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**TIMOR-LESTE**

# CLIMATE PUBLIC EXPENDITURE AND INSTITUTIONAL REVIEW (CPEIR)



January, 2022

Ministry of Finance, Government of Timor-Leste

## Credits

This report is produced by joint collaboration between Ministry of Finance, Government of Timor-Leste, and UNDP Timor-Leste.

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## Executive Summary

**This report documents the findings of Timor-Leste's Climate Public Expenditure and Institutional Review (CPEIR).** CPEIR is a methodological examination of national climate change policies, climate policy implementing institutions, and climate public expenditures. The present study introduces a sectoral approach to conducting CPEIR that is in line with Timor-Leste's strategic planning process. We also introduce a fourth pillar to CPEIR framework and begin by inquiring availability of evidence regarding climate vulnerabilities of the sector in question. Introduction of this fourth pillar in CPEIR framework acknowledges the fact that climate policy formulation is incentivized by availability of compelling evidence and proper risk assessment.

**We reviewed climate public expenditures financed by Consolidated Fund of Timor-Leste (CF-TL), Infrastructure Fund, and development partners for the years between 2018-2021<sup>1</sup>.** We find that actual public expenditure on highly climate relevant programs and activities has been declining over the years. In 2018, Timor-Leste spent 4.67% of its GDP in highly climate relevant programs and projects, but it came down to 2.31% of GDP in 2020. We also report that most of the climate relevant expenditure has been financed by the Infrastructure Fund over the last four fiscal years, but the amount of funding allocated out Infrastructure Fund for highly climate relevant projects has been declining at a fast rate. In 2018, \$48,168,000 was spent out of Infrastructure Fund on highly climate relevant projects, but the expenditure came down to \$20,724,000 in 2020. Development partner financed highly climate relevant public expenditure has also been decreasing, and CF-TL has accounted for a very minor share of climate public expenditure over the studied timeframe.

**Our analysis reveals varying levels of climate awareness and climate public expenditure for the 16 key sectors important for Timor-Leste's development.** Roads and Bridges sector has received the highest amount of highly climate relevant public expenditure in the last four fiscal years (\$103,854,420). This sector has been followed by agriculture (\$25,549,948), health (\$19,514,591), and urban and rural development (\$14,360,315). Some sectors like culture and heritage, and sea ports management do not attract any climate relevant expenditure, while others like health, and tourism are completely reliant on development partners for climate finances. Some sectors are - and in future will also most likely be - fully reliant on public expenditure on adaptation finance (e.g., education), while for others innovative funding solutions and public-private partnerships could be viable alternative source of climate finances (e.g., electricity). Market-based fiscal instruments are more suited for some sectors like tourism, and private sector investment, while non-market based fiscal tools are a better match for sectors like roads and bridges, water and sanitation, and health. The point is, there is no one size fits all solution for sourcing climate finance for all sectors of the economy, and thus climate financing strategy should be developed at sectoral level. The bigger point is, we need to address the elephant in the room and acknowledge that Timor-Leste's petroleum resources are practically depleted. The biggest threat climate change poses to Timor-Leste is making funding hard to secure for development of Greater Sunrise fields as in a bid to achieve net zero emissions by 2050, major investors are staying away from funding new projects in the petroleum sector. As such there is an urgent need to develop a national level sustainable development goals financing strategy to help Timor-Leste transition into an era of reduced reliance on petroleum revenue and diversify its economic base.

**A prioritized reform agenda for the 16 sectors reviewed in this study appears on the next page:**

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<sup>1</sup> For 2021, actual expenditure data was reviewed up to 23 September 2021.

# Key Priorities Identified

Key Priorities Identified		High attention needed	Moderate attention needed	Adequately attended to	
		Evidence on Climate Vulnerability	Policy Response	Institutions	Climate Public Expenditure
Pillar	Sector				
Social Capital	Education	High attention needed	Moderate attention needed	Adequately attended to	High attention needed
	Health	Adequately attended to	Moderate attention needed	High attention needed	
	Social Inclusion	Adequately attended to	High attention needed	Moderate attention needed	High attention needed
	Environment	Adequately attended to			High attention needed
	Cultural Heritage	High attention needed		Moderate attention needed	High attention needed
Infrastructural Development	Roads and Bridges	Adequately attended to	Moderate attention needed		
	Water and Sanitation	Adequately attended to		Moderate attention needed	High attention needed
	Electricity	Moderate attention needed	Adequately attended to		High attention needed
	Sea Ports	High attention needed		Moderate attention needed	High attention needed
	Air Ports	Adequately attended to	Moderate attention needed		Adequately attended to
	Telecommunications	Adequately attended to	High attention needed	Moderate attention needed	High attention needed
Economic Development	Rural Development	Adequately attended to	Moderate attention needed	High attention needed	Moderate attention needed
	Agriculture	Moderate attention needed	Adequately attended to	Moderate attention needed	High attention needed
	Petroleum	Adequately attended to	High attention needed	Moderate attention needed	
	Tourism	Moderate attention needed	Adequately attended to	Moderate attention needed	
	Private Sector Development	Moderate attention needed	High attention needed	Moderate attention needed	High attention needed

# 1. Introduction

**Timor-Leste – a small island developing state (SIDS) – is especially susceptible to the impacts of climate change.** Climate change is an environmental phenomenon with cross-cutting impacts on all aspects of Timorese existence - including but not limited to - social capital, infrastructural development, and economic development. As such, the country requires a whole-of-government approach to tackle the impacts of climate change.

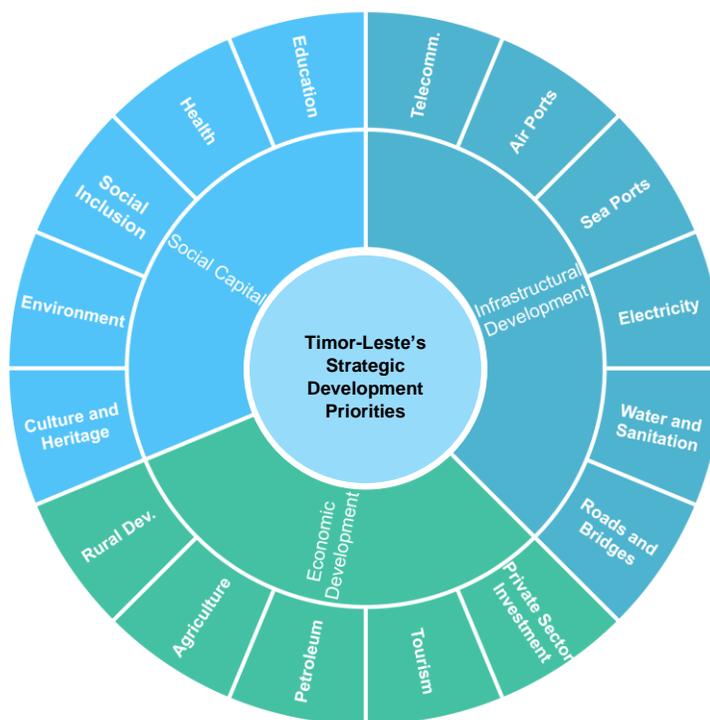
**This report documents the findings of Timor-Leste’s Climate Public Expenditure and Institutional Review (CPEIR).** CPEIR is a methodological examination of national climate change policies, climate policy implementing institutions, and climate public expenditures. It analyses the extent to which climate expenditure is integrated in national public financial management (PFM) processes (Bird, et al. 2012).

## 1.1 Sectoral Approach to CPEIR

**The present study introduces a sectoral approach to conducting CPEIR that is in line with Timor-Leste’s strategic planning process.** Timor-Leste’s National Strategic Development Plan 2011-2030 identifies its development priorities in 16 key sectors across three key areas- social capital, infrastructural development, and economic development. In the Dili Declaration of Climate Change Adaptation, Timor-Leste firmly announced that:

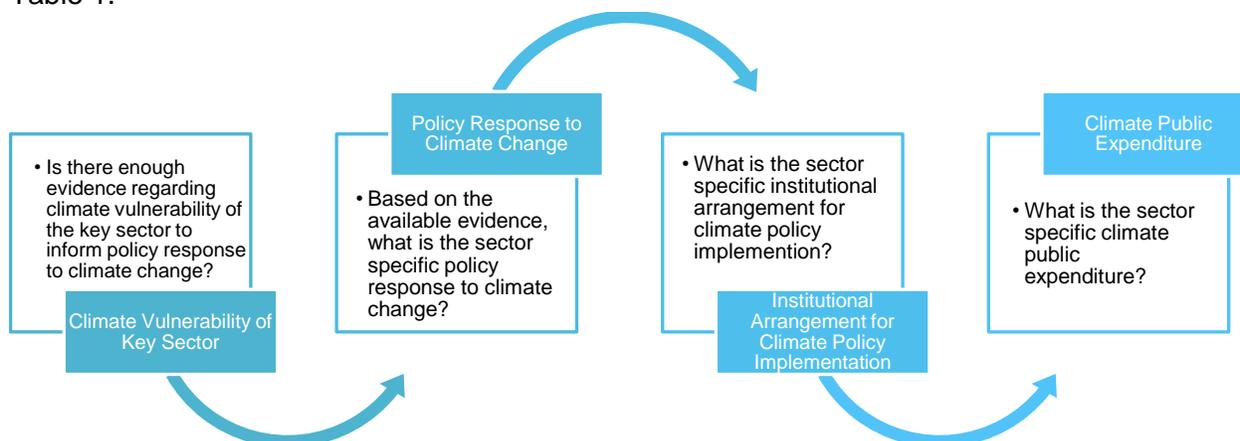
*“We believe that the government’s priorities for the people of Timor-Leste can only be sustainably achieved when we consider effective Climate Change Adaptation a pre-condition. Hence, we commit to the mainstreaming of climate change adaptation in the actions plans in all sectors to work jointly towards the targets outlined in the national policies.”* (Government of Timor-Leste 2016)

In the present study, thus, we assess Timor-Leste’s policy response and public expenditure to tackle the impact of climate change on the 16 key sectors the country prioritizes for its overall national development (Figure 1).



**FIGURE 1: TIMOR-LESTE'S DEVELOPMENT PRIORITIES IN 16 KEY SECTORS ACROSS THREE KEY AREAS AS LAID OUT IN ITS STRATEGIC DEVELOPMENT PLAN 2011-2030**

**The sectoral approach to CPEIR introduced in this study builds upon the traditional CEPIR process.** While the discussion in this report is largely organized across the three traditional pillars of CPEIR – policy analysis, institutional review, and expenditure assessment – we break away from tradition by conducting sectoral scrutiny of national response to climate change. We also introduce a fourth pillar in our discussion and begin by inquiring availability of evidence regarding climate vulnerabilities of the key sector in question. Introduction of this fourth pillar in CPEIR acknowledges the fact that policy formulation is incentivized by availability of compelling evidence and proper risk assessment (Figure 2). Thus, while policy analysis is the beginning point of traditional CPEIRs, in the present study it is the second stage. The differences between the traditional approach to CPEIR and the sectoral approach introduced in this study is illustrated in Table 1.



