures; ii) wind breaks; iii) climate-resilient infrastructure such as emergency warehouses and evacuation routes; iv) replacement seed distribution following crop loss; and v) routine drainage and channel clearance maintenance. Disaster prevention

[52] For example, CONCERN (an NGO) has introduced elementary flood alert systems using riverbank markers to inform residents of rising water levels. .

financing will give preference to activities proposed by women's organisations and activities that benefit women and children.

104. Development and institutionalisation of EWSs will also be supported by the project. Existing district- and local-level disaster response communication systems will be assessed to determine their suitability for wider application. This work will actively involve the communities at risk to: i) build requisite capacities; ii) facilitate public education and awareness of risks; and iii) disseminate disaster warnings effectively and in a timely manner. A suitable EWS will be developed, installed and tested in at least four sub-districts – one each in Aileu, Ainaro, Ermera and Manufahi Districts – to provide warnings to ~5,000 households at risk from climate-induced disasters.

Output 2.1 Capacities of district and sub-district Disaster Management Committees and District Disaster Operation Centres strengthened to plan, budget and deliver climate induced disaster prevention financing in at least two districts (eg. for resilient shelter, improved grain storage and seed replacement, windbreaks, storm drains, small scale flood protection) benefitting at least 5,000 households.

105. Output 2.1 will strengthen the functional DRM capacities of district and sub-district stakeholders – including community members – to deliver investments into disaster prevention and preparedness. The project will support the development of sub-district level climate and disaster risk maps. These maps will be based on CARE's methodology[53], following a community-based approach using the livelihoods asset concept to generate relevant local data through Community Vulnerability Capacity Assessments (CVCAs). Communities will be supported to develop Community Action Plans (CAPs) identifying climate-resilient measures which can be integrated into the respective *suco* development plans as part of the PDID process. The LDCF project will focus on integration of DRM perspectives within this methodology. The methodology will be gender sensitive in order to strengthen the assessment, planning and implementation processes (Annex 3). The NGOs conducting these assessments will provide trained community facilitators with experience in gender mainstreaming. To support the increased participation and capacity of women in DRM activities, the project will support the establishment of Women's groups in each suco/aldeia which applies for DRM funding. Separate consultations will be conducted with women's focus groups in addition to the consultations held with the community as a whole. Emphasis will be placed on recommendations emerging from consultations with women's groups. The CAPs will be designed to complement the community-based DRM manual developed by the WB-BCDRP. Furthermore, CAPs will facilitate planning and budgeting for community-level DRM by NDMD, MSA, MAF, NGOs and other institutions. The CVCAs and CAPs will build on the guidelines and toolkits developed by the WB-BCDRP such as: i) the GIS database of risk exposure; ii) the vulnerability profiles for assets; and iii) the community-based DRM manual. This will be done in collaboration with the WB-BCDRP, MSA and UNDP-SSRI to ensure the methodology is integrated and up-scaled as part of on-going planning processes[54] and DRM work.

106. A top-up grant system for DRM will be piloted to demonstrate the feasibility of integrating DRM into annual district planning and budgeting. DDMCs/DDOCs and disaster focal points will be supported to apply the training received under Output 1.1 following a "learning-by-doing" approach. The LDCF project will provide US$50,000 per district per annum to finance investments from a menu of positive prevention measures. On the basis of the CAPs, local communities will prioritise investments to be made following the approach utilised by the UNDP-SSRI project to align with the PDID process. The prioritisation will take place as part of the annual *suco* planning and will subsequently be brought up to the sub-district and district plans as part of the PDID planning cycle. The districts plans, including the LDCF project activities, will then be approved by MSA as part of the normal plan approval process.

107. Delivery of the top-up funding will follow standard government procedures. These may include: i) transfer of funds into the district bank account (following standard MSA practice); ii) government procurement of goods/services from contractors; iii) the NGO grants modality; or iv) the community "cash-for-work" modality. As officials receive proposals from communities, they will follow the financial and operational guidelines to: i) disburse funds to deliver investments; and ii) monitor,

[53] This methodology is also used for the UNDP-SSRI Climate Variability Risk and Vulnerability Assessments
[54] For example, PDID and the National Plan for *Suco* Development (PNDS) being implemented by the MSA.

evaluate and report on expenditure as well as progress in delivering investments. Financial and operational guidelines will be developed according to standard GoTL procedures to ensure that funding is administered transparently and effectively. The guidelines will clearly outline eligibility criteria for the selection of proposals. These criteria will show whether the proposals: i) include a clear demonstration of disaster resilience of proposed intervention; ii) promote gender sensitivity whereby women are major beneficiaries of proposed investments; iii) consider cost effectiveness; and iv) promote sustainability.

108. The menu of prevention measures will be designed according to the local socio-economic and environmental context, taking into account the types of disasters expected. The potential interventions will: i) have demonstrable effects in reducing risk of climate-induced disasters; ii) focus proactively on preventing and preparing for disasters; iii) provide clear benefits to women and other vulnerable groups; iv) be cost effective; and v) require minimal ongoing maintenance.

109. Communities will be made aware of the potential for receiving funding for community-level investments into disaster prevention and preparedness. Simple and clear guidance – in local language – will be provided to *chefes de suco*, community facilitators, women's groups and NGOs. This guidance will detail the: i) process of prioritising investments (paralleling PDID); ii) types of interventions that will be supported; iii) importance of aspects such as gender sensitivity, cost effectiveness and sustainability; and iv) financial management. The sensitisation of communities on these investments will be integrated into CVCAs and CAPs. In this way, communities will benefit from a suite of DRM interventions that include community-level investments into prevention and preparedness (under this output) as well as watershed-level interventions following an ecosystem-based approach (under Output 3.2).

110. Activities under Output 2.1 include:

2.1.1 Develop a top-up grant system to local DRM institutions and local administrations for increased finance of disaster prevention and -preparedness activities as well as general resilience measures.

2.1.2 Develop guidelines and operational manuals for the top-up grant system to deliver disaster prevention and preparedness interventions. The manuals will outline: i) integration of the CVCAs and CAPs into the PDID and other planning processes; ii) criteria for eligibility of community-based DRM proposals, including gender-sensitivity; iii) evaluation of proposals/funding requests; iv) financial arrangements following standard government procedures; and iv) monitoring, evaluating and reporting expenditure.

2.1.3 Support the formation of women's groups in each *suco/aldeia* applying for DRM funding. These groups will prioritise interventions that cater specifically for the needs of women and other vulnerable groups. One intervention from the general community consultations and one from the consultations with the women's groups will be funded.

2.1.4 Develop a menu of interventions for disaster prevention and preparedness that reduce vulnerability of communities to climate-induced disasters. These interventions will be tailored to reflect the context of communities in DARDC concerning community livelihood strategies as well as the type of disaster risk. Interventions could include: i) slope stabilisation; ii) wind breaks; iii) disaster-resilient shelters; iv) emergency evacuation routes; v) stores for emergency supplies (food, water, medicine, construction materials); vi) emergency seed distribution and seed banks; and vii) protection and/or routine maintenance of critical infrastructure.

2.1.5 Sensitise communities on the availability of financing for disaster prevention and preparedness. Topics to be covered include: i) criteria for selection of proposals; ii) the menu of interventions to be financed (based on the menu developed above); iii) financial and other management aspects; and iii) the process for prioritising community-level investments (following the UNDP-SSRI modality).

2.1.6 Conduct participatory Community Vulnerability Capacity Assessments that identify: i) unsustainable land-use practices; ii) vulnerable community assets and livelihood strategies; and iii) at-risk ecosystems. The CVCAs will be conducted by an international NGO (INGO) that has working experience at the project intervention sites or districts.

2.1.7 Develop community-driven and gender-focused Community Action Plans that prioritise measures to reduce the risks and vulnerabilities identified in CVCAs. CAPs may outline investments into both 'hard' approaches (for implementation under Output 2.1) and watershed management approaches (for implementation under Output 3.2). CAPs will include timelines, best practices

and integration of changes in land-use practices into *tara bandu*[55]. The active participation of local communities will necessitate the identification of appropriate mechanisms for: i) sharing benefits that result from project interventions; and ii) promoting the use of *tara bandu* to facilitate dialogue within communities. In addition to the participation of local communities, the activity will require the participation of NGOs throughout the implementation period to enable the replication and sustainability of project interventions beyond the period of implementation.

2.1.8 Deliver community-level disaster prevention investments according to the operational manuals of the top-up grant system. DDMCs/DDOCs and/or disaster focal points will be responsible for administering the finances. Investments will be delivered following the PDID process and based on community priorities identified in CVCAs/CAPs. Preference will be given to interventions that are proposed by women's organisations and interventions that provide demonstrable benefits to women, youth and other vulnerable groups.

Output 2.2. Community to district-level EWS for climate-induced extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000 vulnerable rural households, with a focus on women.

Output 2.2 will support NDMD and the local DRM institutions with the development of a model EWS to provide advance warning of disaster events. An assessment of the *status quo* of EWS implementation in Timor-Leste will identify gaps – including capacity gaps and infrastructure needs – that prevent successful operation of EWSs. The assessment will also evaluate EWS that are currently operational to identify best practices that could be upscaled and replicated successfully. In addition, existing initiatives for disaster communication and response at the district, sub-district and local levels will be assessed to determine their suitability for wider application. Particular focus will be placed on identifying traditional approaches to identifying and developing warnings on disaster risks. The design of the EWSs will: i) actively involve at-risk communities; ii) build in required capacities; iii) facilitate public education and awareness of risks; iv) disseminate information simply and in a timely manner; and v) ensure that women are able to participate meaningfully in implementation, maintenance and monitoring of EWSs

111. Based on the above assessment, a model for EWS will be developed. This model will be tailored to the conditions facing rural communities in Timor-Leste. Examples of these conditions include: i) remoteness and inaccessibility of communities; ii) adverse terrain; iii) limited literacy; iv) poor telecommunications networks (e.g. radio, television and cellular phones); and v) limited access to electricity. Along with the model, standard operating procedures (SOPs) will be developed to facilitate the implementation of EWS. SOPs will describe all the stages of disseminating warning messages – i.e. from the acquisition of data to receiving and responding to messages – in a clear, detailed and easily understandable manner. The model and SOPs will establish clear protocols for sharing disaster warnings vertically (i.e. from national to district, sub-district and local levels) as well as horizontally (i.e. between line ministries, NGOs, district officials and community members).

112. The EWS will be designed, tested and installed in four sub-districts within the DARDC – one sub-district each in Aileu, Ainaro, Ermera and Manufahi districts – covering approximately 5,000 households at risk from climate-induced disasters. EWSs will be tailored to the local conditions, taking into account the accessibility of communities and their capacity to receive and act on early warnings. Women will be consulted during the design process in order to ensure that their specific needs in relation to DRM – for example, ensuring safe access to water by foot – are reflected. Based on the requirements of the EWS model and SOPs, equipment and infrastructural needs will be addressed. The EWS will link with weather observation stations operated by MAF-ALGIS to facilitate the application of information by farmers. As end-users, these farmers will benefit from enhanced capacity to plan and adapt agricultural practices to warnings on climate variability and climate change impacts.

113. To facilitate effective engagement of local communities, outreach programmes will build requisite capacities for participating in EWS. All stakeholders – i.e. community members and government officials – will receive targeted training on their specific roles in the generation of an early warning message. On one hand, district officials may be responsible for informing PNTL of impending disasters and preparing response and relief measures. On the other hand, communities will be

[55] Traditional laws within local communities.

responsible for following contingency plans to protect themselves, their assets and livelihoods, and vulnerable community members from disaster risks.

114. Activities under Output 2.2 include:

2.2.1 Assess the current state of early warning and response systems currently operated by NDOC, DDMCs/DDOCs, CVTL, PNTL, MAF, PIG and ND Met to identify best practices, traditional knowledge, gender considerations and capacity gaps.

2.2.2 Develop a model and SOPs for EWS through stakeholder consultation and expert analysis. The model and SOPs will incorporate the findings from the assessment conducted in Activity 2.2.1 as well as from international best practices. Specific emphasis will be made placed on modalities that are appropriate for remote communities with limited means for receiving and transmitting messages. The model and SOPs will cover all stages of EWS including: i) acquisition of data; ii) interpretation of data to identify specific risk; iii) development of warning messages; iv) delivery of warning messages to communities and district/sub-district officials; and v) appropriate responses of communities and government officials to disaster warnings. In each of these stages gender considerations will be integrated to ensure women and children are an integrated part of the EWS. The EWS will be established and test piloted in four sub-districts covering at least 5,000 households. The EWS will be tailored to specific conditions to minimise the risk of warnings not being communicated to remote communities and especially to women, who are most often vulnerable to disasters. This will include providing infrastructure to facilitate delivery of warning messages such as: i) solar cells and radio for remote communities; ii) pre-paid mobile phones; iii) two-way radios for reporting agents; and/or iv) loud speakers. Pilot EWS installations will be suitable for operation, maintenance and monitoring by women.

2.2.3 Conduct public awareness and training campaigns on EWS. This will include targeted training of community members – with particular focus on women – as well as national and sub-national officials. Training courses will cover aspects such as: i) procedures for distributing warnings; ii) interpretation of warnings to define practical actions to be taken; iii) specific needs of women and other vulnerable groups; and iv) proactive risk reduction measures such as contingency planning and evacuation. Targets for involvement of women will be set to ensure equitable participation, and participation will be encouraged by providing childcare support during training sessions.

COMPONENT 3. Investments in climate resilient community based adaptation measures.

OUTCOME 3. Community driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy.

Co-financing amounts for Outcome 2: US$23,000,000
LDCF project grant requested US$2,800,000

Without LDCF Intervention (baseline situation)

115. The World Bank “Road Climate Resilience” project (WB-RCRP) central investment in road infrastructure in the DARDC will only be used for climate-resilient activities within the RoW. Interventions within the RoW will focus on structural design and landscape engineering to provide stability against the risks of localised landslips and high-intensity water flows. However, damage to road infrastructure is likely to occur despite the climate-resilient measures proposed for the RoW. The area of risk extends beyond the RoW into the adjacent watersheds that drain towards the road. Despite this, actions for watershed management tend to be piecemeal and are not specifically designed to protect road infrastructure. The investments in road infrastructure are consequently vulnerable to climate-induced disasters unless these risks are addressed on a landscape scale. These additional risks will be addressed through a joint approach that will be implemented through the WB-BCDR project and the proposed LDCF project.

116. MAF’s national budget for reforestation provides a basis for the implementation of targeted measures to improve watershed management along the road corridor. In addition, a number of national and international NGOs provide support at *suco* and *aldeia* levels for land and water management, consequently contributing towards improved watershed management. Reforestation measures include plantations of firewood trees (such as *Casuarina*) and the establishment of

eucalypt nurseries. Although much of this work shows awareness of climate risks, the linkages to infrastructure, assets and livelihoods are not yet explicitly or systematically made.

117. The 2011 household income and expenditure survey[56] indicated that most households have limited financial and other resources to invest in DRM. As a consequence, local communities will remain vulnerable to the effects of climate change. This is because such communities rely strongly on livelihoods – e.g. crops, NTFPs – that are negatively affected by climate-induced disasters. The vulnerability of communities in Timor-Leste to climate-induced disasters will further increase owing to maladaptive responses that cause environmental degradation. This degradation results from *inter alia* unsustainable farming techniques such as slash-and-burn agriculture and reduced practice of traditional terrace farming. Environmental degradation will lead to: i) agricultural lands becoming nutrient-poor owing to increased soil erosion; ii) reductions in soil stability; and iii) decreased water-holding capacity of soils. Consequently, degraded areas are characterised by reduced agricultural productivity as well as increased susceptibility to flooding and landslides.

118. Existing DRM initiatives are being implemented by NGOs such as CARE, CRS, CVTL and Oxfam. However, these initiatives do not yet take the predicted effects of climate change into account in their approaches. This is because there is no imperative to assess the risk of climate change to natural systems and incorporate this risk into management strategies. A new approach – based on climate risk and resilience – is required to enable these initiatives to provide increased protection of infrastructure, assets and livelihoods to the effects of climate-induced disasters.

With LDCF Intervention (adaptation alternative)

119. The LDCF project will strengthen the capacity of the National Directorate of Forestry within MAF to develop watershed management strategies and plans as well as to design and implement resilience measures. MAF national staff and district extension officers – who will be involved in implementation of Outcome 3 – will have their capacity strengthened through on-the-job support, training by NGOs and consultants working on the project as well as targeted training provided under Component 1.

120. To address the anticipated effects of climate change on the DARDC, the LDCF project will restore degraded ecosystems – such as floodplain and hillside ecosystems – at the sub-watershed level[57]. In addition, the project will promote best practices of land use that reduce the vulnerability of road infrastructure to climate-induced disasters. Such best practices will include the implementation of reforestation and agricultural activities that will maintain more permanent vegetation cover in the watersheds, whether on agricultural fields or mountain slopes. Re-vegetation will stabilise the soil, thereby reducing soil erosion and improving the infiltration of water into the soil profile. This will reduce the occurrence of flood and landslide events within the DARDC. In addition, the increase in tree cover will provide opportunities for planting of coffee and other shade crops that will in turn provide economic and livelihood opportunities for communities. As a result, the risk of damage to the road infrastructure resulting from climate-induced disasters will be reduced. At the same time, the interventions will improve agricultural productivity and consequently strengthen the livelihoods of local communities.

121. The design of the proposed LDCF project builds on lessons learned from other initiatives with experience of *inter alia* permaculture, agro-forestry and conservation agriculture in Timor-Leste. Examples of such initiatives include the MAF-FAO Conservation Farming Project, Asia Development Bank's Bio-engineering work and various NGOs such as CARE, Oxfam, Permatil and RAEBIA. The adaptation interventions proposed in this project have been designed as a package of complementary activities that: i) incorporate traditional and modern techniques for crop farming; ii) require few inputs; and iii) respond to the anticipated effects of climate change on women, youth and other vulnerable groups.

122. Furthermore, the design of on-the-ground interventions will follow a participatory approach. In particular, the proposed LDCF project will facilitate the involvement of local communities in selecting

[56] National Statistics Directorate (NSD). 2011. Timor-Leste Household Income and Expenditure Survey 2011. General Directorate for Analysis & Research, Ministry of Finance, Timor-Leste.

[57] The USAID-funded project ADAPT Asia-Pacific provided additional technical assistance by making available the services of an ecosystems specialist in the UNDP-led project design team. This specialist was responsible for developing the interventions under Component 3 as well as Annexes 4, 15 and 16 of this project document.

and prioritising interventions that are tailored to their specific conditions. This approach will promote 'buy-in' and ownership of the project's activities by local communities. This will contribute to in the long-term sustainability of the project's outcomes. In addition, the sustainability of the project will be further facilitated by establishing collaborative relationships with relevant partners such as local NGOs and MAF extension officers at the sub-national level. These partners focus on reducing ecosystem degradation and promoting agricultural productivity. Their activities are consequently complementary with the stabilisation of watershed slopes as outlined under Output 3.2 of this project.

Output 3.1 Watershed-level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 sucos, informing district and sub-district level planning, prioritisation and budgeting (linked to WB hazard assessments).

123. Output 3.1 will identify the causes of vulnerability to climate-induced disasters in the DARDC from a watershed perspective. The project will support MAF's National Directorate of Forestry to produce watershed hazard and risk maps by combining information from existing geographical, geological and land use maps with remote-sensing imagery using GIS-based technology. The watershed maps will identify critical risk areas in watersheds (e.g. deforestation, slash-and-burn agriculture, landslides) which pose a risk to the Dili-Ainaro road as well as existing villages and other economic and livelihoods assets. The maps will be used to guide planning for sustainable agricultural and land management interventions as resilience measures.

124. These watershed maps will build on the comprehensive risk and hazard assessment developed by the WB-BCDRP and the Comprehensive National Hazard, Vulnerability and Risk Assessment and Mapping (2012-2013) conducted by UNDP-SDRM. While these on-going risk and hazard assessments have a particular focus on economic infrastructure and assets, the watershed maps will detail climate vulnerabilities of community livelihoods and the natural environment on which these livelihoods depend at the sub-district level. Given that the information from the above-mentioned assessments will be integrated with MAF's Agriculture and Land Use Geographic Information System to provide enhanced data on agro-ecological characteristics of the DARDC. The watershed maps will also build on the vulnerability assessments developed under Output 2.1, by adapting the CVCAs and CAPs produced by CARE for application on a watershed level. A more detailed description of the related activities is provided in Annex 15.

125. Activities under Output 3.1 include:

3.1.1 Collate existing data from the WB-BCDRP, UNDP-SDRM and MAF-ALGIS as well as remote-sensing imagery to develop a GIS-based database of geographical, geological and land use characteristics of the DARDC.

3.1.2 Integrate the GIS-based data with the CVCAs and CAPs (from Output 2.1) to develop watershed hazard and risk maps identifying risk areas posing a threat to road infrastructure as well as economic and livelihood assets.

Output 3.2 Micro-watershed management plans designed and implemented to deliver community-driven resilience measures for reducing the impacts of climate-induced disasters (flooding and landslides) in vulnerable micro-watersheds along the Dili-to-Ainaro Road Development Corridor, covering at least 50,000 hectares outside of the WB road project RoW.

126. The watershed maps developed under Output 3.1 will be the basis for developing watershed management strategies and plans for selected critical sub-watersheds in the DARDC. These strategies and plans will cover at least 50,000 hectares with a focus on strengthening community-based DRM following a watershed approach. The watershed strategies and plans will detail interventions to address the results of intense rainfall events – such as excessive erosion, flooding and landslides[58] – in climate-vulnerable areas along the DARDC. Interventions will include changes in land-use and agricultural practices, reforestation of degraded lands, contour stone walls, farm

[58] See Annex 12 for a literature review that describes the types of landslide risks likely to be found in the Dili to Ainaro Road Corridor area, the mechanisms that cause landslides and the actions the proposed LDCF project could take to protect communities and infrastructure.

ponds, check dams, percolation ponds and slope stabilisation measures. A more detailed description of these interventions is provided in Annex 15. Local communities will be provided with skills and techniques to increase their resilience to climate-induced disasters by reducing localised environmental degradation. Project activities will take place in demonstration farm plots and areas – either on communal land or within volunteer's farms – identified by local communities as being particularly vulnerable to climate-induced disasters. The demonstrations will be accompanied by a community outreach campaign. During this campaign, local communities will be sensitised concerning the objectives, benefits and practical implementation of the project's activities in an appropriate language and format

127. The project will support MAF to develop the watershed management plans. The project will also support MAF with the integration of these watershed management plans into the local-level Strategic District Plans as well as the PDID process. On the basis of these plans, the project will finance and support implementation of selected climate-resilient measures in the DARDC. The district-based MAF Extension Staff will provide targeted extension services and support to communities for implementation of resilience measures. MAF staff will also be involved in the design and implementation of resilience measures related to ecosystems and reforestation. The project will also assess opportunities for a 'Payment for Ecosystem Services' approach to watershed management to incentivise community involvement.

128. The interventions implemented under this output will be aligned with those developed under output 2.1 and the community-based DRM interventions implemented by the WB-BCDRP. The project will develop the necessary operational manuals, technical designs and implementation guidelines for these interventions. Overall, the activities in Output 3.2 will provide practical low cost and low input methods to ensure that the watershed management plans developed result in concrete actions. Local MAF Extension Officers, DDOC/DDMC members and NGOs will participate actively in facilitating community-based work as part of the on-going learning-by-doing approach.

129. Activities under Output 3.2 include:

3.2.1 Support MAF to ingrate the watershed management plans at the local level into the Strategic District Plans and the PDID process.

3.2.2 Develop watershed management plans to address the vulnerabilities of road infrastructure as well as local communities in the DARDC. These plans will identify interventions that are tailored to communities' livelihood strategies as well as the type of disaster risk and the particular needs of women. Interventions could include: i) permaculture/conservation agriculture with a focus on climate-smart agricultural production; ii) home gardens; iii) reforestation of degraded slopes; iv) check dams; v) alley cropping; vi) contour planting; and vii) terracing.

3.2.3 Implement interventions prioritised in watershed management plans, including: i) ecosystem farming that is diverse, multi-storey and mid-successional to promote climate resilience and productivity; ii) permaculture/conservation farming/agro-forestry methods applicable to local conditions that increase resilience to climate impacts such as water scarcity; iii) planting trees that will reduce the risk of erosion while also providing shade for coffee plantations; and vi) home garden and hillside farming techniques (see Annexes 12 and 15). These will include interventions that provide specific benefits for women and other vulnerable groups. For example, home gardens will be designed to enable implementation, maintenance and monitoring by women and women's groups. The same mechanisms used under Outcome 2 will be used to promote benefit-sharing and the use of *tara bandu* to facilitate planning and implementation at the community level. The activity will involve collaboration of local MAF Extension Officers and NGOs during implementation to support the replication and sustainability of such interventions beyond the project period.

3.2.4 Reforest slopes using *fukuoka*-style seedballs to rehabilitate larger vulnerable slopes previously damaged by slash-and-burn agriculture, erosion and other forms of ecosystem degradation. During the reforestation activities, priority will be given to a wide variety of species that have multiple benefits for local communities. Restored forests will comprise deep-rooting, shallow rooting and leguminous species. In addition, species that generate useful products such as food, fodder, mulch, medicine, dyes, timber and firewood will be prioritised. This restoration activity will be complementary to the introduction of eco-agricultural practices in Activity 3.2.2 and 3.2.3.

3.2.5 Develop and disseminate information and materials to promote public awareness on watershed management approaches to reduce hazards posed by climate-induced disasters. This dissemination will take place through appropriate media such as videos, community theatre and

national/local radio programmes. Information materials to be distributed include: i) best practices for climate-resilient agriculture; ii) best practices for climate-resilient bio-physical interventions; iii) agricultural almanacs/calendars; and iv) permaculture templates.

2.5 Key indicators, risks and assumptions

2.5.1 Indicators

130. Indicators for the proposed LDCF project were developed in line with UNDP's Strategic Plan, UNDP's "Monitoring and Evaluation Framework for Climate Change Adaptation" and UNDP's Country Programme Document. In addition, project indicators were aligned with the LDCF Adaptation Monitoring and Assessment Tool (AMAT). The Project Results Framework in Section 3 details indicators, baselines, targets and sources of verification at the Objective and Outcome level. These indicators will be used to track progress in achieving project Outcomes. Baseline values for these indicators will be collected within the first six months of project implementation.

131. At the level of the Project Objective, the indicators are as follows:
- Increased capacity for climate and disaster risk planning, budgeting and delivery at the national and sub-national level.

132. The Outcome-level indicators are described below.

Outcome 1. Knowledge and understanding of local drivers of climate-induced disasters enhanced, and consequent impacts on economic infrastructure better understood and available to policy makers, planners and technical staff.