**FIGURE 2: THE FOUR PILLARS OF CPEIR ADOPTED IN THIS STUDY**

TABLE 1: DIFFERENCES BETWEEN TRADITIONAL AND SECTORAL APPROACH TO CPEIR

Pillars of CPEIR	Traditional Approach to CPEIR	Sectoral Approach to CPEIR
<b>Review of available evidence on sector specific climate vulnerability</b>	<p>Usually review of available evidence on sector specific climate vulnerability is absent (Example: CPEIR-Bangladesh, CPEIR-Cambodia, CPEIR-Nepal, CPEIR-Thailand).</p> <p>Rarely, like in CPEIR-Pakistan, a chapter is included on overall national vulnerability to climate change.</p>	<p>Begins with a scan of available evidence regarding sector specific impact of climate change. This:</p> <ul style="list-style-type: none"> <li>• acknowledges that policy formulation is incentivized by availability of compelling evidence;</li> <li>• presents the opportunity to identify whether policies have been adopted to respond to available sector specific climate vulnerability related evidence; and</li> <li>• in absence of available evidence, identifies areas where more research on sector specific climate vulnerability assessment is needed.</li> </ul>
<b>Policy analysis</b>	<p>Treated as the beginning point of traditional CPEIR. Reviews present state of policy priorities and strategies related to climate change.</p>	<p>Treated as the second phase of sectoral CPEIR. Reviews not only present policies related to climate change, but also identifies what policies are needed based on available sector specific climate vulnerability related evidence.</p>
<b>Institutional review</b>	<p>Reviews institutional arrangements for integrating climate relevant policy priorities into national budget. All climate-relevant institutions are analyzed together in a wide-ranging treatment. Holding a wide range of actors responsible for climate action presents a</p>	<p>Reviews institutional arrangements for integrating sector specific climate relevant policy priorities into ministerial budget. Provides a clear structure for holding ministries and associated agencies responsible for taking climate action relevant</p>

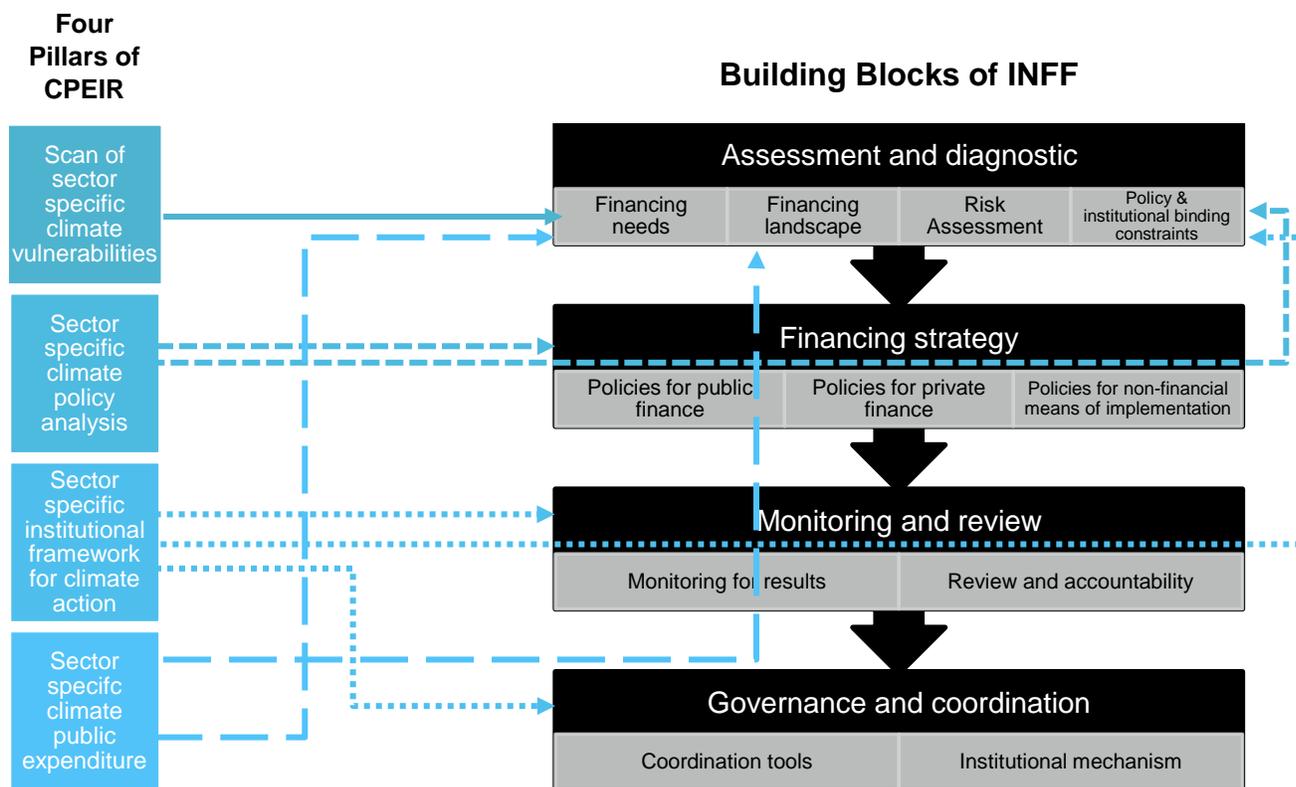
Pillars of CPEIR	Traditional Approach to CPEIR	Sectoral Approach to CPEIR
	diluted view of institutional accountability for responding to climate change.	to the sector they are in charge of.
<b>Expenditure assessment</b>	Assesses integration of climate policies into budgetary process.	Offers the same insight as a traditional CPEIR report, but the assessment is organized at sectoral level.

## 1.2 Sectoral CPEIR as a Stepping Stone Towards Sectoral INFF

The present CPEIR is conducted as a stepping stone towards development of Timor-Leste's sectoral Integrated National Financing Framework (INFF). Developed by United Nations, INFF is an analytical tool to support country-level Sustainable Development Goals (SDG) planning and financing processes. It is meant to assist a country realize its sustainable development priorities, as identified in its national sustainable development strategy (United Nations 2021).

**Output of the present CPEIR exercise will provide input for development of Timor-Leste's sectoral INFF in the following ways (Figure 3):**

- **Scan of sector specific climate vulnerabilities** will provide inputs of assessing financing needs. Quantifying sector specific climate financing needs is beyond the scope of this study, but the scan of sector specific climate vulnerabilities will provide important qualitative pointers in this aspect.
- **Sector specific climate policy analysis** will provide inputs for assessing sector specific binding policy constraints, and for developing sector specific financing strategy.
- **Sector specific review of institutional framework** for climate action will help identify sector specific binding institutional constraints, and sector specific monitoring and review, and governance and coordination mechanisms.
- **Sector specific climate public expenditure assessment**, finally, will provide further inputs for assessing financing gaps based on availability of public finance against overall financing needs, and also support in diagnosing financing landscape.



**FIGURE 3: OUTPUTS OF THE CPEIR AS INPUTS FOR INFF**

**CPEIR is a useful starting point for developing INFF, but the scopes of CPEIR and INFF are different.** Here, it is to be noted that, CPEIRs are primarily concerned with climate public expenditure and institutional review, and review of private climate expenditure is usually not part of the CPEIR process. Also, sectoral INFFs will ideally address concerns regarding all aspects of sustainable development that extend well beyond adapting to and mitigating the impacts of climate change, but CPEIRs have exclusive focus on national response to climate change.

### 1.3 Organization of the Report

**Chapter 2 discusses the CPEIR methodology adopted in this paper.** The chapter is divided into four sections detailing each of the four pillars of sectoral CPEIR. Details of the methodology adopted for sector specific climate vulnerability assessment, climate policy review, mapping of institutions responsible for climate action, and climate public expenditure estimation are provided in this chapter.

**Chapters 3 to 5 present findings of the sectoral CPEIRs mirroring the organization of Timor-Leste's Strategic Development Plan 2011-2030.** We aim to secure country ownership of the analysis presented by ensuring that recommendations made herein are closely aligned with the national strategy document. Recommendations for strengthening sector specific climate response appear at the end of sectoral CPEIRs presented through Chapters 3 to 5.

**Chapter 6 highlights the role of coordinating ministries and inter-ministerial commissions in strengthening Timor-Leste's overall national capacity to respond to climate change.**

Role of institutions like Ministry of Finance; Ministry of Commerce, Industry, and Environment; Ministry of Foreign Affairs and Cooperation; Office of the Prime Minister; National Directorate for Climate Change; and Working Group on Climate Change are highlighted in this segment.

**Chapter 7 concludes the paper synthesizing findings of the entire CPEIR exercise at national level and suggesting road ahead.** In contrast to Chapters 3 to 5 where discussions had a sectoral focus, Chapter 7 presents findings for national level. The paper ends with a big picture view of where Timor-Leste stands now with respect to climate public expenditure, and where it should head next.

## 2.CPEIR Methodology

### 2.1 Sector Specific Climate Vulnerability Assessment

**The sectoral CPEIR begins with sector specific climate vulnerability assessment.** This task is completed based on review of available literature documenting climate vulnerability of the sector in question. In reviewing literature on sector specific climate vulnerability, we sought to answer one key question –

- **What evidence is available documenting climate vulnerability of the sector in question?**

### 2.2 Sector Specific Climate Policy Review

**Sector specific climate policy review is conducted through a scan of different national and sectoral policy documents covering different time-frames.** We reviewed a range of plans, policies, and strategies covering long, medium, and short time-frames. In reviewing sector specific policy stance on climate response, we sought to answer the following question-

- **Do the sector specific climate policies adequately respond to the available evidence on sector specific vulnerabilities to climate change?**

### 2.3 Sector Specific Mapping of Institutions Responsible for Climate Action

**Sector specific mapping of institutions responsible for climate action involved detailed analysis of the roles and responsibilities of different government institutions and their mandates.** We traced the current and potential roles of different central government institutions to formulate, implement, and coordinate sector specific climate responses by analyzing their activities reported in their Annual Action Plans (AAP). As part of their budget submission package, each central government institution prepares AAP detailing the activities to be performed by them (The World Bank 2020). In reviewing the AAP of different central government institutions, we sought to answer the following question –

- **Does this institution perform any activity that currently is or potentially can be relevant to adapting to or mitigating the impacts of climate change?**

### 2.4 Sector Specific Climate Public Expenditure Estimation

**Sector specific climate public expenditure estimation involved reviewing climate relevant expenditures financed by Consolidated Fund of Timor-Leste (CF-TL), Infrastructure Fund, and development partners.** Timor-Leste's budget is published as a six-book set<sup>2</sup>. Among them Budget Book 2 provides information on AAP of central government institutions, and CF-TL funding

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<sup>2</sup> For full description of contents of the Budget Books refer to Timor-Leste's Ministry of Finance's website or the World Bank's PEFA assessment report.

allocated for each activity to be pursued by them. Budget Book 3A provides information on Infrastructure Fund financed multi-year programmes and projects, and Budget Book 5 provides information on financing received from different development partners for different initiatives implemented by or with the government. We collected Budget Book 2, Budget Book 3A, and Budget Book 5 for the years between 2018 to 2021 to estimate climate public expenditures allocated in them. Actual expenditure data against the budgetary allocations during the studied timeframe was provided by Ministry of Finance. For 2021, actual expenditure data was reviewed up to 23 September 2021.

### **Climate public expenditure estimation is a largely expertise-informed subjective process.**

There is no internationally agreed definition of what constitutes climate change related expenditure (UNDP 2015a). As such, in deciding whether an expenditure is climate relevant, expertise-informed subjective judgement is needed. Sector specific climate public expenditure was estimated using the following three-step process explained in UNDP 2015:

#### **Step 1: Identify**

To identify whether an expenditure is climate change relevant, we asked a simple question:

- **Would this expenditure help Timor-Leste adapt to or mitigate the impacts of climate change?**

Only expenditures identified to be climate relevant were then classified using the following step.

#### **Step 2: Classify**

Expenditures identified to be climate relevant were then classified based on sectoral relevance, ministerial attachment, source of fund, and the standardized UNDP/World Bank CPEIR typology. The standardized UNDP/World Bank CPEIR typology is shown below in Table 2.