133. Indicators
- Number of targeted institutions with increased adaptive capacity to reduce risks of and response to climate variability [AMAT 2.2.1]
- Number of staff trained on technical CCA and DRM themes, disaggregated by gender [AMAT 2.2.1.1]
- Type and number of recommendations to sector policies, strategies, plans and institutional mandates for climate change adaptation and disaster risk management that specifically address needs of women

Outcome 2. Sub-national DRM institutions able to assess, plan, budget and deliver investments in climate change related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor.

134. Indicators
- Increase in delivery of DRM interventions at district level
- % of beneficiaries of community-level DRM interventions that are women
- Risk reduction and awareness activities introduced at local level, including: i) EWS; ii) improved resilience of agricultural systems; and iii) erosion control/sustainable land and water management [adapted from AMAT 2.3.1.1]

Outcome 3. Community driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy.

135. Indicators
- Number of households with more secure access to livelihood assets and methods – disaggregated by gender
- Cover of changed land use that is watershed friendly and supports its functional integrity to enhance food security and protect infrastructure against disasters
- % of households that demonstrate an awareness of improved land use and food security/disaster mitigation through their livelihood- disaggregated by gender [adapted from AMAT 2.3.1]

2.5.2 Risks and assumptions

136. Risks, mitigation/reduction measures and assumptions to the LDCF project are summarised below, and assigned to indicators in the Project Results Framework (see Section 3).

Table 3 Risks, mitigation measures and assumptions

#	Risk	Impact and Probability	Mitigation measure	Assumption
1	Technical staff and community leaders are constrained from attending training sessions.	I: 4 P: 2	Transport costs will be paid to non-Government trainees attending training sessions. DSA will be paid to Government staff only when travel outside the duty station.	Technical staff and community leaders will be willing to attend training sessions.
2	Attendance of training sessions does not translate into enhanced DRM.	I: 4 P: 3	Pre- and post-training assessments of capacity will be conducted. During training courses, uptake of material will be monitored.	Trainees leave training with improved capacity.
3	Sectoral ministries are unwilling to adopt recommendations on policies.	I: 4 P: 3	Recommendations for policy will be given after training and awareness raising activities.	Recommendations for sector policies, strategies and plans will be accepted and mainstreamed.
4	Inadequate quality of proposals mean that no community-level interventions for DRM are accepted for funding.	I: 4 P: 4	The clear guidelines provided will increase the capacity of communities to develop quality proposals.	Communities are able to produce project proposals that meet criteria for receiving funding.
5	DDMCs/disaster focal points are unable to procure the necessary materials to implement community-level interventions for DRM.	I: 4 P: 3	Interventions will be designed to be as simple as possible. Interventions will use locally available materials.	DDMCs/disaster focal points will be able to spend funds appropriately and timely.
6	Rugged and inaccessible terrain prevents effective installation and/or operation of EWS.	I: 4 P: 2	EWS will be tailored to suit local contexts.	Implementation sites are easily accessible.
7	Limited capacity prevents early warnings from being disseminated or received in time or interpreted for taking necessary action.	I: 4 P: 3	The proposed LDCF project will develop capacity to enable EWS to operate. Capacity building will include a mentorship programme.	DDMCs/disaster focal points have capacity to operate EWS.
8	Communities are unwilling to adopt new farming methods.	I: 4 P: 2	The benefits of new farming methods will be demonstrated to farming communities. Consultation with communities will ensure the selection of interventions that the communities need.	Communities see eco-farming, reforestation and bio-engineering methods as desirable given development imperatives and lifestyle preferences.
9	Communities not willing or able to move to settled farming.	I: 4 P: 3	As above, the benefits of	Communities practicing slash-and-burn agriculture will be

			conservation farming approaches will be demonstrated to communities.	willing to practice settled conservation agriculture.
10	New land-use methods create a disproportionate burden of work on women.	I: 3 P: 4	Consultations with women's groups will design interventions for women that do not take too much time and are appropriate.	Interventions do not burden women and compromise their time available to fulfil their domestic duties.
11	Reforested common areas become a source of dispute for resources and community leaders are unable to negotiate the equitable distribution of benefits.	I: 4 P: 3	Community buy-in will be strengthened throughout the project through involving the community in decision making. Training and increased awareness of the community will improve their understanding of the benefits of the reforested forest. The benefits of reforestation to the community will be demonstrated to the community.	Communities see reforested areas as a common resource which will enhance their resilience to climate variability and reduce the risk of disasters affecting them and critical infrastructure such as the road.
12	Uptake of knowledge is low and resilience not significantly improved.	I: 4 P: 3	Training and knowledge transfer will be conducted throughout the life of the project. Knowledge transfer will be conducted through mentoring as well as formal training sessions.	Knowledge uptake is improved.
13	The needs of women are not analysed and addressed and they do not benefit from the project interventions	I: 3 P: 3	The project interventions have been tailored to provide specific benefits to women. A gender specialist will provide guidance on and monitoring of gender sensitivity.	Women have better access to resources to improve their livelihood.

2.6 Cost-effectiveness

137. The proposed LDCF project has been designed with an inherently cost-effective approach. The project objective is to safeguard communities' assets, livelihoods and investments into road infrastructure in the DARDC. In the absence of the project, the longevity and sustainability of these ongoing investments in road infrastructure are at risk to damage caused by climate-induced disasters. Strengthening the livelihoods assets on which communities depend also safeguards household income, as households are less prone to – and in a better position to recover from – climate-induced disasters (see Annex 3). At least 5,000 households will benefit directly from LDCF resources. These households represent more than 25,000 people. The total land-area benefitting from improved watershed management that will afford increased protection against the effects of climate-induced disasters will be at least 50,000 hectares.

138. The project will invest in measures that have been shown to be cost-effective in reducing the effects of climate-induced disasters. These measures include: i) building technical capacity; ii) strengthening relevant institutions; iii) investing in disaster prevention and preparedness; iv) establishing pilot

EWS; and v) implementing priority interventions for watershed management. The cost-effectiveness of some of the proposed LDCF project's interventions are considered in further detail below.

Cost-effectiveness of disaster prevention and preparedness

139. Timor-Leste is expected to incur US$5.9m year^{-1} in losses to natural disasters. This is expected to increase to US$55.7m year^{-1} by 2060 unless there is investment in prevention and preparedness.[59]

140. In 2012, 54% of Timor-Leste's national budget was spent on infrastructure. US$167m was spent on roads alone and represents a substantial increase from US$40m spent over the previous year[60]. In 2010, the GoTL spent US$2,161m on repairs to infrastructure[61].The amount spend on repairing damages would be significantly reduced by the inclusion of disaster-resilient in the design of new construction projects. This is estimated to increase construction costs by 1%[62]. In comparison, the cost of repair and reconstruction of damage caused by climate-induced disasters is estimated to be 35-40% of total construction costs. As such, it is estimated that in Timor-Leste, an extra US$1.67m in construction costs will mitigate over US$58m worth of damage.

141. The project's investments will include extensive capacity building and training to strengthen national, sub-national and local capacity to plan for and manage disaster risks. The training and capacity-building activities implemented by the project will focus primarily on disaster preparedness and prevention, rather than disaster response and recovery. Analysis of cost-effectiveness of 22 international DRM case studies demonstrated that proactive investments in strengthening disaster preparedness are more cost-effective than reactive *ex post* interventions (i.e. response, recovery and reconstruction)[63,64]. In each case study, investments in disaster preparedness generated net positive benefit-to-cost ratios (BCR) and internal rates of return (IRR).

142. The Mercy Corps cost-benefit analysis of the disaster risk reduction project in Kailali, Nepal concluded that similar DRR activities in similarly hazard prone areas — such as those proposed in Timor-Leste — are likely to return in benefits at least 3.49 times the original cost of the investment[65]. The proposed project in Timor-Leste will invest ~US$1.3m in disaster prevention and preparedness and will return an estimated US$4.5m in benefits.

143. In summary, the financial benefits of investment in preparedness far outweigh the costs of responding to disasters. The economic analyses in the case studies discussed above[66,67] demonstrate that investments in disaster preparedness are cost-effective.

Cost-effectiveness of EWS

144. The project will design and implement pilot EWS in at least four sub-districts to cover at least 5,000 households. The guiding principles for this EWS will be affordability (low cost), low technology (to ease maintenance) and sustainability (ability of the Government to cover the long-term running cost without expecting external support). Local communities and district officers will be provided with

[59] Pacific Catastrophe Risk Assessment and Financing Initiative. 2011. Country risk profile: Timor-Leste. Available at: http://pcrafi.sopac.org/uploaded/documents/TimorLeste-Small.pdf. Accessed on: 26 March 2014.
[60] UNDP & WB. 2013. Disaster risk reduction and climate change adaption in the Dili — Ainaro road corridor. Available at: http://www.undp-alm.org/sites/default/files/downloads/wb_un_drr_final2.ppt. Accessed on26 March 2014.
[61] Pacific Catastrophe Risk Assessment and Financing Initiative. 2011. Country risk profile: Timor-Leste. Available at: http://pcrafi.sopac.org/uploaded/documents/TimorLeste-Small.pdf. Accessed on: 26 March 2014.
[62] Pereira, J. 1995. Costs and Benefits of Disaster Mitigation in the Construction Industry. Caribbean Disaster Mitigation Project, available at: http://www.preventionweb.net/files/1177_CDMPCostsandBenefits.pdf. Accessed on 12 Dec 2013.
[63] Five case studies from Kellet and Peters (2013) and 17 cases from Shyam (2012).
[64] Shyam, K.C. 2012. Cost Benefit Studies on Disaster Risk Reduction in Developing Countries. EAP DRM Knowledge Notes. Working Paper Series No. 27.
[65] White, B.A., & Rorick, M.M. 2010.Cost-benefit analysis for community-based disaster risk reduction in Kailai, Nepal. Available at: http://www.mercycorps.org/sites/default/files/mc-cba_report-final-2010-2.pdf. Accessed on 26 March 2014.
[66] Five case studies from Kellet and Peters (2013) and 17 cases from Shyam (2012).
[67] Shyam, K.C. 2012. Cost Benefit Studies on Disaster Risk Reduction in Developing Countries. EAP DRM Knowledge Notes. Working Paper Series No. 27.

training and capacity building to operate and maintain EWS and associated infrastructure. The cost-effectiveness of improved climate information and EWS investments is challenging to quantify and as result there are relatively few cost-benefit analyses of such investments[68]. However, recently presented evidence suggests that investments in EWS for disaster prevention are more cost-effective than spending on relief[69].

145. In developed countries, the benefits of improved weather services to generate warnings in case of severe weather exceed costs by an average of more than 10 times[70]. There is consequently potential for similar cost-benefits to be realised through investing in improved EWS in developing countries. The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) estimated that the cost-benefit ratio for EWS in Bangladesh for the 2008 Sidr Cyclone is US$40.85 over 10 years, while it was estimated that the cost-benefit ratio for the 2007 floods in Bangladesh is US$558.87 over 10 years.

146. The total benefits of investments in EWS and climate information are expected to be proportional to: i) the size of the affected population; ii) level of risk; and iii) exposure and vulnerability of infrastructure to climate-related hazards. The total benefits of such investments are estimated to be between US$4 billion and US$36 billion per year. The cost of improving hydro-meteorological services and producing the required warnings is estimated to be lower than US$1 billion. Therefore, the average benefit-cost ratio for developing countries is between 4 and 36[71].

Cost-effectiveness of community-based DRM

147. The proposed LDCF project will emphasise the participation of local communities in the selection of priority watershed management activities to be included in Community Action Plans of willing communities. This will support community ownership of the project's interventions. The benefits of the DRM interventions will be enhanced by training communities on the maintenance and improved management of the watersheds surrounding DARDC. This will reduce the overhead costs related to monitoring and maintenance of project interventions and will promote sustainability of project benefits beyond the project lifespan. This will further enhance the cost-effectiveness of the proposed interventions.

Cost-effectiveness of watershed management for DRM

148. The project will implement measures for watershed management to reduce risks posed by flooding and landslides along the DARDC. Despite limitations to data availability, there is growing evidence of the cost-effectiveness of such investments[72]. An economic analysis of watershed management and engineering interventions was, for example, undertaken in Lami, Fiji[73]. This study included assessments of the costs and benefits of measures based on watershed management for DRM options, engineering options and a hybrid approach combining both 'hard' engineering and 'soft' watershed management interventions. The analyses demonstrated that watershed management options are at least twice as cost-effective as hard engineering options (BCR of US$10.50 compared to US$4.80). The analysis also investigated hybrid approaches using complementary watershed management and engineering measures. Irrespective of the proportional emphasis on watershed management for DRM relative to engineering, strategies which combined both watershed management and engineering options were likely to reduce damages by 25% with a BCR of US$4.30–8.00.

[68]Tsirkunov, V. and Rogers, D. 2010. Costs and benefits of early warning systems. Global Assessment report on Disaster Risk Reduction. The World Bank.
[69]Healy, A. and Malhotra, N. 2009. Myopic Voters and Natural Disaster Policy. *The American Political Science Review* 103(3): 387-406.
[70]Tsirkunov, V. and Rogers, D. 2010. Costs and benefits of early warning systems. Global Assessment report on Disaster Risk Reduction. The World Bank.
[71]Tsirkunov, V. and Rogers, D. 2010. Costs and benefits of early warning systems. Global Assessment report on Disaster Risk Reduction. The World Bank.
[72] Jones, H.P., D. G. Hole & E. S. Zavaleta. 2012. Harnessing nature to help people adapt to climate change. Nature Climate Change 2: 504-509.
[73] Rao N.S., Carruthers T.J.B., Anderson P., Sivo L., Saxby T., Durbin, T., Jungblut V., Hills T., Chape S. 2013. An economic analysis of ecosystem-based adaptation and engineering options for climate change adaptation in Lami Town, Republic of the Fiji Islands. A technical report by the Secretariat of the Pacific Regional Environment Programme. Apia, Samoa

149. The report on these analyses noted that accurate data are required to estimate the economic cost of inaction and determine the benefits of intervention options. These datasets are not available for Timor-Leste and as a result it is challenging to accurately determine the cost-effectiveness and likely effect of proposed interventions. However, the interventions in the proposed LDCF project represent cost-effective approaches to DRM based on the experiences in other similar projects. Furthermore, it is anticipated that the proposed LDCF project will contribute to increasing local knowledge and information to support the development of locally appropriate DRM options.