**TABLE 2: STANDARDIZED UNDP/WORLD BANK CPEIR TYPOLOGY**

<b>Joint UNDP/World Bank Standardised CPEIR Typology</b>		
Policy and Governance	PG1: A national framework for adaptation and risk reduction	PG1.1 Develop climate change adaptation guidelines and technical regulations
		PG1.2 Develop/adjust policy, planning and mechanism for climate change response and implementation across government, enterprises and communities
		PG1.3 Manage and monitor implementation of adaptation policies
	PG2: A comprehensive consistent national	PG2.1 Establish policy, tax and incentive structure for new and clean energy, energy efficiency and low GHG emission

### Joint UNDP/World Bank Standardised CPEIR Typology

	mitigation policy framework	PG2.2 Develop/ adjust sectoral plan and coordinate implementation among departments, enterprises, and provinces
		PG2.3 Manage and monitor implementation of Mitigation policies
	PG3: Action Plan Impact Assessment at national, provincial, and sector level to translate policy and governance into activity and delivery	PG3.1 Action and Sector Plans
		PG3.2 Climate change Impact assessments
		PG3.3 Climate change Capacity building
	PG4: Legal framework to implement climate change policy (all elements of climate change/green growth policies)	PG4.1 Mitigation instruments
		PG4.2 Adaptation instruments
		PG4.3. Mitigation and Adaptation Instruments
	PG5: International cooperation, integration and diversification and strengthening of climate change investment effectiveness	PG5.1 Strengthen cooperation and partnership with international community on climate change issues
		PG5.2 Effective management and coordination of foreign and domestic investment
Scientific, Technical and Societal Capacity (ST)	ST1: Develop science & technology as a foundation for formulating policies, assessing impacts and identifying measure on climate change adaptation and mitigation	ST1.1 Information and database development
		ST1.2 Hydrometeorology and early warning system and climate change projection
		ST1.3 Biological & genetic resource strengthening
		ST1.4. Survey and assessment on climate change impacts
		ST1.5 Technology for energy efficiency and low GHG emission

### Joint UNDP/World Bank Standardised CPEIR Typology

	ST2: Improve awareness of climate change	<p>ST2.1 Climate change awareness building in curriculums of primary to higher education establishments</p> <p>ST2.2 Awareness of climate change in diverse education and training initiatives for post-school aged earners</p>
	ST3: Develop community capacity for responding to climate change	<p>ST3.1 Support livelihood building for communities in the context of climate change</p> <p>ST3.2 Capacity across whole community in climate change response</p>
Climate Change Delivery (CCD)	CCD1: Natural resources	<p>CCD1.1 Coastal protection and coastal dykes</p> <p>CCD1.2 Saline intrusion</p> <p>CCD1.3 Irrigation</p> <p>CCD1.4 River dyke and embankments</p> <p>CCD1.5 Water quality and supply</p> <p>CCD1.6 Rural development and food security</p> <p>CCD1.7 Forest development</p> <p>CCD1.8 Fisheries &amp; aquaculture</p> <p>CCD1.9 Biodiversity &amp; conservation</p>
	CCD2: Resilient society	<p>CCD2.1 Public health &amp; social service</p> <p>CCD2.2 Education and Social Protection</p> <p>CCD2.3 Residential and city area resilience</p> <p>CCD2.4 Transport</p> <p>CCD2.5 Waste management and treatment</p> <p>CCD2.6 Disaster specific infrastructure</p> <p>CCD2.7 Strengthening disaster risk reduction</p>
	CCD3: Enterprise and production	<p>CCD3.1 Energy generation</p> <p>CCD3.2 Energy efficiency</p> <p>CCD3.3 Infrastructure and construction</p>

## Joint UNDP/World Bank Standardised CPEIR Typology

CCD3.4 Industry & trade

CCD3.5 Tourism

Source: (UNDP 2015a)

### Step 3: Weigh

Climate relevant expenditures were then weighed using the CPEIR Climate Relevance Index.

**TABLE 3: CPEIR CLIMATE RELEVANCE INDEX**

High relevance	Weighting more than 75%
<b>Rationale:</b>	Clear primary objective of delivering specific outcomes that improve climate resilience or contribute to mitigation
<b>Examples:</b>	<ul style="list-style-type: none"> <li>• Energy mitigation (e.g. renewables, energy efficiency)</li> <li>• Disaster risk reduction and disaster management capacity</li> <li>• The additional costs of changing the design of a program to improve climate resilience (e.g. extra costs of climate proofing infrastructure, beyond routine maintenance or rehabilitation)</li> <li>• Anything that responds to recent drought, cyclone or flooding, because it will have added benefits for future extreme events</li> <li>• Relocating villages to give protection against cyclones/sea-level</li> <li>• Healthcare for climate sensitive diseases</li> <li>• Building institutional capacity to plan and manage climate change, including early warning and monitoring</li> <li>• Raising awareness about climate change</li> <li>• Anything meeting the criteria of climate change funds (e.g. GEF,PPCR)</li> </ul>
Medium relevance	Weighting between 50% to 74%
<b>Rationale:</b>	Either: <ol style="list-style-type: none"> <li>(i) secondary objectives related to building climate resilience or contributing to mitigation, or</li> <li>(ii) mixed programs with a range of activities that are not easily separated but include at least some that promote climate resilience or mitigation</li> </ol>
<b>Examples:</b>	<ul style="list-style-type: none"> <li>• Forestry and agroforestry that is motivated primarily by economic or conservation objectives, because this will have some mitigation effect</li> </ul>

- Water storage, water efficiency and irrigation that is motivated primarily by improved livelihoods because this will also provide protection against drought
- Bio-diversity and conservation, unless explicitly aimed at increasing resilience of ecosystems to climate change (or mitigation)
- Eco-tourism, because it encourages communities to put a value of ecosystems and raises awareness of the impact of climate change
- Livelihood and social protection programs, motivated by poverty reduction, but building household reserves and assets and reducing vulnerability. This will include programs to promote economic growth, including vocational training, financial services and the maintenance and improvement of economic infrastructure, such as roads and railways

### Low relevance Weighting between 25% to 49%

**Rationale:** Activities that display attributes where indirect adaptation and mitigation benefits may arise

- Examples:**
- Water quality, unless the improvements in water quality aim to reduce problems from extreme rainfall events, in which case the relevance would be high
  - General livelihoods, motivated by poverty reduction, but building household reserves and assets and reducing vulnerability in areas of low climate change vulnerability
  - General planning capacity, either at national or local level, unless it is explicitly linked to climate change, in which case it would be high
  - Livelihood and social protection programs, motivated by poverty reduction, but building household reserves and assets and reducing vulnerability. This will include programs to promote economic growth, including vocational training, financial services and the maintenance and improvement of economic infrastructure, such as roads and railways

### Marginal relevance Weighting less than 25%

**Rationale:** Activities that have only very indirect and theoretical links to climate resilience

- Examples:**
- Short term programs (including humanitarian relief)
  - The replacement element of any reconstruction investment (splitting off the additional climate element as high relevance)
  - Education and health that do not have an explicit climate change element

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Source: (UNDP 2015a)

## 3.CPEIR of Social Capital

### 3.1 Education

#### Education Sector Specific Climate Vulnerabilities

**Potential threats of climate change on the education sector of Timor-Leste are magnified by lack of preparedness.** With most of the educational infrastructure damaged in 1999 (Government of Timor-Leste 2010), Timor-Leste's education sector is almost rebuilt from scratch post-independence. Substantial resources have been invested in construction of educational infrastructure, but inadequate attention has been paid towards making schooling infrastructure disaster resilient (Center for Excellence in Disaster Management 2019). Disruptions in learning activities is a regular occurrence in the aftermath of natural disasters, but lack of data on affected children, teachers, and damages (UNRCO Timor-Leste 2021) makes both disaster response and planning for climate resilience a challenge. The national curriculum is also inadequate to teach pupils about emergency disaster preparedness (Center for Excellence in Disaster Management 2019). Barring the impact of extreme weather events, recent research suggests that exposure to higher-than-average temperature in utero and early-life is associated with fewer years of schooling later between 12 to 16 years of ages among tropical country children (Randell and Gray 2019).

**Worldwide, there is a general lack of awareness about potential impacts of climate change on higher education sector, and Timor-Leste is no different.** Higher education institutions have a critical role to play in all forms of societal transformations and adapting to and mitigating the impacts of climate change is no different. A cross-continental study covering six countries and 45 institutions of tertiary education found that very few are actively pursuing measures to adapt to the impacts of climate change (Kautto, Trundle and McEvoy 2018). Globally, even though research is scarce on the impact of climate change on higher education systems, it is widely understood that the lives and livelihoods of each student attending higher education institutions now and in future will be affected by direct and indirect effects of climate change (Petford 2021).

#### Education Sector Specific Climate Policy Response

**National Adaptation Plan 2019 prioritizes several actions to adapt the education sector to the impacts of climate change.** According to the plan, between 2021-2022 - under the guidance of National Directorate for Climate Change and Ministry of Education, Youth and Sport - entry points for incorporating climate change into primary and secondary curricula will be identified, and resources to support education professionals teach the impact of climate change will be developed. The plan also draws attention to the role of Ministry of Higher Education, Science and Culture in developing human and institutional capacities for ecosystem-based adaptation, and embedding climate change programs in tertiary education. Specific research priorities for the higher education institutions of Timor-Leste identified in the National Adaptation Plan 2019 appear in Box 1.

**BOX 1: RESEARCH PRIORITIES FOR THE HIGHER EDUCATION INSTITUTIONS OF TIMOR-LESTE IDENTIFIED IN THE NATIONAL ADAPTATION PLAN 2019**

- *“Support research on the cost-benefit analysis, identification of climate change related problems facing different ecosystems and socio-economic benefits of sustainable natural resource management.*
- *Support Ministry of Agriculture and Fisheries in conducting research to identify the tree species which contribute to enhanced carbon sequestration, better water retention capacities and better erosion reduction/ slope stabilizing capacity.*
- *Collaborate with Ministry of Agriculture and Fisheries and other partners to identify and classify the crops as food crops, high value crops, cash crops and multi-purpose crops/plants and map them.*
- *Conduct assessments to identify vulnerability and resistance of the major crops to different climate risks and an action plan to safeguard the agricultural land and production.*
- *Launch studies on economic valuation, cost-benefit analysis and loss and damage to assess the existing ecosystem services and programs to enhance the ecosystem further.*
- *Identify and adopt appropriate technologies that are low cost, user friendly, high impact and less damaging to the environment.*
- *Research and development of technologies more adaptive to climate change, particularly for key sectors (i.e. agriculture, water resource and coastal/marine).*
- *Help the tourism sector identify and integrate climate resilience measures to reduce the adverse impacts in the sector.”*

Source<sup>3</sup>: (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019)

**Further, National Disaster Risk Management Policy 2008 recommended inclusion of disaster risk reduction (DRR) in general education curriculum.** The policy noted that:

*“Disaster preparedness, prevention and response should be part of the general education curriculum. People in schools, universities and workplaces should be continuously informed and trained to cope with natural hazards and fire hazards. From an early age, all East Timorese should be taught how to behave during earthquakes/tsunamis or other relevant hazards. Every year, a two-day training session in risk reduction for earthquakes/tsunamis and storms/flooding complete with simulation exercises and concrete preparation actions should be conducted.”* (Ministry of Social Solidarity, GoTL 2008)

**However, the National Strategic Plan for Education 2011-2030 does not contain any policy response to tackle the impact of climate change on education sector.** The plan alludes to seasonal floods as a possible reason for low enrollment of six-year-old children at pre-primary

<sup>3</sup> Text in Box 1 is reproduced verbatim from National Adaptation Plan 2019.

level education, but does not suggest any policy to address this problem (Ministry of Education, Timor-Leste 2011).

### Box 2: INTERNATIONAL EXAMPLES OF EDUCATION SECTOR SPECIFIC CLIMATE POLICY RESPONSE

Governments of different nations have adopted different education sector specific policy response to climate change:

**Argentina** has adopted the National Law of Comprehensive Environmental Education that proposes incorporation of comprehensive and cross-cutting environmental education at all levels schooling (Nugent 2021; Mandolini 2021).

**Spain** and **France** are in the process of adopting laws that would mandate a cross-cutting approach to climate education across all subjects in all levels training students to relate climate change to all aspects of their personal and professional lives (Nugent 2021).

**Italian** high-schools have been mandated to provide one hour to environmental education in all grades every week (Nugent 2021).

**Kiribati** and **Vanuatu** have adopted hands-on approach to teaching children about climate change by engaging them in adaptation actions. Children in Kiribati, for example, take part in mangrove plantation surrounding school infrastructure to learn the importance of planting and managing mangroves for SIDS, and students in Vanuatu go on field trips to learn about how to protect coral reefs and marine ecosystems (Burton, Mustelin and Urich 2011).