2.7 Sustainability

150. The sustainability of the proposed LDCF project interventions is dependent on the willingness of stakeholders to accept responsibility for supporting these interventions after completion of the project period. This will also require long-term political and financial commitment of policy- and decision-makers to create enabling environments for scaling up of successful adaptation measures. Adequate technical, legal and institutional capacity is required at all levels for sustainability.

151. The requisite capacity will be strengthened in the following ways:
- building awareness and understanding of the risks posed by climate-induced disasters to road infrastructure;
- revising policies and strategies to mainstream DRM and promote development planning that is climate-resilient;
- strengthening institutional and technical capacity of national and sub-national authorities in planning and implementing DRM to increasing climate-resilience of road infrastructure;
- involving local communities in decision-making and implementation;
- developing DRM measures and landscape-based interventions that are tailored to local conditions;
- providing a knowledge base and guidelines for designing and implementing DRM;
- demonstrating the benefits of DRM to protect livelihoods, assets and specifically road infrastructure;
- implementing interventions with favourable cost-benefit ratios that will reduce medium- to long-term costs associated with disaster events; and
- providing options that support livelihoods and reduce losses while being affordable to local communities

152. At present, NDMD has an annual training budget of ~US$17,000. This small budget is too little to cover costs of: i) conducting on-going training courses using the extended portfolio of modules; and ii) revising and updating the training courses regularly. Sustainability of the training developed under Component 1 will be enhanced through the institutionalisation of training within INAP. INAP has an annual budget of ~US$3.5 million. This budget can be used to support the provision of training courses and revision of training modules after completion of the proposed LDCF project.

153. Implementation of project interventions in Components 2 and 3 will prioritise DRM approaches with sustainable operational models that: i) involve planning, budgeting and delivery of services within the existing programmes of sectoral ministries; ii) provide favourable cost-benefit ratios that will reduce medium- to long-term costs associated with disaster events; and iii) provide options that support livelihoods and reduce losses while being affordable to local communities and can thus be sustained beyond the duration of the proposed LDCF project.

154. The prioritisation of interventions in Components 2 and 3 will follow the Goverment. PDID process, development planning at subnational level, is currently used by MSA to deliver investments based on community priorities. By aligning with the PDID process during project implementation, project interventions may become fully integrated into the PDID process after project completion. During two separate consultations with the National Director for District development (MSA) and the Director General for Local Development, both of these individuals indicated independently and spontaneously that they hope to see these types of interventions included into the PDID process in the future.

155. The interventions under Component 3 build directly on MAF's and MPW's on-going operations. Where MAF does not have technical capacity to implement a specific intervention, this capacity will

be built through targeted training. In this way, technical capacity for project interventions will be embedded within MAF and can thus be sustained after project completion.

2.8 Replicability

156. The proposed LDCF project will pilot a landscape-based approach to DRM to support the climate-resilience of road infrastructure in the DARDC. The project interventions have been designed to target disaster risks that are specific to Timor-Leste's socio-economic and environmental context. By strengthening institutional and technical capacity while demonstrating cost-effective DRM interventions, the project will deliver lessons learned and best practices that will be suitable for replication and inform upscaling strategies. Given Timor-Leste's small size and the relative uniformity of the disaster risks, project results can be expected to be replicable in all districts throughout the country.

157. The proposed LDCF project will adopt a "learning-by-doing" approach to build technical capacity for DRM. This will demonstrate climate-resilient development that will address priorities at the sub-national and local level while also informing national development plans and policies. Generating evidence on the cost-effectiveness of DRM interventions will facilitate policy and budgetary adjustments. The direct involvement of government institutions will demonstrate the potential for integration of approaches and strategies proposed under this project into on-going planning processes. Furthermore, the project will initiate formulation and review of policy and legal frameworks for enhanced adaptation and DRM initiatives in participation with phase II of the MSS-UNDP joint project 'Strengthening Capacities for DRM'. As a result, the capacity built and information generated by the proposed LDCF project will be sustained to provide a foundation to support ongoing and future DRM-related initiatives in Timor.

158. To further strengthen the sustainability of the proposed LDCF project, lessons learned during the project implementation will be used to inform future interventions. In particular, the benefits of landscape-based approaches to reducing disaster-induced damage to road infrastructure can inform the design of future road rehabilitation initiatives. For example, interventions that have demonstrated effectiveness in reducing losses to road infrastructure in the DARDC can be replicated the Asian Development Bank- and JICA-supported reconstruction projects currently underway in other districts in Timor-Leste.

2.9 Stakeholder involvement plan

159. Stakeholders at all levels – national, district, sub-district and community – will be engaged during implementation of the proposed LDCF project. This process commenced during the PPG phase as detailed in Section 2.2. During the third in-country mission and subsequent follow-up consultations, the stakeholder engagement plan presented in Table 4 was discussed and agreed upon during bilateral consultations and/or one-on-one meetings with the relevant stakeholders.

Table 4 Relevant partners and stakeholders identified for engagement by project outcome/output.

Outcome	Output	Stakeholder	Key Responsibilities
Outcome 1: Knowledge and understanding of local drivers of climate induced natural disasters enhanced, and consequent impacts on economic infrastructure better understood	**Output 1.1** National training facility established, providing services for at least 200 district officials, DDOC/DDMC members and community facilitators, in: climate risk and vulnerability assessment, damage and loss assessment, contingency planning, formal and informal EWS systems, climate related planning and budget management.	NDMD (Implementing partner)	Initiate and provide overall coordination of development of training facility. Hire training specialist to support needs assessment and module development through the UNDP Project. Provide technical input into content of training modules. Coordinate with DRM specialists and resource persons to provide additional technical inputs into

and available to policy makers, planners and technical staff.			training modules. Provide technical input into "training-of-trainers" courses to tailor training to national priorities. Appoint multi-disciplinary trainer team based on specific criteria through a panel comprising the CTA, DRM specialist as well as training experts from MSS-NDMD, INAP and MSA.
		INAP (Responsible party)	Coordinate needs assessment for DRM training following standard processes, including selection of representative sample group. Facilitate development of additional training modules following technical inputs from NDMD and DRM specialists. Review and approve additional training modules through the Review Committee. Facilitate training-of-trainers as well as deconcentrated line ministry officials, district and sub-district administrators, DDMCs/DDOCs, district disaster focal points and *chefes de suco*. Integrate, institutionalize and sustain the training facility into regular training of civil servants and ensure allocation of regular resources from the national budget.
		MSS, MSA, MPW, MCIE, MAF (Responsible parties), MoF	Participate in needs assessment to inform prioritisation of training needs. Provide technical input into development of training modules. Coordinate training of deconcentrated line ministry officials at the district and sub-district level.
		MSA and MSS district directorates (Responsible parties)	Coordinate training of district and sub-district administrators, DDMCs/DDOCs, district disaster focal points and *chefes de suco.*
	Output 1.2 National DRM policy and institutional roles extended to address climate change and disaster risk reduction measures, including assessment methods, institutional and implementation modalities, functional and technical capacities and M&E	MSS-NDMD (Implementing partner)	Coordinate revisions of NDRM policy in collaboration with on-going revision under Phase I & II of the MSS-UNDP-SDRM project. Hire policy specialist to assist with integration of climate change adaptation into revised NDRM policy. Coordinate development of CCA

	systems.		recommendations for sector policies in collaboration with key ministries. Provide CCA technical input into policy revision, recommendations for sector policies etc. Coordinate production and dissemination of knowledge products. Submit and follow onto approval of the DRM Policy by the CoM and Parliament.
		NDIEACC (Responsible party)	Provide technical inputs on climate change adaptation into revised NDRM policy. Ensure alignment with NAPAs, NAPs and other relevant strategies.
		MSA, MPW, MCIE, MAF, MoF (Responsible parties)	Provide additional technical inputs on sectoral priorities for climate change adaptation into revised policy and sectoral recommendations.
Outcome 2: Subnational DRM institutions able to assess, plan, budget and deliver investments in climate change-related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor.	**Output 2.1** Capacities of district and sub-district Disaster Management Committees and District Disaster Operation Centres strengthened to plan, budget and deliver climate induced disaster prevention financing in at least two districts (eg. for resilient shelter, improved grain storage and seed replacement, windbreaks, storm drains, small scale flood protection) benefitting at least 5,000 households.	MSS-NDMD, MSA (Implementing partner)	Hire specialist to develop operational manuals and menu of options. Coordinate development of operational manuals and for disaster prevention and preparedness. Provide technical input into the design of measures for disaster prevention and preparedness. Coordinate development of information/training materials (e.g. brochures, posters, etc.).
		MSA (Responsible party)	Provide technical input into menu of interventions for disaster prevention and preparedness based on experience with UNDP-SSRI project. Provide technical input into design of operational manual – specifically for financial arrangements, M&E and reporting – based on experience from UNDP-SSRI project. Coordinate tracking of financing and implementation of selected options for disaster prevention and preparedness. Integrate the manuals and menu of options with sub-national development planning process (PDID, PNDS, etc).
		CARE International Timor-Leste	Conduct CVCAs and CAPs to identify priorities for implementation.
	Output 2.2 Community to district-level EWS for climate-induced	NDMD (Implementing	Coordinate stocktaking of status quo and development of models

	extreme events designed, tested and installed, with related capacities provided (contingency planning) for at least 5,000 vulnerable rural households, with a focus on women.	partner)	and SOPs. Hire EWS specialist to conduct assessment (stocktaking) and develop models and SOPs. Provide technical input into design of community-based EWS. Coordinate with testing of EWS with MSA, CVTL, NGO and communities.
		CVTL (Responsible party)	Participate in stocktaking of current EWS operations. Provide technical input into design of EWS. Implement and coordinate testing of EWS with NDMD, MSA and communities. Conduct awareness and training campaigns on EWS.
		NDOC, DDMCs/ DDOCs, PNTL, MAF, PIG, ND Met	Participate in stocktaking of current EWS operations. Provide technical input into potential operational models and SOPs for EWS. Participate in installation and testing of EWS.
Outcome 3: Community-driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy.	**Output 3.1** Watershed-level climate change vulnerability and risk assessments carried out within the Dili to Ainaro road corridor covering at least 35 sucos, informing district and sub-district level planning, prioritisation and budgeting (linked to WB hazard assessments).	MAF (Responsible party)	Provide technical input into design of watershed management plans. Provide technical input into design of GIS system.
	Output 3.2 Micro-watershed management plans designed and implemented to deliver community-driven resilience measures for reducing the impacts of climate-induced disasters (flooding and landslides) in vulnerable micro-watersheds along the Dili-to-Ainaro Road Development Corridor, covering at least 50,000 hectares outside of the WB road project RoW.	NDMD (Implementing partner)	Hire specialists to design menu of interventions for watershed management approaches. Coordinate activities with MAF, MPW, CARE and other NGOs.
		MAF: National Directorate for Agricultural Research (NDAR); National Directorate of Forestry (NDF); National Directorate for Extension Services (NDES) (Responsible parties)	Participate in training sessions to build capacity to implement project activities (all directorates). Provide technical input and support on conservation agriculture and permaculture interventions (NDAR). Implement reforestation activities identified by the local communities through CAPs (NDF). Provide advice on preventing deforestation and incentivising local communities to change land-use practices (NDF). Provide institutional support to assist the implementation of project activities (NDES). Build linkages to other MAF projects conducting similar

			activities (NDES). Implement project activities once the requisite capacity is built (NDES).
		NGOs: RAIBEA, NaTerra	Implement project interventions (e.g. conservation agriculture, permaculture, reforestation, etc.). Provide training to local communities on the implementation and maintenance of project interventions. Provide training and skills transfer to MAF officials on the implementation and maintenance of project interventions.

2.10 Explain compliance with UNDP Safeguards Policies

160. The UNDP environmental and social safeguard requirements have been followed in the development of this proposed LDCF project. As outlined below, the project is not expected to have any negative environmental or social impacts.

161. The proposed LDCF project does include activities that support upstream planning processes. However, the envisaged revisions that will be proposed to national policies and strategies are not likely to have any negative environmental or social impacts. To the contrary, the project will have positive environmental and social impacts through influencing policies and strategies for climate-resilient development planning.

162. The implementation of community- and landscape-based approaches to DRM – proposed under Outcomes 2 and 3 – will protect infrastructure, assets and livelihoods from the effects of climate-induced disasters. These proposed interventions will not affect natural resources negatively. For example, landscape-based approaches will stabilise soil, improve water infiltration, increase the diversity of crops and restore natural vegetation. In addition, the increase in biomass as the result of re-vegetation of slopes and improved farming methodologies will increase carbon sequestration.