## Education Sector Specific Institutional Arrangement for Climate Action

**Three ministries / secretariats have the primary responsibility of taking education sector specific climate action in Timor-Leste.** They are: Ministry of Education, Youth and Sport, Ministry of Higher Education, Science and Culture, and Secretariat of State for the Environment.

**Four divisions under Ministry of Education, Youth and Sport are currently taking climate relevant actions, while eight other possess mandates to potentially play important climate relevant roles.** Ministry of Education, Youth and Sport is responsible for all levels of education in Timor-Leste except tertiary level. 12 divisions under the ministry possess climate action relevant mandates. Among them four divisions already perform climate relevant actions by running agroecology-based school garden program (National Directorate of School Social Activity), providing students emergency support against natural disasters (National Directorate of School Social Activity), organizing school environmental activities (National Directorate of Pre-Schools Education, Directorate General Pre-school and Basic Education), and rehabilitating school infrastructure damaged by climate change (National Directorate of Infrastructure Educative). Eight other divisions have mandates that enable them to potentially play important climate relevant roles:

- Office of the Minister and the Office of the Vice-Minister of Education, Youth and Sport have a role to play in developing new policies on cross-cutting climate change and environmental education,

- National Directorate of Procurement can adopt measures to ensure green procurement for educational activities,
- National Institute for Training of Teachers and Professionals of Education needs to train teachers to provide students environmental education in basic to secondary levels of schooling,
- National Directorate of School Social Activity needs to develop capacity to respond to climate change induced health issues among students within School Health Plan,
- National Curriculum Unit need to include and monitor inclusion of disaster risk reduction, climate change and environmental education in national school curriculum,
- General Directorate of Policy, Planning and Partnership have a role to play in developing new policies on cross-cutting climate change and environmental education,
- National Directorate of Educational Infrastructure would need to ensure construction of climate-proof school infrastructure, and
- National Directorate of Planning and Inclusive Education has a role to play in strengthening the educational data management system (EMIS) to collect information about students hit by natural disasters and other climate change induced disruptions to education.

**UNESCO National Commission is the only division under Ministry of Higher Education, Science and Culture that is currently taking action relevant to climate change.** The commission is currently engaged in introducing and implementing education for sustainable development. Additionally, given their mandates, Office of the Minister of Higher Education, Science and Culture has to role to play in providing policy guidance for adapting higher education sector to the impact of climate change, and National Directorate of Higher Education Curriculum has the responsibility of embedding climate awareness into tertiary education curriculum.

**Centre for Environmental Education and Information under Secretariat of State for the Environment is assigned the important task of coordinating the development of national environmental education policy.** The center also currently oversees the operations of Green Schools – an innovative program that promotes proactive environmental stewardship among school students in a bid to facilitate community-level sustainable development (PEMSEA 2020).

**TABLE 4: EDUCATION SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Education Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Education,</b>	Office of the Minister of Education	Developing new policies on cross-cutting climate change and environmental education (Potential climate action as part of Activity 5100108)

Education Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
Youth and Sport	Office of Vice-Minister of Education, Youth and Sport	Developing new policies on cross-cutting climate change and environmental education (Potential climate action as part of Activity 5100108)
	National Directorate of Procurement	Adopt measures to ensure green procurement for educational activities (Potential climate action as part of Activity 5100211)
	National Institute for Training of Teachers and Professionals of Education (INFORDOPE)	Train teachers and evaluate their ability to provide students environmental education in basic to secondary levels of schooling (Potential climate action as part of Activity 5250905, Activity 5250903, Activity 5250913, Activity 5210417, Activity 5210419, Activity 5250907, and Activity 5220417)
	National Directorate of School Social Activity	Agroecology based school garden program (Currently done as Activity 5250202)
		Providing students emergency support against natural disasters (Currently done as Activity 5250203)
		Respond to climate change induced health issues among students within School Health Plan (Potential climate action as part of Activity 5250102)
	National Curriculum Unit	Include disaster risk reduction, climate change and environmental education in national school curriculum (Potential climate action as part of Activity 5210405)
		Monitor inclusion of disaster risk reduction, climate change and environmental education in national curriculum (Potential climate action as part of Activity 5250701)
National Directorate of Pre-schools Education	School environmental activities (Currently done as Activity 5200303)	
Directorate General Pre-school and Basic Education	School environmental activities (Currently done as Activity 5200303)	

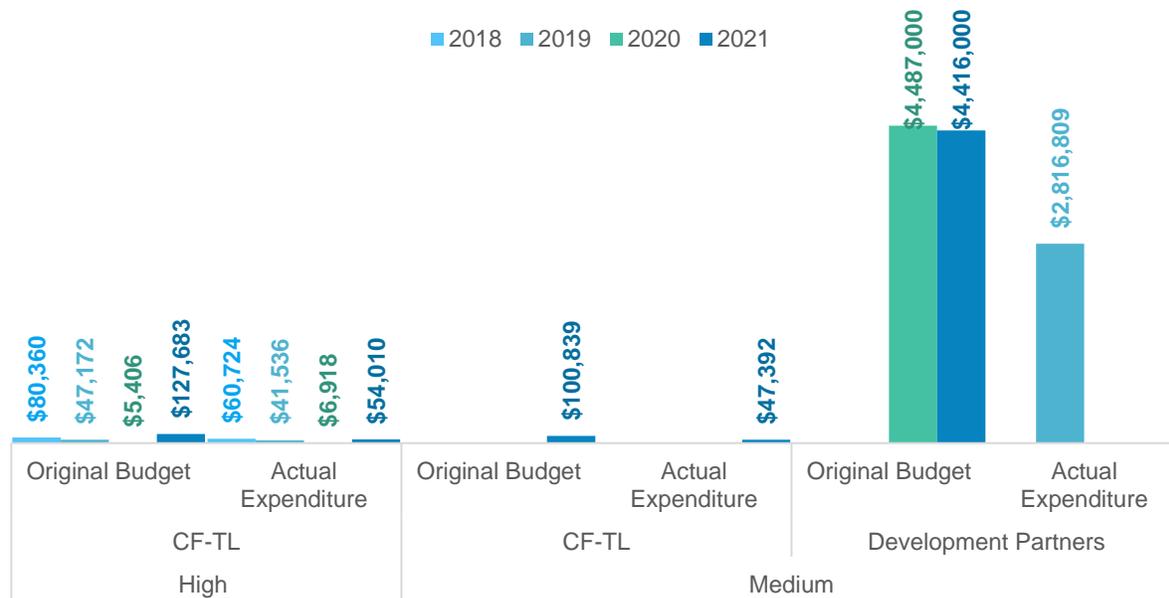
Education Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
	Services of the Centre for Printing	Use recycled papers, vegetable-based ink, energy efficient equipment for printing activities (Potential climate action as part of Activity 5100231, Activity 5251002, Activity 5251001, and Activity 5210403)
	General Directorate Policy, Planning and Partnership	Developing new policies on cross-cutting climate change and environmental education (Potential climate action as part of Activity 5100108 and Activity 5100120)
	National Directorate of Infrastructure Educative	Rehabilitate school infrastructure damaged by natural disasters (Currently done as part of Activity 5200302, Activity 5210302, Activity 5210306, and Activity 5220203)
		Construct climate-proof school infrastructure (Potential climate action as part of Activity 5200302, Activity 5210302, Activity 5210306, and Activity 5220203)
	National Directorate of Planning and Inclusive Education	Strengthen the educational data management system (EMIS) to collect information about students hit by natural disasters and other climate change induced disruptions to educational (Potential climate action as part of Activity 5250706)
<b>Ministry of Higher Education, Science and Culture</b>	UNESCO National Commission	Introduce and implement education programs for citizenship and education for sustainable development (Currently done as Activity 1720202)
	Office of the Minister of Higher Education, Science and Culture	Provide strategic development and policy guidance for adapting higher education sector to the impact of climate change (Potential climate action as part of Activity 5100108)
	National Directorate of Procurement	Adopt measures to ensure green procurement activities for educational activities (Potential climate action as part of Activity 5100211)
	National Directorate of Higher Education Curriculum	Curriculum of University and Technical Higher Education (Potential climate action as part of Activity 5240501)

Education Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
Secretariat of State for the Environment	Centre for Environmental Education and Information	Coordination and development of national environmental education policy (Currently done as Activity 5900106)
		Green School (Currently done as Activity 5900108)
	National Directorate for Climate Change	Identify entry points for incorporating climate change into primary and secondary curricula, and develop resources to support education professionals teach the impact of climate change (Potential climate action, new Activity code required)

## Education Sector Specific Climate Public Expenditure

**There has been no actual expenditure on education sector specific climate action out of Infrastructure Fund of the GoTL between 2018 to 2021.** However, against an original budget of \$260,621, actual expenditure of \$163,187 has been financed through CF-TL for different highly climate relevant activities like agroecology-based school garden program, promoting school environmental activities, providing students emergency support against natural disasters, developing national environmental education policy, and operating Green School. (Figure 4, Annex 1 Table 1)

**USAID funded HATUTAN Education and Nutrition Program – an initiative with medium climate relevance – reported the highest amount of education sector specific climate finance disbursement.** In 2019, HATUTAN Education and Nutrition Program reported actual expenditures of \$2.82 million. This program had over \$4.4 million original allocations in both 2020 and 2021, but no actual expenditures were reported in these years. Aiming to improve learning, health and nutrition among Timorese adults and children in a sustainable manner, this program is classified to possess medium relevance to climate change adaptation. (Figure 4, Annex 1 Table 1)



**FIGURE 4: EDUCATION SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**

**94% (\$2,845,254) of actual education sector specific climate public expenditure between 2018-2021 has been channeled as Climate Change Delivery programs.** HATUTAN Education and Nutrition Program – an initiative with medium relevance to climate change adaptation – alone has accounted for 99% (\$2,816,809) of education sector specific Climate Change Delivery expenditure in the last four fiscal years. This program is specially categorized as a Climate Change Delivery mechanism that aims to increase food security of its beneficiaries. (Figure 5, Annex 2 Table 1)

**6% (\$182,134) of actual education sector specific climate public expenditure between 2018-2021 has been spent on increasing Scientific, Technical and Societal Capacity related to climate change.** 74% of this has been spent on activities of high climate relevance like coordination and development of national environmental education policy, and agroecology-based school garden program. Expenditure on coordination and development of national environmental education policy has been inconsistent with around \$25,000 being spent in 2018 and 2021, but expenditure on 2019 being nil, and in 2020 being only \$1,138. (Figure 5, Annex 2 Table 1)



resilience a challenge. Data on educational disruptions caused by natural disasters and other climatic events should be collected and disseminated, so that all relevant stakeholders can prepare for and respond to natural disasters with more effectiveness.

- **Budgetary allocations for the education sector should match the climate policies adopted about developing climate aware curricula at all levels.**

The importance of integrating climate change, environmental protection, and disaster risk reduction is well recognized in policy documents, but budgetary allocations for implementing the policy positions have been inadequate. As noted above, expenditure on coordination and development of national environmental education policy has been inconsistent with around \$25,000 being spent in 2018 and 2021, but expenditure on 2019 being nil, and in 2020 being only \$1,138. Inclusion of disaster risk reduction in general education curriculum, another long-standing goal of the government, has also not been realized. Unless climate change adaptation and disaster risk reduction are included in national curriculum, Timorese children will not learn to make climate-aware choices (UNDRR 2020).

- **The role of higher education institutions in developing Timor-Leste's scientific, societal, and technical capacities should be strengthened.**

The next generation of decision makers graduating from tertiary education institutions must gain the skills and knowledge to understand how the risks and opportunities associated with climate change is relevant to their fields of specializations (Petford 2021). Higher education institutions of Timor-Leste, thus, will have to produce graduates capable of leading climate-induced societal transformations in their professional domains. The role of higher education institutions in supporting the policy makers with locally relevant research is already recognized in policy documents; National Adaptation Plan 2019 – in particular – sets an ambitious research agenda for the tertiary education institutions of the young nation. A plan now should be devised for developing research capacities of the tertiary education institutions in collaboration with development partners of Timor-Leste.