163. Although the project will benefit local communities, it is not expected that this will lead to localised population increases. Rather, it is expected that the approaches used will be spread to surrounding communities. The use of a community-based approach that is cost-effective and does not require advanced infrastructure makes it easily replicable. It is therefore possible for the benefits in the project sites to be realised in surrounding *sucos*. The benefits of the project interventions will also reduce the vulnerability of communities to natural disasters and have a positive effect on health. Communities will have greater access to natural resources. Communities are also expected to have improved income through protected infrastructure assets and improved livelihoods. Consequently, the project is expected to have positive socio-economic effects.

164. Gender equality and the use of a community-based approach are focus areas of the proposed LDCF project. Consequently, project interventions will promote social equity and equality. All social consequences of the project are expected to be positive. Through consultation with women's groups in *sucos* the interventions that are focused on women will be culturally appropriate. In addition, the farming approaches that will be introduced are not expected to negatively effect on local traditions. The project will follow the *tara bandu*, the traditional land ownership and land use decision framework, to avoid any possible land use conflicts. Approval of the local community on the interventions will first sought prior to implementation in the *sucos*.

165. The project is not expected to result in any negative environmental or social effects. To ensure that this is the case, the project will employ the following specialists for the full duration of the project: i) Gender Specialist; ii) Climate-resilient Watershed and Agriculture Specialist; iii) CCA/DRR/DRM Knowledge Management and Policy Advisor. These specialists will be involved in the design, implementation and M&E of interventions throught the project lifespan. They will ensure that all

project activities are based on international best practices concerning environmental and social concerns. This will reduce the possibility of any potential negative effects pertaining to environmental and social impacts.

166. These specialists will provide continual guidance in the implementation of both upstream and downstream processes. For example, proposed revisions to national-level policies, strategies and plans will be tailored to the specific environmental and social context within Timor-Leste. Furthermore, the project will support the integration of best practices for climate-resilient development into sub-national planning through the PDID process. Similarly to the national-level support, this will be tailored to Timor-Leste's environmental and social context.

167. The implementation of on-the-ground activities will also follow international best practices. All interventions will be gender-sensitive, with a focus on building the resilience of local communities to climate change. This will occur in an environmentally and socially responsible manner, following the guidance and recommendations of the full-time project personnel listed above, as well as international specialists involved on a short-term basis

3. PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: *CPAP Outcome 7: National capacity built for restoring the foundations for development following conflict or disaster with active woman participation and access to decision-making.*					
Country Programme Outcome Indicators: *Gender-sensitive policy frameworks, systems and skill-sets enhanced for DRM as per the recommendations of the DRM capacity assessment.*					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): *3. Promote climate change adaptation*					
Applicable GEF Strategic Objective and Program: *Climate Change Adaptation Objective CCA-2* *Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level*					
Applicable GEF Expected Outcomes: ***Outcome 2.2:*** *Strengthened adaptive capacity to reduce risks to climate-induced economic losses* ***Outcome 2.3:*** *Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level*					
Applicable GEF Outcome Indicators: ***Indicator 2.2.1*** *No. of targeted institutions with increased adaptive capacity to reduce risks of and response to climate variability (Number)* ***Indicator 2.3.1*** *Targeted population awareness of predicted adverse impacts of climate change and appropriate responses, disaggregated by gender (Score)*					
	Indicator	**Baseline**	**Targets** **End of Project**	**Source of verification**	**Risks and Assumptions**
Project Objective[74] (equivalent to output in ATLAS) 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	1. No. of target institutions with increased capacity for climate and disaster risk management planning, budgeting and delivery at the national and sub-national level.	1. Capacity for climate and disaster risk planning, budgeting and delivery at the national and sub-national level is limited (Level 2: Anecdotal evidence of capacity)	1. MSS, NDMD, DDMCs have capacity for climate and disaster risk management planning, budgeting and delivery at the national and sub-national (at least Level 4: Widespread, but not comprehensive, evidence of capacity)	Capacity scorecard assessment[75] of the participants trained using surveys before, after and during trainings.	**Assumptions:** Training offered by the project leads causally to improved capacity for climate and disaster risk planning, budgeting and delivery. **Risks**: Participants in training do not engage fully and/or are not able to translate training into action in performing DRM-related functions.
Outcome 1[76] (equivalent to activity in ATLAS) Knowledge and	1. No. of targeted institutions with increased adaptive capacity to reduce	MSS, NDMD, DDMCs and other institutions have limited capacity to	MSS, NDMD, DDMCs, MAF and other institutions have increased adaptive capacity to reduce risks and respond to climate variability	Survey of targeted institutions	**Assumptions:** • Technical staff and community leaders will be willing to attend training sessions

[74] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*
[75] UNDP Bureau for Development Policy. 2010. Monitoring guidelines of capacity development in Global Environment Facility projects. Pretoria, South Africa.
[76] *All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.*

understanding of local drivers of climate-induced disasters enhanced, and consequent impacts on economic infrastructure better understood and available to policy makers, planners and technical staff	risks of and response to climate variability [AMAT 2.2.1] 2. No. of staff trained on technical CCA and DRM themes, disaggregated by gender [AMAT 2.2.1.1] 3. Type and no. of recommendations to sector policies, strategies and plans for climate change adaptation and DRM that specifically address needs of women	reduce risks and respond to climate variability Few staff and community leaders have received comprehensive technical training on CCA and DRM themes Sector policies, strategies and plans do not explicitly include climate change adaptation and DRM. Sector policies, strategies and plans do not specifically address the needs of women concerning climate change adaptation and DRM.	200 staff and community leaders have receive technical training on CCA and DRM themes with at least 50% women benefiting Recommendations for at least 3 sector policies, strategies and plans that explicitly include climate change adaptation and DRM. Recommendations for at least 3 sector policies, strategies and plans specifically address the needs of women concerning climate change adaptation and DRM.	Registers from training sessions on CCA and DRM. Questionnaires for attendees of training sessions Review of recommendations for sector policies, strategies and plans	• Recommendations for sector policies, strategies and plans will be accepted and mainstreamed. **Risks:** • Technical staff and community leaders are constrained from attending training sessions • Attendance of training sessions does not translate into enhanced adaptation and DRM • Sectoral ministries unwilling to adopt recommendations
Outcome 2 (equivalent to activity in ATLAS) Sub-national DRM institutions able to assess, plan, budget and deliver investments in climate change related disaster prevention, linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor	1. Increase in amount of funds delivered on climate risk reduction measures at the sub-national / district level 2. % of women benefited from community-level climate risk reduction measures.	Few measures for community-level disaster mitigation are currently implemented[77] through DDMCs/district disaster focal points Women are rarely direct beneficiaries of measures for community-level disaster prevention and preparedness Few households	Full expenditure of additional funds ($50,000 per district per annum) on **m**easures for community-level climate risk reduction implemented through DDMCs/district disaster focal points 50% of beneficiaries of community-level measures for climate related disaster risk reduction and preparedness are women At least 5,000 households will	Expenditure reports from DDMCs/district disaster focal points and monitoring reports on community-level disaster mitigation measures, as well as household surveys to verify implementation. Household surveys to verify community-level disaster mitigation measures and women benefitting Household surveys	**Assumptions:** • DDMCs/disaster focal points will be able to spend funds appropriately and timely • Communities are able to produce project proposals that meet criteria for receiving funding • DDMCs/disaster focal points have capacity to operate EWS • Women have better access to resources to improve their livelihood. **Risks:** • Poor proposals mean that no community-level measures for disaster mitigation are accepted for funding • DDMCs/disaster focal points are unable to procure the necessary

[77] Current budgets largely cover operational costs and disaster response.

	3. Risk reduction and awareness activities introduced at local level, including: - EWS - Improved resilience of agricultural systems - Erosion control/sustainable land and water management [adapted from AMAT 2.3.1.1]	currently benefit from risk reduction and awareness activities.	benefit from risk reduction activities and awareness activities comprising: - EWS - Improved resilience of agricultural systems - Erosion control/sustainable land and water management	Questionnaires to DDMC/district disaster focal points	materials to implement community-level measures for disaster mitigation • Rugged and inaccessible terrain prevents effective installation and/or operation of EWS • Limited capacity prevents early warnings from being disseminated or received in time.
Outcome 3 (equivalent to activity in ATLAS) Community driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy	1. No. of households engaged in climate resilient land use methods and livelihoods – disaggregated by gender 2. Coverage of land with changed land use conducive to landscape stability, protecting livelihoods and physical infrastructure against climate hazard risks and disasters 3. % of households that demonstrate an awareness between improved land use and food security/disaster mitigation through their livelihood-disaggregated by gender [adapted from AMAT 2.3.1]	Few households have access to resilient livelihood assets and methods (Score=2) Currently lands left behind in shifting, slash-and-burn agriculture are left to recover without intervention and are a major source of vulnerability for communities and the road Current understanding of the links between landuse & livelihoods, food and nutrition security and disasters is low	Score improved to 4: By the end of the project, at least 50% of targeted households have engaged in climate resilient land use methods and livelihoods introduced/strengthened in the project. at least a quarter of targeted area of degraded lands reforested or other land stabilization methods applied (e.g. agroforestry, fodder and timber production etc.) while decreasing vulnerability of the DARDC to disasters At least 50% of households surveyed confirm a clear link between resource management and resilience of livelihoods and physical infrastructure assets	Household surveys using an appropriately designed household livelihood asset/method index Household surveys Review of watershed management plans Household surveys	**Assumptions:** • People in hotspot areas see eco-farming, reforestation and bio-engineering methods as desirable given development imperatives and lifestyle preferences. • People in hotspot areas see reforested areas as a common resource which will enhance their resilience to climate variability and reduces the risk of disasters affecting them and critical infrastructure such as the road. **Risks:** • Communities unwilling to adopt new farming methods • Communities not willing or able to move to settled farming • New landuse methods create a disproportionate burden of work on women • Common areas reforested become a source of dispute for resources and community leaders are unable to negotiate the equitable distribution of benefits. • Uptake of knowledge is low and resilience not significantly improved. • The needs of women are not analysed and addressed and they do not benefit from the project interventions.

4. TOTAL BUDGET AND WORK PLAN

Award ID:	00081757	Project ID(s):	00090905
Award Title:	PIMS 5108 FSP LDCF: Timor-Leste: Strengthening Community Resilience to Climate-induced disasters in the Dili to Ainaro Road Development Corridor		
Business Unit:	TLS10		
Project Title:	Timor-Leste: Strengthening Community Resilience to Climate-induced disasters in the Dili to Ainaro Road Development Corridor		
PIMS no.	5108		
Implementing Partner (Executing Agency)	Ministry of Social Solidarity (MSS)		

GEF-LDCF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (US$)	Amount Year 2 (US$)	Amount Year 3 (US$)	Amount Year 4 (US$)	Total (US$)	Budget Note:
OUTCOME 1: Knowledge and understanding of local drivers of climate induced natural disasters enhanced and consequent impacts on economic infrastructure better understood and available to policy makers planners and technical staff	**MSS-NDMD / UNDP**	**62160**	**LDCF**	71200	International Consultants	$ 94,775	$ 105,400	$ 90,000	$ 90,000	$ 380,175	1a
				72500	Office supplies	$ 2,000	$ 2,000	$ 2,000	$ 1,000	$ 7,000	1b
				71600	Travel	$ 26,000	$ 19,000	$ 15,000	$ 15,000	$ 75,000	1c
				73100	Office rent	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 40,000	1d
				72200	Equipment and Furniture	$ 12,000	$ 3,000	$ 3,000	$ 1,000	$ 19,000	1e
				73400	Rental & Maintenance of Other Equip	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 8,000	1f
				74200	AV & Print Production Costs	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 40,000	1g
				75700	Training Workshop & Conf.	$ 10,000	$ 20,000	$ 20,000	$ 20,000	$ 70,000	1h
				71200	International Consultants	$ 80,254	$ 80,254	$ 80,254	$ 20,063	$ 260,825	1i
					Total Outcome 1	**$ 247,029**	**$ 251,654**	**$ 232,254**	**$ 169,063**	**$ 900,000**	
OUTCOME 2: Subnational DRM	**MSS-NDMD / UNDP**	**62160**	**LDCF**	71200	International Consultants	$ 71,500				$ 71,500	2a
				71600	Travel	$ 27,500	$ 10,000	$ 10,000	$ 7,500	$ 55,000	2b

institutions able to assess plan budget and deliver investments in climate change related disaster prevention linked to critical economic infrastructure and assets in the Dili to Ainaro development corridor				72100	Contractual Services - Companies	$ 60,000	$ 25,000	$ 25,000		$ 110,000	2c
				73400	Rental & Maintenance of Other Equip	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 4,000	2d
				74200	AV & Print Production Costs	$ 2,000	$ 4,000	$ 4,000	$ 2,000	$ 12,000	2e
				75700	Training Workshop & Conf.	$ 7,500	$ 10,000	$ 10,000	$ 5,000	$ 32,500	2f
				73100	Office rent	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 40,000	2g
				72600	Grants		$ 100,000	$ 100,000	$ 100,000	$ 300,000	2h
				72200	Equipment and Furniture	$ 85,000	$ 100,000	$ 100,000		$ 285,000	2i
				71200	International Consultants	$ 112,460	$ 112,460	$ 112,460	$ 28,112	$ 365,492	2j
				71400	Contractual Services - Individ	$ 6,127	$ 6,127	$ 6,127	$ 6,127	$ 24,508	2k
					Total Outcome 2	**$ 383,087**	**$ 378,587**	**$ 378,587**	**$ 159,739**	**$ 1,300,000**	
Outcome 3: Community driven investments implemented to reduce climate change and disaster induced losses to critical infrastructure assets and the wider economy	**MSS-NDMD / UNDP**	**62160**	**LDCF**	71200	International Consultants	$ 56,100				$ 56,100	3a
				71600	Travel	$ 31,000	$ 20,000	$ 20,000	$ 20,000	$ 91,000	3b
				71500	UN Volunteers	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 240,000	3c
				71400	Contractual Services – Individ.	$ 152,254	$ 152,254	$ 152,254	$ 152,254	$ 609,016	3d
				73100	Office rent	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 40,000	3e
				71200	International Consultants	$ 202,426	$ 202,426	$ 202,426	$ 50,606	$ 657,884	3f
				72800	Information Technology Equipmt	$ 80,000				$ 80,000	3g
				72100	Contractual Services - Companies	$ 30,000	$ 20,000	$ 20,000	$ 15,000	$ 85,000	3h
				72300	Materials & goods	$ 245,000	$ 165,000	$ 165,000	$ 150,000	$ 725,000	3i
				73400	Rental & Maintenance of Other Equip	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 16,000	3j
				72200	Equipment and Furniture	$ 95,000				$ 95,000	3k

				74200	AV & Print Production Costs	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 35,000	3l
				75700	Training Workshop & Conf.	$ 10,000	$ 20,000	$ 20,000	$ 20,000	$ 70,000	3m
					Total Outcome 3	**$ 980,780**	**$ 663,680**	**$ 663,680**	**$ 491,860**	**$ 2,800,000**	
Project management unit	**MSS-NDMD / UNDP**	**62160**	**LDCF**	71400	Contractual Services – Individual	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 88,000	4a
				75700	Training Workshops & Conf.	$ 10,000		$ 8,350	$ 8,500	$ 26,850	4b
				74100	Professional services	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 12,000	4c
				71200	International Consultants	$ 20,000		$ 40,000	$ 40,000	$ 100,000	4d
				74500	UNDP cost recovery charges – Bills	$ 20,797	$ 627	$ 261	$ 1,465	$ 23,150	4e
					Total Management	**$ 75,797**	**$ 25,627**	**$ 73,611**	**$ 74,965**	**$ 250,000**	
					PROJECT TOTAL	**$1,686,693**	**$1,319,548**	**$1,348,132**	**$895,627**	**$5,250,000**	

Summary of Funds:

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Total
GEF-LDCF	$1,686,693	$1,319,548	$1,348,132	$895,627	$5,250,000
UNDP (In-kind)	$174,951	$160,609	$176,491	$137,949	$650,000
Government of Timor-Leste: MSS-NDMD (In-kind)	$2,834,575	$2,712,310	$2,827,310	$1,652,585	$10,026,780
Government of Timor-Leste: MAF – National Budget for Forestry (In-kind)	$1,050,836	$711,086	$711,086	$526,992	$3,000,000
World Bank: Road Climate Resilience Project (In-kind)	$7,005,571	$4,740,571	$4,740,571	$3,513,287	$20,000,000
World Bank: Building Climate and Disaster Resilience Project (In-kind)	$990,000	$1,114,811	$1,114,811	$470,378	$3,690,000
TOTAL	$13,742,626	$10,758,935	$10,918,401	$7,196,818	$42,616,780

Budget	**Description of cost item**

Note	
1a	• CCA/DRR/DRM Training Specialist – Fees: 65 days @ $550 per day; DSA: 30 days @$165 per day. This specialist will facilitate the needs assessment for integrating CCA into DRM training and tailor the portfolio of training modules. This specialist will also devise a training schedule to provide appropriate trainings at different levels (e.g. national, district, sub-district and community). The specialist will also design training modules based on up-to-date scientific knowledge and best practices concerning climate change adaptation and DRR/DRM. This specialist will then participate in the "training-of-trainers" in the first and second years of the project. This specialist will tailor the training modules to the local context, particularly with regard to gender and other socially vulnerable groups (in collaboration with gender specialist). • Institutional Capacity Development Specialist – Fees: 40 days @ $550 per day; DSA: 15 days @ $165 per day. This specialist will conduct the capacity assessment of INAP and design an organisational strategy for developing INAP's capacity to support climate change sensitive DRM. In addition, this specialist will conduct a gap analysis of the current knowledge management systems under NDMD, NDIEACC and the National Climate Change Centre. The specialist will also develop an organisational strategy for the national disaster database. • CCA/DRR/DRM Knowledge Management and Policy Advisor – Fees: 42 months @ $7,500 per month. This specialist will be responsible for managing the national disaster database as well as developing and disseminating knowledge products. In addition, this specialist will coordinate the integration of the latest scientific knowledge on climate change adaptation into the ongoing revision of the NDRM Policy. The specialist will also develop recommendations for sector policies, plans and strategies to include institutional and implementation modalities, functional and technical capacities, assessment methods and M&E systems for DRM. Throughout, the specialist will be responsible for gender-mainstreaming in the revisions of policies, plans and strategies.
1b	• Office supplies including stationery, printing, publications (e.g. workshop reports) and other printed/electronic media.
1c	• 5 x travel cost for International Consultants @ $4,000 per mission (4 missions in Year 1, 1 mission in Year 2) • Local travel to districts for needs assessments, training, etc.
1d	• Rent of office space for PMU and other support staff and payment of associated utilities.
1e	• Purchase of office equipment for PMU and support staff including furniture, desks, computers, printers and other equipment.
1f	• Maintenance of office equipment as well as licencing of hardware and software.
1g	• Printing of training materials, knowledge/awareness products and policy briefs.
1h	• Training sessions on DRR/DRM for national and district/sub-district officials as well as *chefes de suco*.
1i	• Gender Specialist (FTA) – 3.25 years @ $30,304 per year. This specialist will support all gender-related activities, including mainstreaming of gender into policy revisions, ensuring that training modules are gender sensitive, overseeing inclusion of women in training and capacity-building sessions, etc. • Chief Technical Advisor / Project Manager (FTA) – 3.25 years @ $49,950 per year. The CTA will provide technical assistance to ensure that capacity development and organisational strategies, portfolio of DRR/DRM training and policy revisions meet the desired standards of quality.
2a	• International Disaster Prevention Financing Specialist – Fee: 35 days @ $550 per day; DSA: 10 days @ $165 per day. This specialist will develop the operation manual and menu of measures for delivering investments into disaster prevention and preparedness to the local level. • Climate-resilient Bio-physical Infrastructure Specialist – Fee: 40 days @ $550 per day; DSA: 20 days @ $165 per day. This specialist will develop the menu of interventions, including manuals/best practice guidelines for implementation of sustainable land-management, bio-physical interventions and other community-based DRM interventions. • International Early Warning Systems Specialist – Fee: 40 days @ $550 per day; DSA: 20 days @ $165 per day. This specialist will stock-take existing EWS in Timor-Leste and develop a model/SOP for EWS. The specialist will also contribute towards the design of the pilot EWS as well as the training campaigns.
2b	• 5 x travel cost for International Consultants @ $4,000 per mission (all missions in Year 1). • Local travel to districts for piloting of EWS and training.
2c	• Service provision for conducting CVCAs, developing CAPs and providing training on climate-resilient bio-physical interventions according to the menu of interventions. This is likely to be performed by CARE International Timor-Leste.
2d	• Maintenance of project vehicles, including annual service and other associated costs.
2e	• Printing of training materials and knowledge/awareness products for disaster prevention financing and EWS.
2f	• Training sessions on disaster prevention financing and EWS for district and sub-district officials as well as *chefes de suco*.
2g	• Rent of office space for PMU and other support staff and payment of associated utilities.

2h	• Grants provided to communities for implementation of climate-resilient bio-physical interventions. This will be provided in the form of top-up funding for disaster prevention financing – $300,000 (two districts for three years at $50,000 per district per year). Grants will be delivered following the detailed, project developed guidelines. Grant delivery will be monitored, through community mobilisers, field coordinators, under an overall supervision by the CTA and the country office poverty and environment unit staff.
2i	• Procurement of equipment/materials for EWS – $250,000 (based on an average price of ~$5,000 per 100 households[78]). • 1 x Motor vehicle (pick-up) @ $35,000. Because of wide geographic spread and predominantly field-based activities, the project will procure two vehicles at the district level (along Dili, Aileu, Ainaro corridor and connected intervention areas) and one vehicle at the national level. These vehicles are very important for field travel, monitoring of project, especially given the conditions of rural roads along the corridor.
2j	• Gender Specialist (FTA) – 3.25 years @ $40,310 per year. This specialist will deliver on and support all gender-related activities, including formation of women's groups, conducting of CVCAs and developing of CAPs to be gender-sensitive, piloting of the EWS that makes specific provision for the needs of women and implementation of bio-physical interventions that are prioritised by women's groups. • Chief Technical Advisor / Project Manager (FTA) – 3.25 years @ $72,150 per year. The CTA will provide technical assistance to ensure that the climate change sensistive disaster prevention and preparedness interventions are designed and delivered efficiently and effectively, meeting the highest possible standards of quality. In addition, the CTA will provide technical assistance for the piloting of the EWS.
2k	• Driver – 4 years @ $6,127 per year.
3a	• Agriculture/Sustainable Land-use Specialist – Fee: 45 days @ $550 per day; DSA: 20 days @ $165 per day. This specialist will assist with the design of taking climate change considerations into the watershed management plans, including agricultural and reforestation interventions. He will also provide input into the database of geographical, geological and land-use characteristics of the DARDC. • Remote-sensing/GIS Specialist – Fee: 45 days @ $550 per day; DSA: 20 days @ $165 per day. This specialist will integrate existing GIS data with remote-sensing imagery to develop a GIS-based database of climate, geographical, geological and land use characteristics of the DARDC.
3b	• 4 x travel cost for International Consultants @ $4,000 per mission (all missions in Year 1). • Local travel to districts for design and implementation of watershed management plans as well as training. Two missions / per specialist has been budgeted. This allows for the collection of detailed information as well as the provision of quality assurance concerning the various consultants' outputs. It also allows for training of project staff where necessary, e.g. on GIS
3c	• Climate-resilient Watershed and Agriculture Specialist – Fee: 4 years @ $60,000 per year. This specialist will assist with the development of watershed management plans and will support MAF with integration of the watershed management plans into the Strategic District Plans and the PDID process. In addition, this specialist will oversee implementation of the watershed management plans as well as development and dissemination of knowledge products on watershed management.
3d	• National Communications Officer / Translator – 4 years @ $22,000 per year. This officer will be responsible for facilitating communications between the project management unit and national stakeholders. The translator should be fluent in Tetum, English and Bahasa. • National Project Coordinator / M&E (SB-5) – 4 years @ $30,000 per year. This specialist will assist will overall tracking of project activities, such as tracking of: i) expenditure; ii) delivery of goods by contractors; iii) provision of services by contractors; and iv) effectiveness (i.e. measurable benefits of interventions). • 2 x Social / Community Mobilisers (SB-4) – 4 years @ $22,000 per year each. These mobilisers will assist with training and awareness-raising as well as sensitisation of communities on *inter alia* watershed management plans for disaster prevention and preparedness. Throughout, they will ensure the involvement of women and other vulnerable groups in project activities. • 2 x Field Coordinators (SB-4) – Fee: 4 years @ $22,000 per year each. There will be one coordinator based in each of Aileu and Ainaro Districts. They will assist with coordination of project activities between the national and district/sub-district levels, e.g. facilitating local travel to districts for implementation of watershed management plans. • 2 x Drivers – 4 years @ $6,127 per year each.
3e	• Rent of office space for PMU and other support staff and payment of associated utilities.
3f	• Gender Specialist (FTA) – 3.25 years @ $47,026 per year. This specialist will conduct and support all gender-related activities, including the implementation of agricultural and forestry interventions that provide targeted benefits to women (e.g. home gardens). One gender specialist prorated across 3 outcomes to see to