## 3.2 Health

### Health Sector Specific Climate Vulnerabilities

**Despite progress, Timor-Leste's healthcare system suffers from several weaknesses which can only exacerbate as a result of climate change.** Although Timor-Leste has made remarkable progress in several health-related indicators post-independence, the country still struggles with high rates of child mortality, malnutrition, and non-communicable diseases (Cousins 2019; Center for Excellence in Disaster Management 2019). Climate change threatens the country's healthcare systems as adverse impacts of climate change can cause massive outbreaks of infectious and vector-borne diseases, heat-related illness, malnutrition, and post-traumatic stress after natural calamity events (WHO, UNFCCC 2015).

**Health sector specific climate vulnerabilities of Timor-Leste are well researched and identified.** The country has already conducted Health Vulnerability and Adaptation Assessment with the World Health Organization (WHO) and is in the final stage of developing Health National

Adaptation Plan (HNAP). According to the Health Vulnerability and Adaptation Assessment, the key climate vulnerabilities of Timor-Leste's health care systems include:

- Increase in vector-borne diseases, respiratory infections, malnutrition, diarrhea, heat-related illness,
- Increase in heat-related mortality among senior citizens under high-emissions scenario of climate change,
- Curtailed access to health care facilities during and after natural disasters,
- Very weak public health and disaster related data collection and sharing network, and
- Weak capacity, infrastructure, and funding for research. (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019)

## Health Sector Specific Climate Policy Response

**Timor-Leste is in the process of finalizing Health National Adaptation Plan (HNAP) that has been developed in collaboration with World Health Organization (WHO).** The HNAP presents a detailed guideline for strengthening the health care system of Timor-Leste to adapt to the impacts of climate change over medium and long-term (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

**The need to plan for natural disaster induced health risks is also recognized in National Disaster Risk Management Policy 2008.** The policy noted that:

*“As Timor-Leste is at high risk of earthquake-related disaster and other hazards such as floods, tropical storms, landslides and epidemics (including potentially ‘bird flu’), risk management of mortality (deaths), diseases/injured (morbidity) and combinations of diseases (co-morbidity) in relation to such disasters should be part of the health sub-plan.”*  
(Ministry of Social Solidarity, GoTL 2008)

**Further, in its Intended Nationally Determined Contributions 2016, Timor-Leste identified several measures as possible climate policy responses related to the health sector.** These include:

- Setting up surveillance, response, and early warning system for disease control ensuring reach up to community level,
- integrating climate change related issues into the Comprehensive Primary Health Care System,
- promoting evidence-based health policy and program design factoring the effects of climate change,
- reviewing all health-related standard operational procedures (SOPs) and guidelines factoring in the effects of climate change, and
- setting up health clusters to prepare for and respond to emergency climate events (Government of Timor-Leste 2016).

**National Adaptation Plan 2019 identified two different programs composed of several activities as adaptation priority for the health sector.** The programs are: (1) integrating climate change considerations into health sector planning and regulatory frameworks, and (2) improving health sector capacities for managing climate risks. Different activities enlisted as part of these programs are presented in Box 3.

**BOX 3: HEALTH SECTOR SPECIFIC ADAPTATION PROGRAMS AS PER NATIONAL ADAPTATION PLAN 2019**

<b>Health Sector Specific Adaptation Programmes as per National Adaptation Plan 2019</b>	
<p><b>“Program 1: Integrate Climate Change Considerations into Health Sector Planning and Regulatory Frameworks”</b></p>	<p><b>“Program 2: Improve Health Sector Capacities for Managing Climate Risks”</b></p>
<ul style="list-style-type: none"> <li>• <i>“Reviewing all existing guidelines, standard operating procedures to consider climate change and its adverse effects.</i></li> <li>• <i>Review all existing guidelines and Standard Operating Procedures (SOPs) considering climate change and its adverse effects.</i></li> <li>• <i>Support preparation of —Health Risk and Preparedness Map in relation to different climate risks, magnitude of existing and potential health risks due to each type of climate risk and existing and planned public health service delivery capacity at the national, sub-national and local levels.</i></li> <li>• <i>In close collaboration with national and sub-national health service delivery units and Comprehensive Primary Health Care system which includes Family Health and SISCA, establish surveillance and response mechanisms to deal with climate related public health issues.</i></li> <li>• <i>Coordinate with the Ministry of Health to integrate climate change adaptation and mitigation in health sector policies including WASH priorities.</i></li> <li>• <i>Establishing a health cluster in order to prepare for and respond to emergency events and disasters.”</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>“Integrated disease surveillance and early warning systems.</i></li> <li>• <i>Mainstreaming and implementation of climate change into the Comprehensive Primary health Care System.</i></li> <li>• <i>Enhance the capacity of the health sector and communities to anticipate and respond to changes in distribution of endemic and epidemic climate-sensitive diseases, and reduce the vulnerability to infection of population in areas at risk from expansion of climate-related diseases.</i></li> <li>• <i>Create awareness among the health service providers at all levels on the different types of health risks associated with different types of climate risks and the different coping and adaptation measures so that these coping strategies could be communicated to the vulnerable populations.</i></li> <li>• <i>Prepare the health workers, institutions, and communities on the prevention and response mechanisms to be adopted related to different diseases and health challenges exacerbated by climate change.</i></li> <li>• <i>Support the development of health database and data management systems which includes climate sensitive health risk and vulnerability information to facilitate effective, targeted and efficient delivery of health services.</i></li> <li>• <i>Advocate establishing specialised public health service units well equipped and well</i></li> </ul>

*trained to respond to health issues during climate induced disasters.”*

Source<sup>5</sup>: (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

## Health Sector Specific Institutional Arrangement for Climate Action

**The primary responsibility of health sector specific climate action lies with Ministry of Health.** National Directorate for Health Policy, Planning and Cooperation; Ethics and Quality Control Office; Office of the Minister of Health; Office of the Vice-Minister of Primary Health; Office of the Vice-Minister of Strategic Development of Health; and Office of the Director General for Provision of Health Services are the key divisions under the Ministry of Health that are responsible for responding to the gendered health impact of climate change, incorporating climate induced vulnerabilities in health sector policies and strategies, and conducting research on localized health impact of climate change.

**Additionally, National Institute of Health - which is tasked with training health professionals as per the policies developed by the Ministry of Health – has important climate relevance.** The institute can strengthen Timor-Leste’s health sector specific climate action by assessing training needs, developing training package, and training health professionals to address health impacts of climate change, raising awareness about differential health impacts of climate change on women, and conducting research on the health impacts of climate change.

**TABLE 5: HEALTH SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

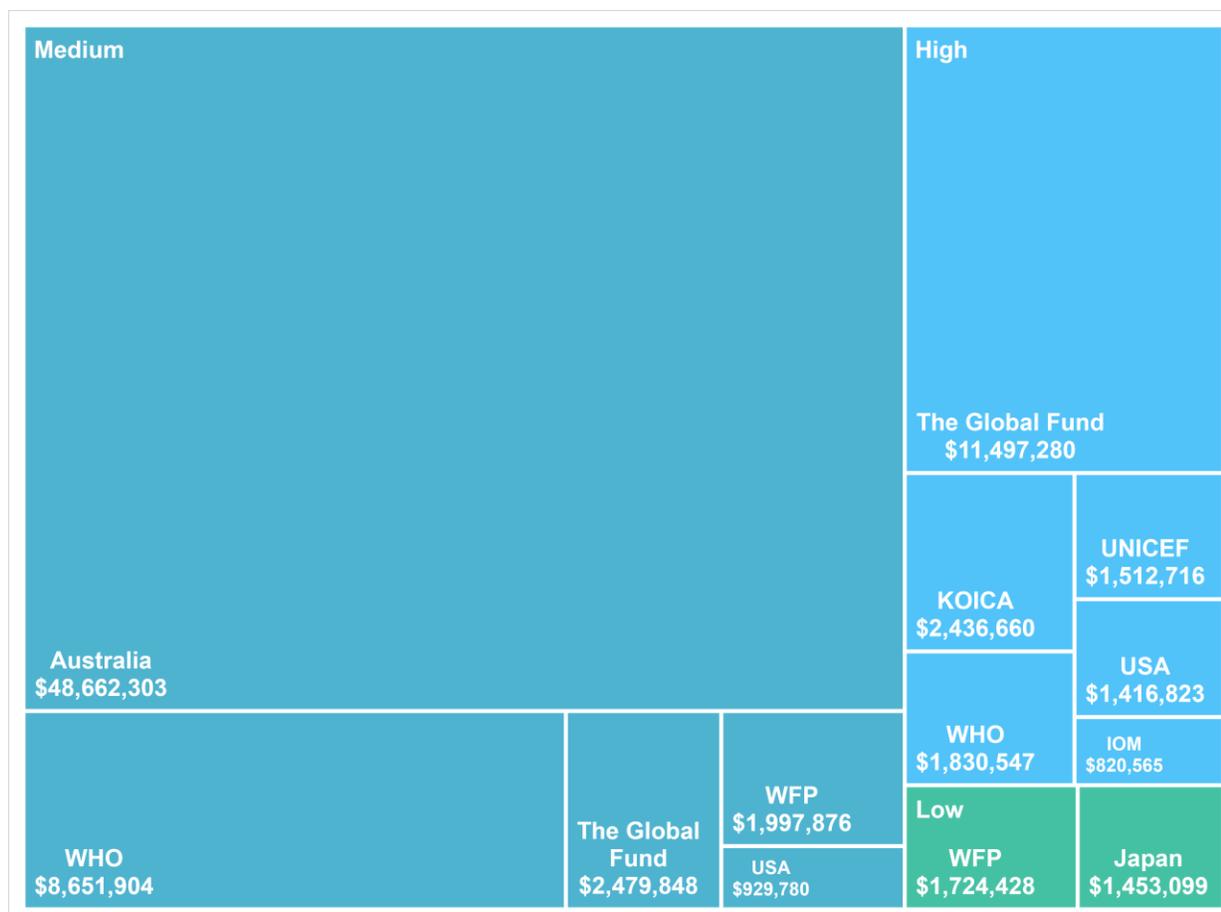
Health Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Health</b>	National Directorate for Health Policy, Planning and Cooperation	Respond to the gendered health impact of climate change (Potential climate action as part of Activity 4120405, Activity 4120601, and Activity 4120602)
		Incorporate climate induced vulnerabilities in health sector policies and strategies (Potential climate action as part of Activity 5100108)
	Ethics and Quality Control Office	Conduct research on localised health impact of climate change (Potential climate action as part of Activity 5100106)
	Office of the Minister of Health	Incorporate climate induced vulnerabilities in health sector policies and strategies (Potential climate action as part of Activity 5100108)

<sup>5</sup> Text in Box 3 is reproduced verbatim from National Adaptation Plan 2019.