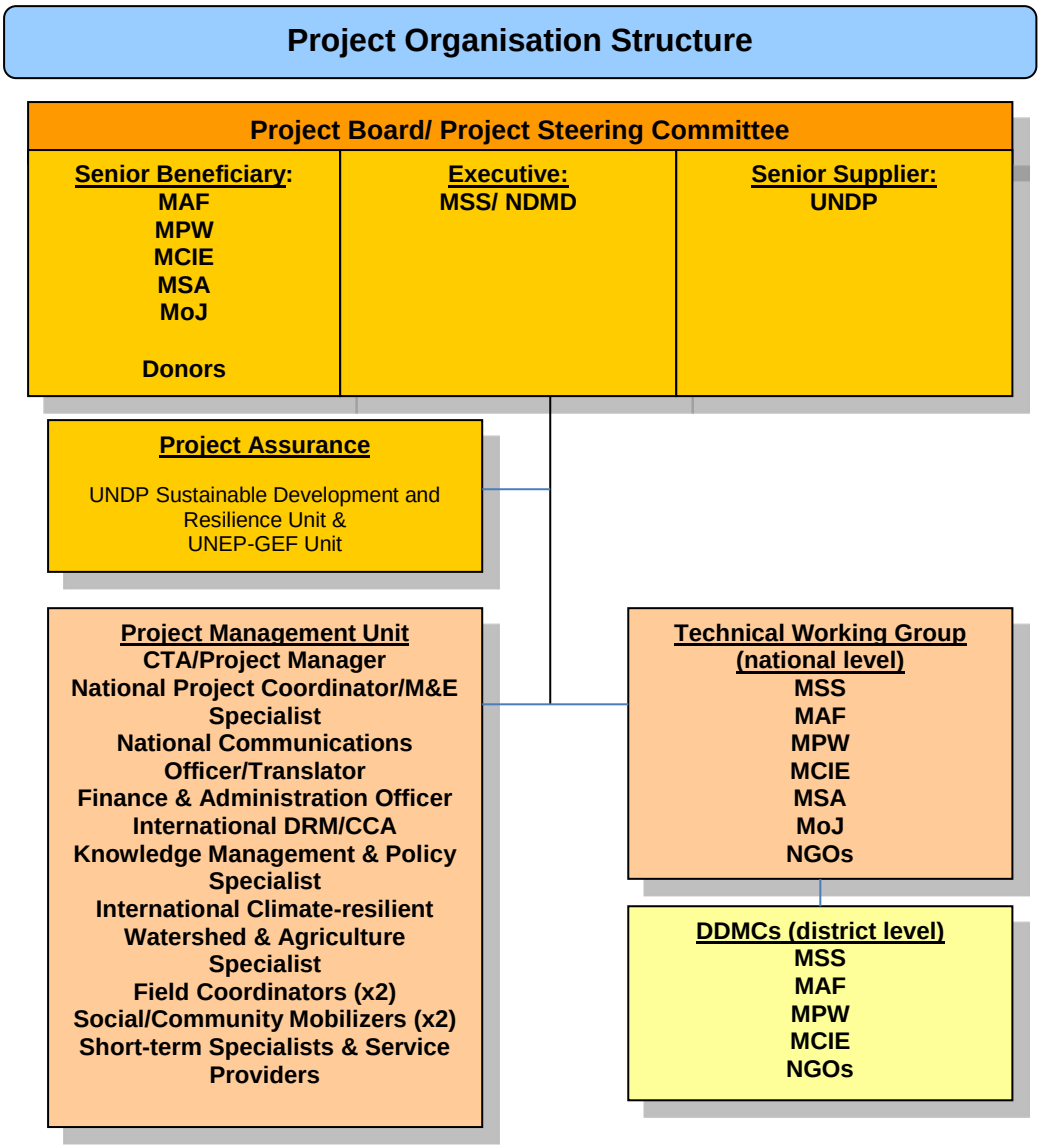
[78] This figure was provided by Hermenegildo Rente, Head of Disaster Management Division, Timor-Leste Red Cross.

	the gender-specific issues per outcome. • Chief Technical Advisor / Project Manager (FTA) – 3.25 years @ $155,400 per year. The CTA will provide technical assistance to ensure that the watershed management interventions are designed and delivered efficiently and effectively, meeting the highest possible standards of quality.
3g	• Develop and procure equipment & software for centralised database. 4 computers with associated software @ $20,000 per computer. The cost includes, 4 GIS packages (ESRI ArcGIS), 4 remote sensing packages (IDRISI), 4 GPS receivers and access to remote sensing imagery (MODIS, AVHRR, GEM & NOAA).
3h	• Service provider for engaging with communities for the development and implementation of watershed management plans. This includes ongoing training and awareness-raising. This is likely to be CARE International Timor-Leste, pending a competitive bid process.
3i	• Grants for watershed management activities such as climate-resilient agriculture, reforestation and climate-resilient bio-physical interventions. o Digging and other equipment (mattocks, saws, pruners) for climate-resilient agriculture – $35,000. o Home-gardens - $100,000 o Seeds and propagules for climate-resilient agriculture – $50,000. o Cement mixers for creating seedballs – 6 mixers @ $2,500 per mixer. o Seeds for seedballs – $55,000. o Clay, lime and other inputs for creating seedballs – $55,000. o Cement, timber, gabion baskets for bio-physical interventions, e.g. check dams, terracing – $175,000. o Shade-netting, poles and other materials for construction of community nurseries – $50,000. o Seedlings/saplings for community nurseries – $90,000. o Agro-forestry trees for coffee plantations – $100,000.
3k	• 1 x Motor vehicle (pick-up) @ $35,000; 1 x Motor vehicles (Land Cruiser) @ $50,000; 4 x Motorcycles @ $2,500 each.
3l	• Printing of agricultural almanacs, permaculture templates etc.
3m	• Training sessions on best practices for climate-resilient agriculture and climate-resilient bio-physical interventions.
4a	• Administrative and Financial Officer (SB-4) – 4 years @ $22,000 per year.
4b	• Inception Workshop @ $10,000. • 2 x Lessons Learned Workshops @ $7,500 per workshop.
4c	• Annual audit @ $3,000 per year.
4d	• International Consultant - Inception Process @ $20,000 • International Consultant – Mid-term review @ $40,000. • International Consultant – Terminal Evaluation @ $40,000.
4e	• Estimated UNDP Direct Project Costs for project execution services to support the procurement of goods and services, recruitment, payments, etc. The services are charged on an item-by-item basis against UNDP's Universal Price List. The estimated breakdown is described below. o Staff selection and recruitment: 13 staff @ $747.80 = $9,721.40 o Staff HR & Benefits Administration & Management: 13 staff @ $323.78 = $4,209.14 o Issue IDs: 13 staff @ $22.22 = $288.86 o Consultant recruitment: 12 consultants @ $271.30 = $3,255.96 o Payment process associated with consultants: 12 consultants x 4 payments each @ $23.51 = $1,128.48 o Low value procurement (PSC meetings): 8 workshops @ $130.76 = $1,046.08 o High value procurement and disposal of equipment: 4 procurement and disposal processes[79] @ ($574.13 + $300.96) = $3,500.36 • Total = $23,150

[79] Based on one procurement and one disposal for each of the following groups of items: office computers, office equipment/furniture, vehicles, and GIS computers.

5. MANAGEMENT ARRANGEMENT

5.1 Project Structure



5.2 Implementation modality

168. The UNDP Country Programme in Timor Leste requires that the Direct Implementation (DIM) be used for all UNDP programmes in the country. However, as part of UNDP's capacity development strategy for Timor Leste, UNDP will be employing a National Implementation Modality (NIM) type approach under the overarching DIM management arrangements. This approach will utilise NIM advances, based on capacity assessments of the line ministries involved and assurance measures will be undertaken to mitigate capacity gaps. Letters of Agreement will be signed with the relevant government entities, which will be "Responsible Parties" under UNDP rules and regulations.

5.3 Implementing Partner

169. The lead government agency is the Ministry of Social Solidarity (MSS). Primary ownership lies with the National Disaster Management Directorate (NDMD), within MSS. A NDMD senior staff will be

appointed as the National Project Coordinator (NPDC). The NPC will function as an overall project coordinator, to monitor and facilitate project implementation and ensure coherence between plans and priorities of all Ministries.

170. The Directorate for Forestry under the Ministry of Agriculture and Fisheries will take responsibility for the successful implementation of Outcome 3, the development of watershed management strategies and plans and the implementation of respective resilience measures.

5.4 Project Board/ Project Steering Committee

171. The Project Board is responsible for making management decisions by consensus for a project, in particular when guidance is required by the Chief Technical Advisor/ Project Manager. The Project Board plays a critical role in project monitoring and evaluation by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Chief Technical Advisor/ Project Manager. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

172. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with UNDP. .

173. A joint Project Steering Committee (PSC) for the WB-BCDRP and the proposed LDCF project has been established to provide guidance on project design. The Board will build upon the same PSC members to ensure a coordinated strategy. Members will include:
    - Ministry of Social Solidarity/ National Disaster Management Directorate (MSS/NDMD);
    - Ministry of Agriculture and Fisheries/ Directorate for Forestry (MAF/DF), Directorate for Agricultural Research (MAF/NDAR), and Directorate for Extension Services (MAF/NDES);
    - Ministry of Public Works (MPW);
    - Ministry of Commerce, Industry and Environment (MCIE);
    - Ministry of State Administration/ Secretary of State for Local Development
    - Ministry of Justice/ Secretary of State for Land and Property
    - Donors

174. The Board will be co-chaired by UNDP and MSS, and will meet at a minimum every quarter, and in extraordinary sessions convened by MSS and/or UNDP.

5.5 Project Management Unit

175. A Project Management Unit (PMU) will be set-up within NDMD. The PMU will consist of an international Chief Technical Advisor (CTA)/ Project Manager (PM) on DRM; supported by UNV specialists in climate resilient agriculture, climate resilient bio-physical infrastructure, knowledge management & communication and monitoring & evaluation;), a national Finance & Admin Associate; four national M&E/field coordinators; four social/community mobilizers and five drivers.

176. The CTA/PM has the authority to run the project on a day-to-day basis on behalf of UNDP and the constraints laid down by the Board. The CTA/PM's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The CTA/PM will manage the overall budget and expenditure of the project. The CTA/PM will report jointly to the NPC and to the UNDP Country Director.

5.6 Technical Working Group

177. The Technical Working Group (TWG) consists of technical level staff from all Ministries and NGOs, represented on the Project Board, donors and NGOs. Terms of Reference have been developed setting out the roles and responsibilities of the TWG.

5.7 District Disaster Management Committees (DDMCs)

178. DDMCs consist of representatives of key line ministries and NGOs at the district level. The DDMC is chaired by the District Administrator, from the Ministry of State Administration. The role of the DDMCs is to ensure a coordinated structure for DRM at the district level. Representatives of each Ministry will receive technical guidance and instruction from their counterparts at the TWG.

5.8 Project Management

5.8.1 Contractual Arrangements

179. UNDP will engage MSS and MAF to implement outputs as defined in the Stakeholder Involvement Plan, through Letters of Agreement signed between UNDP and the Ministries. In order to receive funds, implementing partners are required to have a satisfactory assessment of their financial and management capacity, as well as open a bank account in the name of the project. Details on MSS and MAF financial and management capacity are as follows:
    - **MSS.** UNDP has significant prior experience implementing projects with MSS. In 2011, UNDP assessed the financial management capacity of MSS, and established that financial and procurement systems complied with Ministry of Finance systems. Based on the conclusion of the capacity assessment, UNDP has been transferring funds to the respective MSS project bank account, set-up specifically for this purpose. The capacity assessment done during the PPG phase noted that while support from the Project Management Units in financial reporting from the Ministry to UNDP was still required, cash transfers have been an effective modality in accessing funds for implementation of cash based activities, especially at the district levels..
    - **MAF.** A capacity assessment of MAF was done during the PPG phase. Financial and procurement systems complied with Ministry of Finance systems, which will enable UNDP to transfer funds to the Ministry for cash based activities.

180. The capacity assessment reports for MSS and MAF are attached.

5.8.2 Financial Modalities

181. UNDP will provide financial resources for project activities using three main modalities, namely: i) direct cash transfers; ii) direct payments; and iii) support services.

Direct Cash Transfers

182. Direct cash transfers are advances made for a three month period, based on activities and inputs in the approved annual work plans. Funds are transferred by UNDP directly to the Ministry's project bank account. Direct cash transfers are envisaged to be used for the following activities and inputs:

Activities/Inputs	Rules & Regulations	Payment Processed By	Contract Issued By
Cash based operational expenses: • *Training*: meetings, travel, per diem etc. (1.1.4, 2.1.3 and 2.2.4); • *Community contracting*: wages (2.1.4, 3.2.2, 3.2.3, 3.2.4).	Government Financial Rules: Payment processing and petty cash procedures for cash expenses.	Government: Cash operational advance managed by MSS/MAF Directorate of Finance & Administration, for cash payments by PMU to vendors at district/ sub-district and *suco* level.	UNDP: Letter of Agreement between UNDP and MSS/MAF

As financial government rules and regulations apply, expenditure is covered under the NIM audit regime.

Direct Payment

183. Direct payments are where UNDP provides accounting and banking services, at the request of the implementing partner. Disbursements are made by UNDP to vendors, for procurement done by the Ministry, according to government rules and regulations. Direct payments are envisaged to be used for the following activities/inputs:

Activities/Inputs	Rules & Regulations	Payment Processed By	Contract Issued By
Procurement of goods and services : • *Goods*: procurement of EWS equipment (2.2.3); construction materials for community level disaster prevention investments and bio-physical interventions (2.1.4 and 3.2.4); agriculture equipment and seeds for ecosystem interventions, reforestation, alley cropping etc (3.2.2, 3.2.3, 3.2.4); • *Services*: production of communication & training materials (1.2.3 and 3.2.5).	Government: Planning Rules and Regulations: • *Infrastructure*: Annual PDID and PNDS process using established administrative decision making Committees; • *Goods and services*: Annual procurement/ budget planning process coordinated by the District Administrator (who is also head of the DDMC). Government: Procurement Rules and Regulations: • *Infrastructure*: PDID procurement process for contractors (district level); • *Goods and services*: National procurement rules and regulations (note: procurement of goods and services has not been delegated to district levels).	UNDP: Cheque/ bank transfer by UNDP's Finance Unit to vendor bank accounts.	Government: Purchase Order
Procurement of NGO services: • *Specific project inputs*: Assessing, developing, establishing and training in EWS (2.2.1, 2,2,2, 2,2.3 and 2,2,4) and conducting CVCAs and developing CPAs (3.1.1 and 3.1.2); or • *Supporting an activity within the project framework*: implementing conservation, permaculture, and sustainable agriculture activities (3.2.2, 3.2.3, and 3.2.4).	Ministry Internal Procedures: NGO assessment and monitoring procedures.	UNDP: Cheque/ bank transfer by UNDP's Finance Unit to NGO bank accounts.	Government: Memorandum of Understanding between Ministry and NGO

As procurement government rules and regulations apply, expenditure is covered under the NIM audit regime.

Support Services

184. To support implementation of certain project activities, UNDP will provide recruitment, procurement and contract management services. UNDP support services are envisaged to be used for the following activities/ inputs:

Activities/Inputs	Rules & Regulations	Payment Processed By	Contract Issued By
Procurement of specialist services: • *Consultants*: DRM needs assessment, updating of training modules, conducting, training and developing menu of watershed approaches (1.1.2, 1.1.3, 1.1.4, 1.2.1, 1.2.2, 1.2.3 and 3.2.1).	UNDP Procurement Polices & Procedures: Competitive procurement process to select specialist consultants (eg: assessments, training)	UNDP: Cheque/bank transfer by UNDP Finance Unit to Consultant bank accounts.	UNDP: Contract for Services of Individual Contractor
Recruitment: • PMU: national project staff	UNDP Human Resources Policies & Procedures Competitive recruitment processes for project technical and support staff.	UNDP: Cheque/ bank transfer by UNDP's Finance Unit to project staff bank accounts	UNDP: Service Contract

As UNDP programme and procurement rules and regulations apply, expenditure is covered under the DIM audit regime.

Figure Management Arrangements

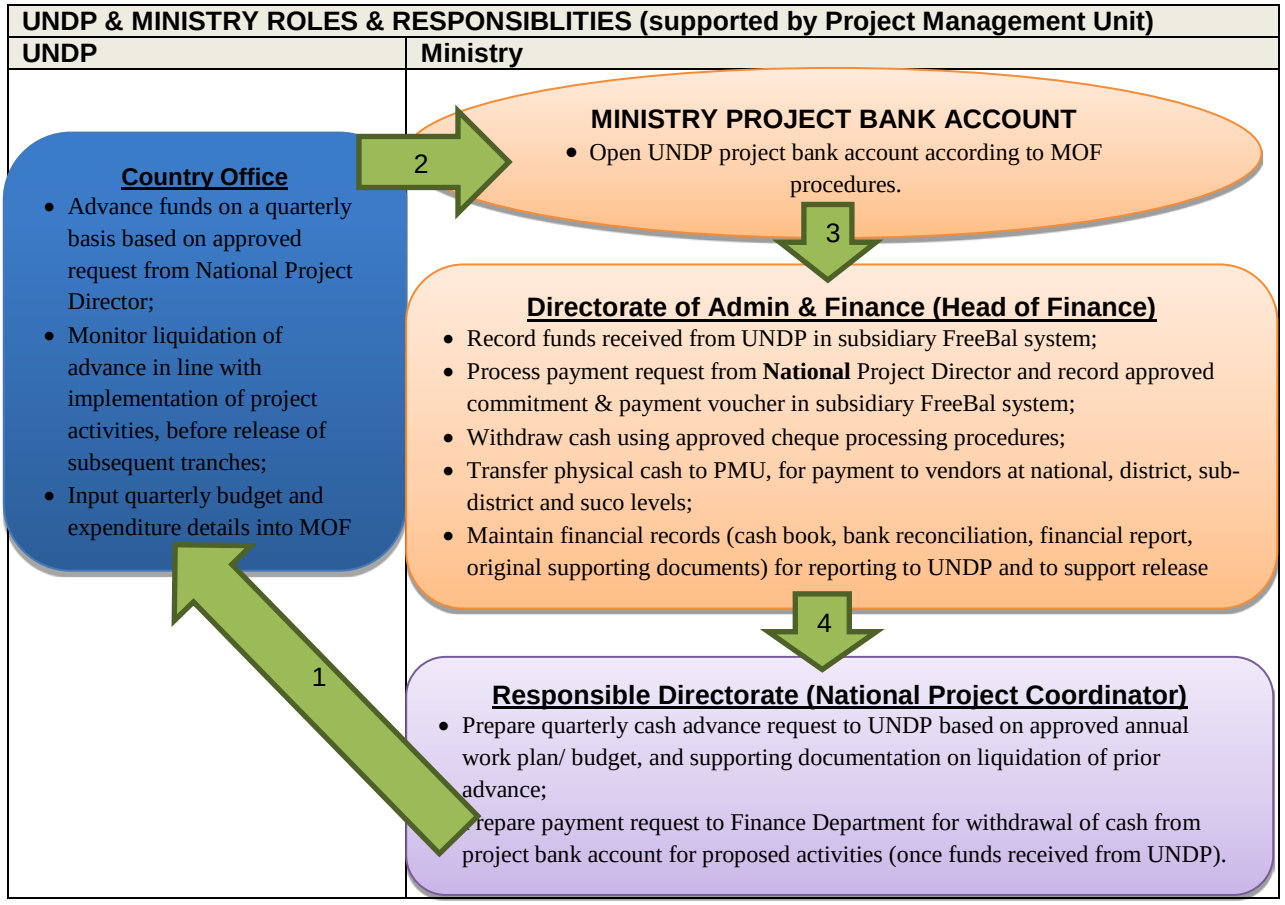
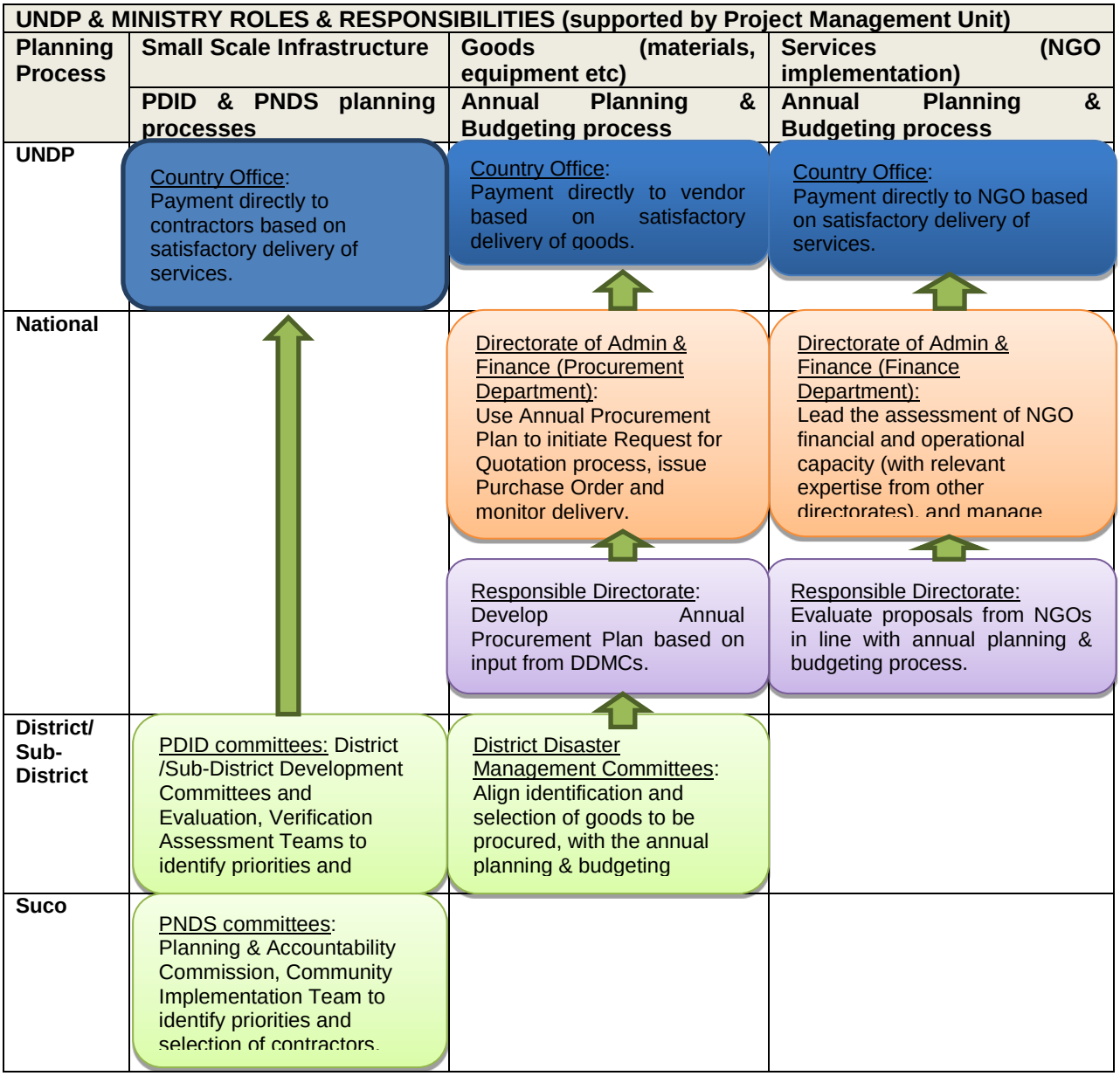


Figure Procurement Planning



5.8.3 Assurance

185. The UNDP Sustainable Development and Resilience Unit will provide assurance functions at the UNDP Country Office level. The Sustainable Development an Resilience Unit will support the Project Board, by carrying out objective and independent project oversight and monitoring functions, and ensuring that project management milestones are managed and completed. Monitoring functions include risk log tracking, field visits and annual reviews and reports. Results of M&E activities will be shared with the Project Board.

5.8.4 Audit

186. Project audits are under the mandate of the UNDP Office of Audit and Investigation (OAI). The project audit regime is determined by the implementation modality. Expenditure incurred under the NIM modality may be subject to annual NIM audits, based on pre-determined risk and expenditure

thresholds. Expenditure incurred under the DIM modality may be selected for audit by OAI based on annual risk assessments. The cost of audits will be included within the project budget.

6. MONITORING FRAMEWORK AND EVALUATION

187. Project performance, management and monitoring will include sex disaggregated data, information, and indicators, in order to allow for evaluation of the progress in relation to social development and gender. Gender-specific target indicators are included in the Gender Action Plan (Annex 3). In addition, design and monitoring framework developed for the purpose of this project includes gender disaggregated outcome-levels indicators. Women need to play an important role in ongoing project formulation, implementation, monitoring and evaluation. Provisions for gender-balanced access to training and capacity building also forms an integral part of each project component. Equal consultation with men and women, and specific engagement of women's groups, will continue throughout the project implementation and monitoring and evaluation phases. It is also proposed and budgeted for the Project Implementation Unit to employ a gender specialist who will ensure that planned activities are, indeed, conducted. A proposed draft Terms of Reference for this position are presented in Annex 5.

188. The project will be monitored through the following M&E activities. The M& E budget is provided in the table below.

Project start

189. A Project Inception Workshop will be held **within the first 2 months** of project start with those with assigned roles in the project organisation structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

190. The Inception Workshop should address a number of key issues including:
- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and Regional Coordinating Unit staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalise the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- Explicit and specific inclusion of gender-related activities during implementation and monitoring.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held **within the first 12 months** following the inception workshop.

191. An Inception Report will be prepared capturing the findings of the inception phase, which include any changes in project design and activities required as well as a further detailing of implementation modalities and guidelines. The Inception Report will be prepared capturing the findings of the inception phase, which include any changes in project design and activities required as well as a further detailing of implementation modalities and guidelines. The Inception Report is a key reference document and must be prepared and shared with participants to formalise various agreements and plans decided during the inception phase. The report being a formal project document, it is to be submitted to GEF.

192. Quarterly
- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.

- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalisation of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

193. Annually
    - **Annual Project Review/Project Implementation Reports (APR/PIR):** This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). It will include reporting concerning progress made towards achievement of targets set for gender-specific indicators. The APR/PIR combines both UNDP and GEF reporting requirements.
        - The APR/PIR includes, but is not limited to, reporting on the following:
        - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
        - Project outputs delivered per project outcome (annual).
        - Lesson learned/good practice.
        - AWP and other expenditure reports
        - Risk and adaptive management
        - ATLAS QPR
        - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits

194. UNDP CO and the UNDP Regional Coordinating Unit (RCU) will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. The Gender Specialist is expected to be included in this in order to assess progress made towards achievement of gender-specific targets. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle

195. The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. Strong emphasis will be placed on analysing the findings and progress related to gender-specific activities in order to inform ongoing adaptation of the project to ensure gender-related targets are met. The organisation, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the UNDP-RCU and UNDP-Environmental and Energy Group (EEG). The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

196. The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project

197. An independent **Final Evaluation** will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Final Evaluation will make specific reference to the project achievements concerning gender-related outcomes. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG.

198. The Final Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

199. The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

200. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarise the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing

201. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks through **research, documentation of good practice and developing evidence documents for policy influencing (output 3.2),** which may be of benefit to project implementation. The project will identify, analyse, and share lessons learned **based on the community level climate change vulnerability and risk assessments (CVCA) and Community Action Plans (CAP). These lessons learned will include specific reference to gender-related achievements, as well as focusing on changes in land use, agriculture practices, and stabilization of identified hotspots** that might be beneficial in the design and implementation of similar future projects Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements

202. Full compliance is required with UNDP's Branding Guidelines. These can be accessed at http://intra.undp.org/coa/branding.shtml, and specific guidelines on UNDP logo use can be accessed at: http://intra.undp.org/branding/useOfLogo.html. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at http://intra.undp.org/coa/branding.shtml.

203. Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

Table 5 M& E workplan and budget

Type of M&E activity	**Responsible Parties**	**Budget US$** *Excluding project team staff time*	**Time frame**
Inception Process Workshop and Report	▪ Project Manager ▪ UNDP CO, UNDP CCA	Indicative cost: 20,000	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ UNDP CCA RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and team	None	Quarterly
Mid-term Evaluation	▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost : 40,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ local consultant	0	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	12,00 for 4 years	3,000 per year
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$112,000	

7. LEGAL CONTEXT

204. This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

205. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

206. The implementing partner shall:
    a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
    b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

207. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

208. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

8. ANNEXES

See annexes attached in separate document.