Health Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
	Office of the Vice-Minister of Primary Health	Incorporate climate induced vulnerabilities in health sector policies, strategies, and regulations (Potential climate action as part of Activity 5100108 and Activity 5100131)
	Office of the Vice-Minister Strategic Development of Health	Incorporate climate induced vulnerabilities in health sector policies, strategies and regulations (Potential climate action as part of Activity 5100108 and Activity 5100131)
	Office of the Director General for Provision of Health Services	Incorporate climate induced vulnerabilities in health sector policies and strategies (Potential climate action as part of Activity 5100108)
<b>National Institute of Health</b>	National Institute of Health	Research on health impacts of climate change (Potential climate action as part of Activity 5270103)
		Assessing training needs, developing training package, and training health professionals to address health impacts of climate change (Potential climate action as part of Activity 5270401, Activity 5270402, and Activity 5270403)
		Mainstreaming differential health impacts of climate change on women Potential climate action as part of Activity 5100111)

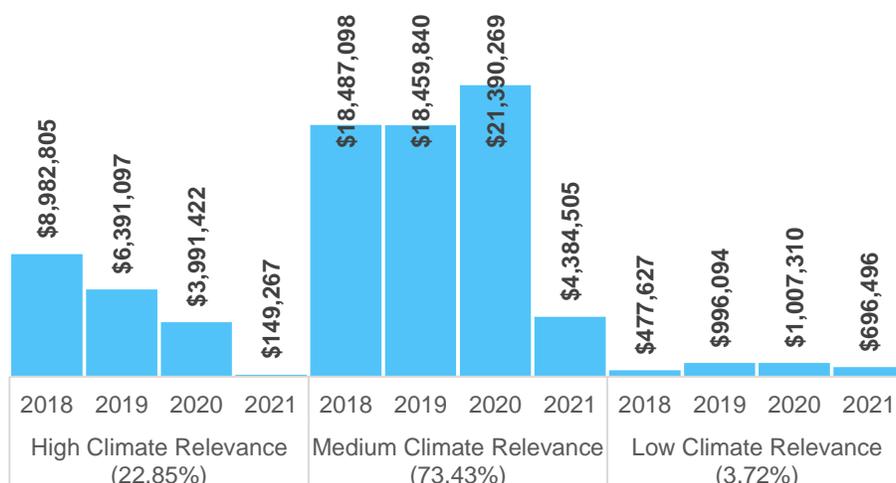
## Health Sector Specific Climate Public Expenditure

**The entirety of climate relevant health expenditures between 2018 to 2021 have been financed by development partners.** 22.85% of the health sector related actual climate expenditure valued at \$19,514,591 had high climate relevance, 73.43% (\$62,721,712) had medium climate relevance, and 3.72% (\$3,177,527) had low relevance to climate change. The largest share of the highly climate relevant health sector specific actual expenditure valued at \$18,142,000 has been financed by The Global Fund for two projects on expanding an integrated and comprehensive approach to malaria control and reducing the burden of tuberculosis in Timor-Leste. Both of these projects ended in 2019 and have not reported any allocations or expenditures since then (Figure 6).

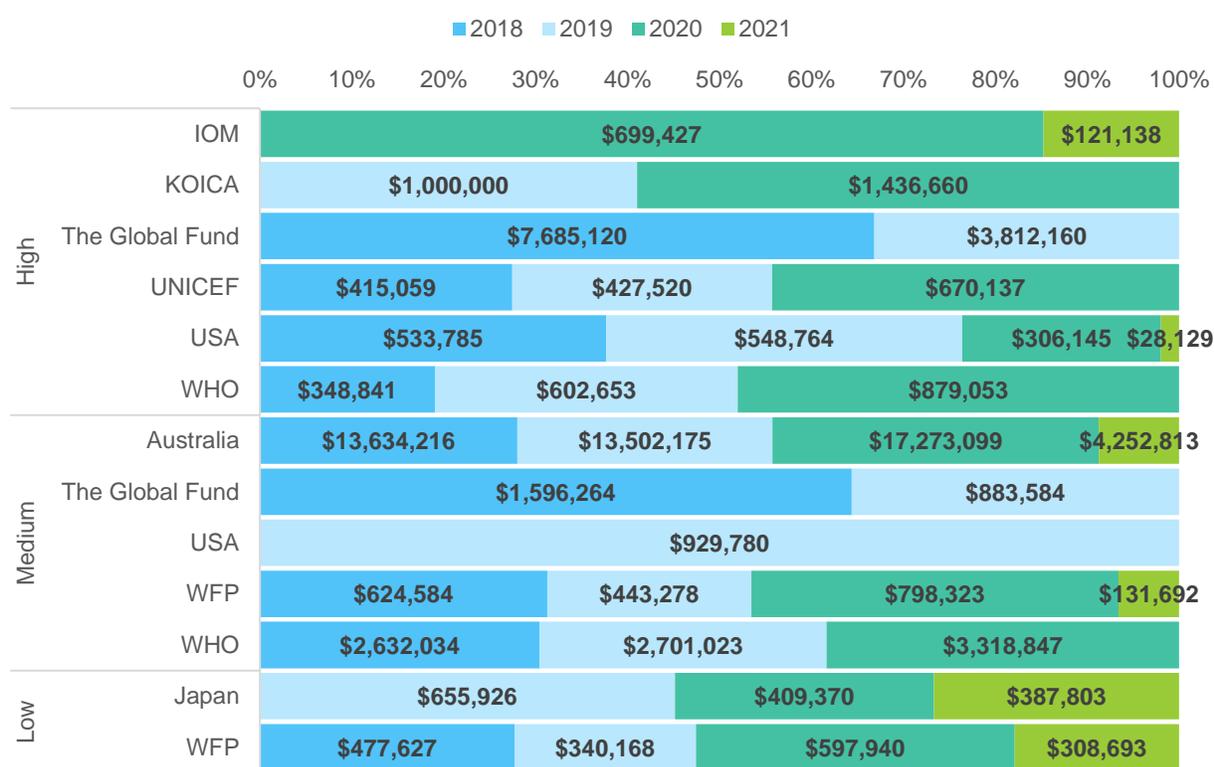


**FIGURE 6: CLIMATE RELEVANT HEALTH EXPENDITURE FINANCED BY DEVELOPMENT PARTNERS BETWEEN 2018-2021**

**Actual expenditure on highly climate relevant health expenditures have been on a declining trend.** The decline is primarily explained by loss of funding from major health sector development partner like The Global Fund. WHO has been gradually increasing their support for highly climate relevant health expenditure since 2018, but has not reported any actual expenditure for 2021 yet (Figure 7, Figure 8, Annex 1 Table 2).



**FIGURE 7: HEALTH SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURES BETWEEN 2018-2021**



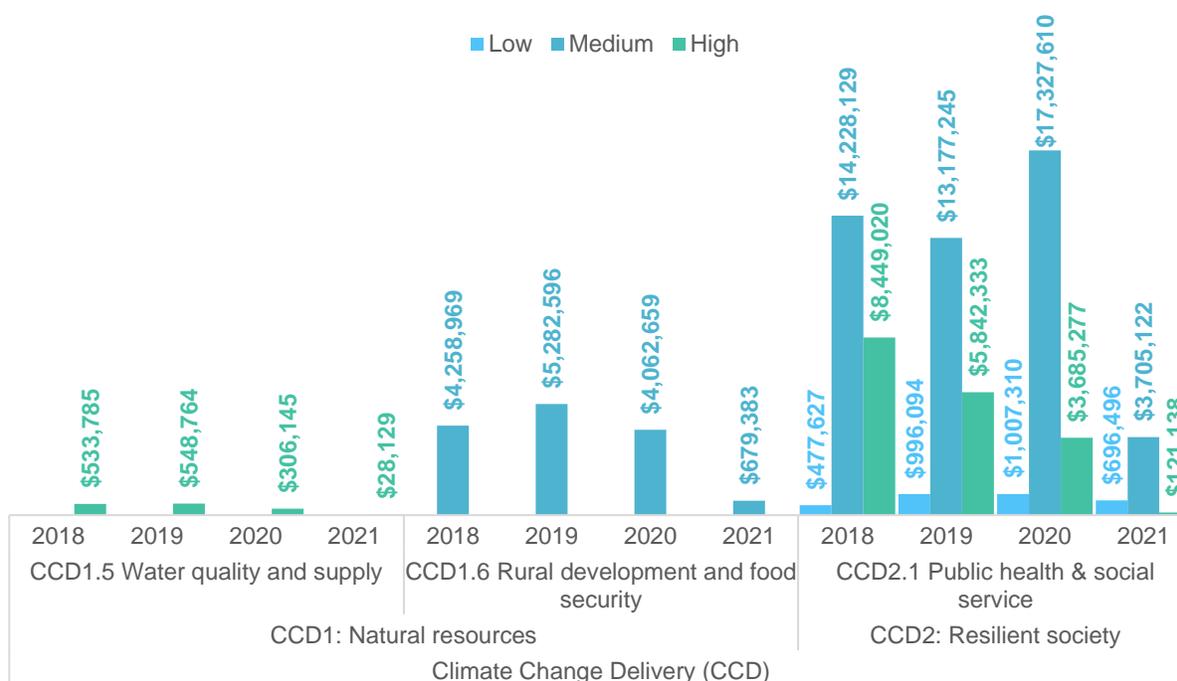
**FIGURE 8: YEARLY BREAKDOWN OF FLOW OF HEALTH SECTOR SPECIFIC CLIMATE FINANCE FROM DIFFERENT DEVELOPMENT PARTNERS**

**The original budget has, additionally, been a poor predictor of actual health sector specific climate expenditure.** Actual expenditure as a percentage of total budget has varied between 0% to 1722% in the studied timeframe. In 2019 there was an actual expenditure of \$2,585,706 that was not even estimated in the original budget (Table 6, Annex 1 Table 2).

**TABLE 6: ACTUAL EXPENDITURE AS A PERCENTAGE OF HEALTH SECTOR SPECIFIC BUDGETARY ALLOCATIONS**

		2018	2019	2020	2021
<b>High</b>	IOM			117%	17%
	KOICA		Actual Expenditure of \$1,000,000 not reported in Original Budget	239%	0%
	The Global Fund	137%	89%	0%	0%
	UNICEF	266%	135%	26%	0%
	USA	550%	189%	264%	83%
<b>Medium</b>	WHO	83%	1722%	71%	0%
	Australia	127%	151%	160%	41%
	The Global Fund	106%	117%	0%	0%
	USA		Actual Expenditure of \$929,780 not reported in Original Budget	0%	0%
	WFP	64%	10%	83%	10%
<b>Low</b>	WHO	182%	87%	52%	0%
	Japan		Actual Expenditure of \$655,926 not reported in Original Budget	106%	48%
	WFP	54%	82%	256%	62%

**All of the health sector specific climate public expenditure has been disbursed as Climate Change Delivery mechanisms.** The USA funded 'Increasing Community Resilience in Oecusse' project that aims to improve water supply and sanitation systems using a demand-driven approach is the only water quality and supply related highly climate relevant health sector program. The other health sector specific highly climate relevant projects fall under the category of public health and social service delivery and include tuberculosis, malaria, influenza risk reduction and response. (Figure 9, Annex 2 Table 2)



**FIGURE 9: ACTUAL EXPENDITURE ON HEALTH SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Health Sector

- **Policy priorities for health sector adaptation should be embedded into annual action plans of institutions with relevant mandates.**

Although, the urgency of preparing the health sector to tackle the impacts of climate change is well assessed and recognized in policy documents, there is no reflection of such in the annual action plans of relevant divisions under the Ministry of Health and of National Institute of Health. There is an urgent necessity of embedding health sector specific climate actions in the annual action plans of relevant institutions as enumerated in Table 5 of this document.

- **Timor-Leste needs to diversify its source of health sector specific climate finances.**

Currently, the entirety of Timor-Leste's health sector specific climate public expenditure is financed by development partners. Our analysis shows that for the last four fiscal years, receipt of highly climate relevant health sector specific finances from development partners has been on a declining trend. Such complete reliance on development partners, and high reliance on a handful of development partners, for financing highly climate relevant health sector expenses is short-sighted. Timor-Leste should develop a health sector specific integrated national financing framework for securing more health sector specific climate financing from global public funds, bilateral donors, and international private investments.

- **Partnership with development partners should be more firmly cultivated by requesting them to provide more realistic estimates of budgetary commitments.**

Budgetary estimates provided by development partners are a poor predictor of actual health sector specific climate expenditure. Actual expenditure as a percentage of total budget committed by development partners has varied widely in the studied timeframe (Table 6). Development partners should be requested to provide more realistic budgetary estimates so that financing gap can be properly assessed. Additionally, the reasons underlying the large variability between budgetary commitments from development partners and actual expenditures should be investigated, and corrective actions for addressing bureaucratic bottlenecks for proper utilization of development partners' budgetary commitments – if any is discovered upon further investigation – should be addressed.

- **Construction of climate resilient hospital and clinics should be an integral part of public investment management process.**

While the importance of adapting health care services to the impact of climate change is well recognized in policy documents, the importance of adapting health care infrastructure to the impact of climate change is not documented. Given the high vulnerability of Timor-Leste to climate induced natural disasters, it is imperative that health care infrastructure is designed to be disaster resilient so that undisrupted provision of healthcare services is ensured during and after extreme weather events (relevant example in Box 4).

#### **BOX 4: CARIBBEAN EXAMPLE OF BUILDING CLIMATE INDUCED DISASTER RESILIENT HEALTH INFRASTRUCTURE**

##### ***“Withstanding the Storm: Building Caribbean Hospitals to Cope with Natural Disasters***

*“The most expensive hospital is the one that fails.” If built or retrofitted to cope with extreme weather events, hospitals can save money and continue to provide services when they are needed most, especially during disaster scenarios. The Pan American Health Organization’s Smart Hospitals program, launched in 2015 across the Caribbean, promotes green and “smart” hospitals by investing in technologies and improvements that not only ensure their functionality during disasters, but also reduce operating costs and their environmental footprint. To identify and finance green and smart investments, the Smart Hospitals Toolkit works through a three-step framework to: 1) determine the probability that a health care facility will be able to continue functioning in an emergency; 2) assess how the building measures up against current code, regulatory requirements, and zoning regulations; and 3) outline feasible areas where “smart” measures can be introduced, such as solar water heaters and adequately located backup power sources. Following the 2017 hurricane season, this investment shows promising signs of paying off. For example, facilities under the smart, green hospitals initiative in St. Kitts and Nevis not only survived the storms, but also became a source of water for area residents when loss of power limited water availability for days.”*

Source<sup>6</sup>: (Keuck, et al. 2019)

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<sup>6</sup> Text in Box 4 is reproduced verbatim from (Keuck, et al. 2019).

## 3.3 Social Inclusion

### Social Inclusion Sector Specific Climate Vulnerabilities

**Timorese women have heightened vulnerability to the impacts of climate change.** Globally, women constitute eighty percent of people dislocated by climate change (Habtezion 2016). Although detailed studies on how climate change specifically impact Timorese women are scarce, there is a global consensus regarding climate change's disproportional impact on women. Women in Timor-Leste are already subjected to a host of economic and social challenges, and their predisposition to a variety of risks is only aggravated by the impacts of climate change. Climate change affects not only economic activities of women by posing risk to women-run micro businesses, but also domestic activities of women in some communities by making water collection an arduous challenge (Secretariat of State of Equality and Inclusion-GoTL 2019). Women often lack the funds required to recover from natural disaster induced financial losses (Habtezion 2016), and are subjected to gender-based violence in disaster shelter houses (Reliefweb 2019).

**Children too are at the fore front of climate battle as they are more susceptible to natural disasters, heatwaves, water scarcity, air pollution, and vector borne diseases** (UNICEF 2021). With almost 40% of population below 15 years of age (Central Intelligence Agency, USA 2021), vulnerability of children to the immediate and permanent impacts of climate change presents Timor-Leste with an overall developmental challenge (Kapoor, et al. 2021).

**Persons with disabilities are in special need of support to brace the impacts of climate change.** Persons with disabilities usually live in poverty and have heightened risk of being adversely affected by climate change due to their restricted mobility and low socioeconomic resilience (Kapoor, et al. 2021). They also have restricted ability to evacuate quickly in the face of natural disasters and have inequitable access to food, water, sanitation, and healthcare facilities – problems that stand to be aggravated by changing climate (Human Rights Council, United Nations 2020).

### Social Inclusion Sector Specific Climate Policy Response

**Gender-sensitivity has been treated as a cornerstone in Timor-Leste's National Adaptation Plan 2019.** While the country does not have a policy specifically addressing gendered impacts of climate change, the National Adaptation Plan 2019 has been consciously designed to be gender-responsive. The National Adaptation Plan 2019 discusses gender considerations in agriculture, water and sanitation, and health sectors and calls for increased awareness of gender dimension in design of adaptation programs (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

**Policy positions to protect children and persons with disabilities from the impact of climate change are currently absent.**

## Social Inclusion Sector Specific Institutional Arrangement for Climate Action

**Secretariat of State for Equality and Inclusion, and Ministry of Social Solidarity and Inclusion have the largest share of social inclusion related mandates.** Both of these institutions have the decree to provide strategic and political guidance for raising awareness about the heightened impact of climate change on women, children, and people with disabilities. National Rehabilitation Centre – which provides services to people with disabilities – also have an important role to play in supporting people with disabilities guard against and recover from impacts of climate change. Further, establishment of a focal point on gender and climate change under the National Directorate on Climate Change is planned (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019), but not actualized yet.

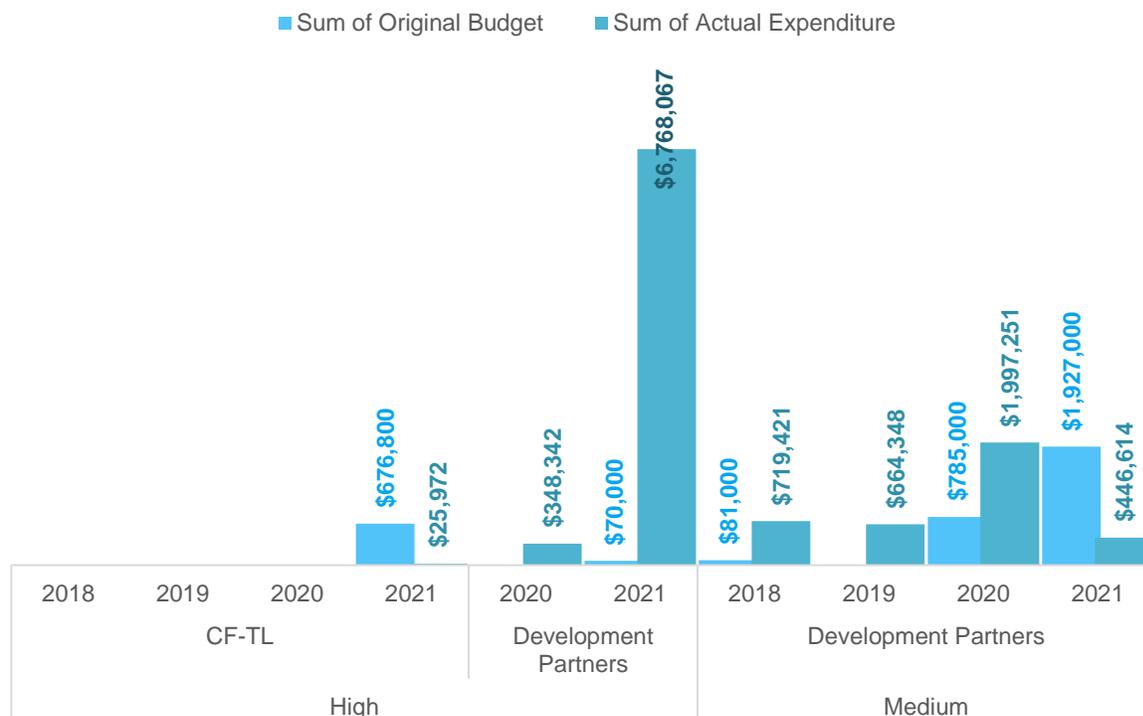
**TABLE 7: SOCIAL INCLUSION SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Social Inclusion Sector Specific Institutional Arrangement for Climate Action		
Ministry	Division	Climate Action Relevant Mandate
<b>Secretariat of State for Equality and Inclusion</b>	National Directorate Gender Policy and Inclusion	Provide technical assistance to ministries and agencies and raise awareness about gendered impact of climate change (Potential climate action as part of Activity 3830101 and Activity 3830103)
	General Directorate	Provide strategic and political guidance for addressing gendered impact of climate change (Potential climate action as part of Activity 5100108)
<b>National Rehabilitation Centre</b>	National Rehabilitation Center	Support services for people with disabilities regarding impacts of climate change (Potential climate action as part of Activity 5830102)
<b>Ministry of Social Solidarity and Inclusion</b>	National Commission for the Rights of the Children	Raising awareness about children’s vulnerability to climate change (Potential climate action as part of Activity 4430102)
	Office of the Minister of Social Solidarity and Inclusion	Provide strategic and political guidance regarding social protection with respect to climate change (Potential climate action as part of Activity 5100108)
	Office of the Vice-Minister	Provide strategic and political guidance regarding social protection with respect to climate change (Potential climate action as part of Activity 5100108)

Social Inclusion Sector Specific Institutional Arrangement for Climate Action		
Ministry	Division	Climate Action Relevant Mandate
	Office of Study Planning and Institutional Development	Provide strategic and political guidance regarding social protection with respect to climate change (Potential climate action as part of Activity 5100108 and Activity 5770101)
	National Directorate for the Protection of People with Disability	Develop action plan to protect people with disabilities from the impacts of climate change (Potential climate action as part of Activity 5780105)
	National Directorate of Social Assistance	Humanitarian Aid (immediate and timely) - Families victims of natural disasters received building materials (Currently done as Activity 5800104)
		Emergency support for affected community of disaster - Population affected by natural disaster were received little things - kitchen utensils (Currently done as Activity 5800108)
		Mapping social problems related to climate change (Potential climate action as part of Activity 5800111)
	National Directorate of Inclusion and Community Reintegration	Develop the programme for the implementation of child protection policies and laws with respect of climate change (Potential climate action as part of Activity 5810101)

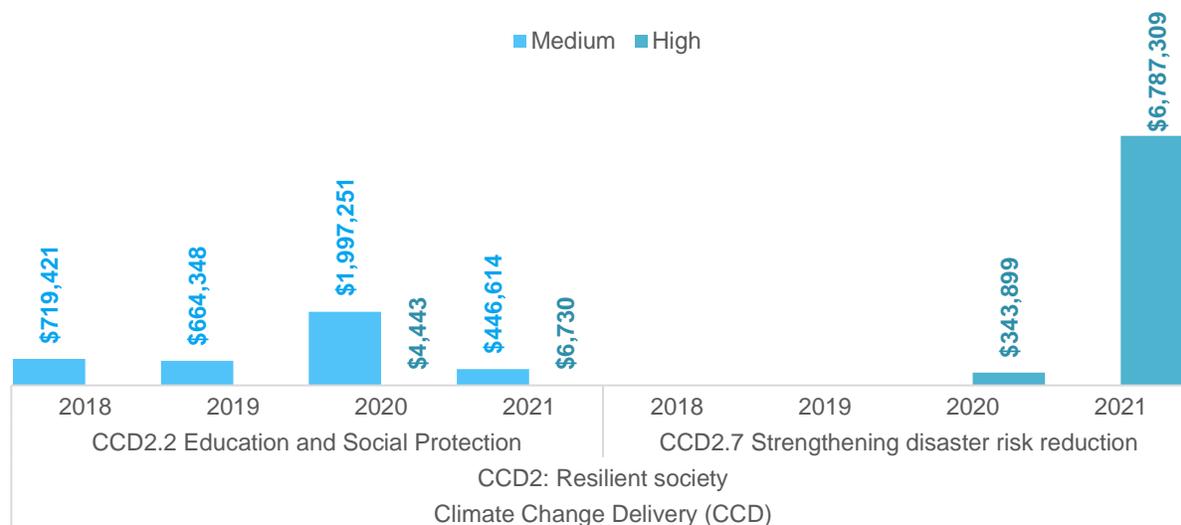
## Social Inclusion Sector Specific Climate Public Expenditure

**The bulk of social inclusion sector specific climate expenditure has been financed by development partners.** The sharp rise in actual expenditure in 2021 is due to the humanitarian support for flood response received in the aftermath of the torrential rain in April 2021. In fact, 99.9% and 98.72% of the development partner financed actual expenditure in 2021 and 2020 have been spent as emergency aid to address the humanitarian emergency caused by floods. Barring this, there has been almost no expenditure on social inclusion sector specific climate action of high relevance between 2018 to 2021. Development partners have been working with the Government of Timor-Leste to strengthen the overall social protection system, but such initiatives have only medium relevance to climate change (Figure 10, Annex 1 Table 3).



**FIGURE 10: SOCIAL INCLUSION SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**

All of the social inclusion sector specific climate public expenditure has been disbursed as Climate Change Delivery programs. Except for the high volume of humanitarian support distributed in the aftermath of floods, no money has been spent for strengthening disaster risk reduction for the most vulnerable segments of population. Support received from development partners for strengthening social protection system has also fluctuated significantly over the years (Figure 11, Annex 2 Table 3).



**FIGURE 11: ACTUAL EXPENDITURE ON SOCIAL INCLUSION SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Social Inclusion Sector

- **Policy response should be formulated to address the special climate vulnerability of children and persons with disabilities.**

While the National Adaptation Plan 2019 has been consciously designed to be gender-responsive, Timor-Leste does not have any policy position specifically addressing impacts of climate change on persons with disabilities and children. Given the heightened vulnerability of these groups to the impacts of climate change – especially in the aftermath of climate induced natural disasters – policy response attending to their special needs are warranted.

- **Institutions with the mandate of taking climate action relevant to social inclusion should be sensitized to embed climate change into their annual action plans.**

Even though Secretariat of State for Equality and Inclusion, and Ministry of Social Solidarity and Inclusion have the largest share of social inclusion related mandates, there is a general lack of climate unawareness in their annual action plans. Both of these institutions have the responsibility to provide strategic and political guidance for raising awareness about the heightened impact of climate change on women, children, and people with disabilities. National Rehabilitation Centre – which provides services to people with disabilities – also have an important role to play in supporting people with disabilities guard against and recover from impacts of climate change. Entry points for incorporating climate awareness in the annual action plans of Secretariat of State for Equality and Inclusion, Ministry of Social Solidarity and Inclusion, and National Rehabilitation Centre are elaborated in Table 7. It is highly recommended that capacity development initiatives are arranged to sensitize these institutions about their role in the national fight against climate change.

- **Establishment of the planned focal point on gender and climate change under the National Directorate on Climate Change should be expedited, and focal points on children and climate change, and persons with disabilities and climate change should also be founded.**

Establishment of a focal point on gender and climate change under the National Directorate on Climate Change is planned (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019), but not actualized yet. It is recommended that establishment of the focal point on gender and climate change is expedited, and focal points on children and climate change, and persons with disabilities and climate change are also founded. The focal points are expected to advise ministries and secretariats across the government to sensitize their projects and programs to the heightened vulnerability of women, children, and persons with disabilities to the impacts of climate change.

- **Social protection programs and projects should be adopted to mitigate the impacts of climate induced natural disasters to lessen the dependence on post-disaster humanitarian aid.**

Natural disasters can't be prevented, but actions can be taken to increase the economic and infrastructural resilience of vulnerable populace to wade such impacts of climate change. Social protection programs and projects should be adopted with the specific goal of increasing the economic and infrastructural resilience of the most vulnerable segments of Timorese

population, so that the probability of humanitarian emergency in the aftermath of climatic events can be lessened (relevant example in Box 5).

#### BOX 5: ST. LUCIAN EXAMPLE OF DESIGNING SOCIAL PROTECTION PROGRAM FOR STRENGTHENING DISASTER RESILIENCE

##### *“Hurricane-Resistant Home Improvement Program in St. Lucia (HRHIP)*

*In 1996 the St. Lucia charity, National Research and Development Foundation (NRDF), with assistance from USAID/OAS and CARITAS, established a home improvement program offering loans for affordable new or improved existing housing to low-income homeowners, while providing for physical and financial protection against natural disasters. Within this Hurricane-Resistant Home Improvement Program (HRHIP), minimum building standards were developed for reference by homeowners, and builders and local builders were trained in safer construction. The services of a trained building inspector were also offered to approve materials for use in retrofitting and to check whether minimum standards were being observed. Furthermore, a group insurance plan, underwritten by a Caribbean subsidiary of a United Kingdom-based insurance company, was established through a St. Lucia broker. The insurance plan covered major natural disasters such as windstorms, earthquake, floods and sea surge, and volcanic eruptions. Membership of the insurance scheme was mandatory for recipients of the home improvement loans. Full coverage with a deductible of 2% was specified in the policies. Premium rates ranged from 0.60% for concrete block homes to 1.05% for homes made of timber. The insurer trained NRDF project officers in property valuation and accepted these exposure estimates.*

*Between 1996 and November 2002, 345 loans were disbursed within this program, with an average loan size of EC\$11,000 (approximately US\$4,100 in 2002). The majority of these loans (68%) were either for extensions to existing structures or for new structures. The remainder of the loans were for repairs and renovations, purchase, or relocation of homes. No claim was reported by the scheme, as no major event with substantial losses hit the country. The program was discontinued in 2002 when the insurance broker went into liquidation; it was revealed that the insurance premiums had not been passed on to the insurer, causing the contracts to lapse. Efforts are currently under way to revive the insurance scheme (OAS, 2003a; OAS, 2003b).”*

Source<sup>7</sup>: (Mechler, Linnerooth-Bayer and Peppiatt 2006)

## 3.4 Environment

### Environment Sector Specific Climate Vulnerabilities

**Timor-Leste’s environmental vulnerabilities with respect to climate change are multifaceted.** Climate change is expected to rise temperatures, increase rainfall, escalate rise of sea-level, and increase salinization of Timor-Leste’s water sources. As a result, the lives and livelihood of Timorese people will become vulnerable to vector-borne diseases, flooding, landslides, soil erosion, coastal erosion, and scarcity of water for both consumption and agricultural usage (Government of Timor-Leste 2016). The specific natural disaster risks faced by different regions of the country is summarized in Table 8.

<sup>7</sup> Text in Box 5 is reproduced verbatim from (Mechler, Linnerooth-Bayer and Peppiatt 2006).

TABLE 8: NATURAL DISASTER RISKS FACED BY DIFFERENT REGIONS OF TIMOR-LESTE



Region	District	Moderate to High Levels of Disaster Risk
<b>North Coast</b>	Bobonaro	Landslide, Strong Winds
	Liquiçá	Flood, Forest Fire
	Díli	Strong Winds, Forest Fire, Tsunami
	Baucau	Forest Fire, Tsunami
	Manatuto	Forest Fire, Tsunami
	Lautém	Earthquake, Tsunami
<b>South Coast</b>	Cova-Lima	Strong Winds, Earthquake
	Ainaro	Flood, Landslide, Strong Winds, Forest Fire, Tsunami
	Manufahi	Coastal Erosion, Earthquake
	Viqueque	Coastal Erosion, Forest Fire, Tsunami
<b>Land-locked Districts</b>	Ermera	Landslide, Strong Winds, Forest Fire
	Aileu	Coastal Erosion, Strong Winds, Forest Fire
<b>Enclave in Indonesian Territory</b>	Oecussi-Ambeno	

Information Source: (ADPC, NDMD, UNDP 2012; Government of Timor-Leste 2021; Save the Children 2013)

**The 2017 National Coastal Vulnerability Assessment classified 16 sucos to be very highly vulnerable, and 40 sucos to be highly vulnerable to the impacts of climate change.** The assessment, conducted through collaboration between Government of Timor-Leste and UNDP, found that coastal communities, economic activities, and physical infrastructure are all impacted by environmental hazards like coastal erosion, high wind and waves, coral reef degradation etc. that are caused by climate change (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019). Climatologists further predict that the country will become more susceptible to cyclones, tropical storms, and flood caused by changing climate (Center for

Excellence in Disaster Management 2019) as loss of mangrove forests is weakening the nation's defense against such extreme weather events (USAID 2017).

**50% of the land in Timor-Leste is at the risk of fertility decline, and about 66% of the land is at high risk of being eroded** (Government of Timor-Leste 2016). Poor land management, unsustainable agricultural practices, and high levels of lumbering have already caused deforestation and soil degradation in the nation (Center for Excellence in Disaster Management 2019) and the soil erosion problem is likely to exacerbate due to extreme rainfall caused by climate change.

## Environment Sector Specific Climate Policy Response

**Climate vulnerability of natural environment is well recognized in several laws and policy documents.** Environmental License Decree Law 2011; Environmental Basic Law 2012; Decree Law on Export, Import and Use of Ozone Depleting Substances 2012; Decree Law on Protected Areas 2016; Law Establishing General Forestry Regime 2017; and Decree Law on Legal Regime for the Protection and Conservation of Biodiversity 2020 contain Timor-Leste's environment sector specific legislation relevant for adapting to and mitigating the impacts of climate change. Along with the laws, multiple policy papers like National Biodiversity Strategy and Action Plan, National Disaster Risk Management Policy, National Adaptation Programme of Action to Climate Change, National Adaptation Plan, National Action Programme to Combat Land Degradation also talk about protecting the natural environment from the impacts of climate change.

**In its Intended Nationally Determined Contributions (INDC) Timor-Leste made resolute commitments about taking climate actions to protect its environment.** Land-use management, forestry, and proper handling of wastes are recognized as priority actions shaping Timor-Leste's response to climate action related to protecting its environment (Government of Timor-Leste 2016). In the document, Timor-Leste identified the following measures as potential climate policy responses related to the environment sector:

- Promoting sustainable forest management,
- Rehabilitating degraded lands,
- Promoting mangrove plantation,
- Engaging with REDD+,
- Ensuring sustainable management of 44 Protected Areas,
- Planting a million tree every year,
- Sustainably managing landfills and recovering landfill gas,
- Reducing open burning of waste,
- Improving incineration technology for medical waste,
- Phasing out use of HCFCs and promoting use of low GWP HFCs,
- Promoting natural vegetation methods and building high-quality physical infrastructure to prevent landslides,
- Developing institutional and human capacity to respond to climate change induced natural disasters,
- Setting up early warning systems in areas most vulnerable to natural disasters,
- Incorporating climate risk into national disaster risk reduction strategy, and
- Raising public awareness about protecting coastal ecosystems from effects of climate change. (Government of Timor-Leste 2016)

## Environment Sector Specific Institutional Arrangement for Climate Action

**Secretariat of State for the Environment and Ministry of Agriculture and Fisheries have the primary responsibility of taking environment sector specific climate action in Timor-Leste.** Secretariat of State for the Environment houses both National Directorate of Climate Change and Designated National Authority for accessing climate financing from international sources, along with multiple agencies with highly climate relevant mandates like National Directorate of Pollution Control and Environmental Impact, National Environmental Licensing Agency, Centre for Environmental Education and Information, and National Directorate of Biodiversity Protection and Recovery. Ministry of Agriculture and Fisheries houses multiple agencies responsible for natural resource conservation, and forests and watershed management namely, National Directorate for Natural Conservation, National Directorate of Forests and Watershed Management, and National Directorate for Community Forest Development (DNDFC). Climate relevant activities currently undertaken by the aforementioned agencies under Secretariat of State for the Environment and Ministry of Agriculture and Fisheries are detailed in Table 9.

**TABLE 9: ENVIRONMENT SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Environment Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Secretariat of State for the Environment</b>	National Directorate of Planning, Finance and Administration	Generating research-based evidence for environmental action (Potential climate action as part of Activity 5100106)
	Office of the Secretary of State for the Environment	Strategic development and policy guidance related to managing environmental impacts of climate change (Potential climate action as part of Activity 5100108)
	National Directorate of Human Resources, Procurement and Logistics	Green procurement activities (Potential climate action as part of Activity 5100211)
	National Directorate of Pollution Control and Environmental Impact	Pollution control and waste management and implementation of zero plastic policy (Currently done as Activity 5900101)
	Office of the Secretary of State for Environment	Inspection in monitoring the implementation of PGA (Environmental Management Plan) (Currently done as Activity 5900104)
	National Environmental Licensing Agency	Verification of project locations as part of environmental permit issuance (Currently done as Activity 5900102)
		Issuing of environmental licenses (Currently done as Activity 5900103)
	Directorate-General for the Environment	Celebrate World Environment Day, and environment protection program (Currently done as Activity 5900103)
	Centre for Environmental Education and Information	Survey and definition of annual environmental status and environmental resource (Currently done as Activity 5900116)
National Directorate of Biodiversity Protection and Recovery	Tara Bandu (11 Tara Bandu seminars / awareness and culture sessions held) (Currently done as Activity 5900201)	

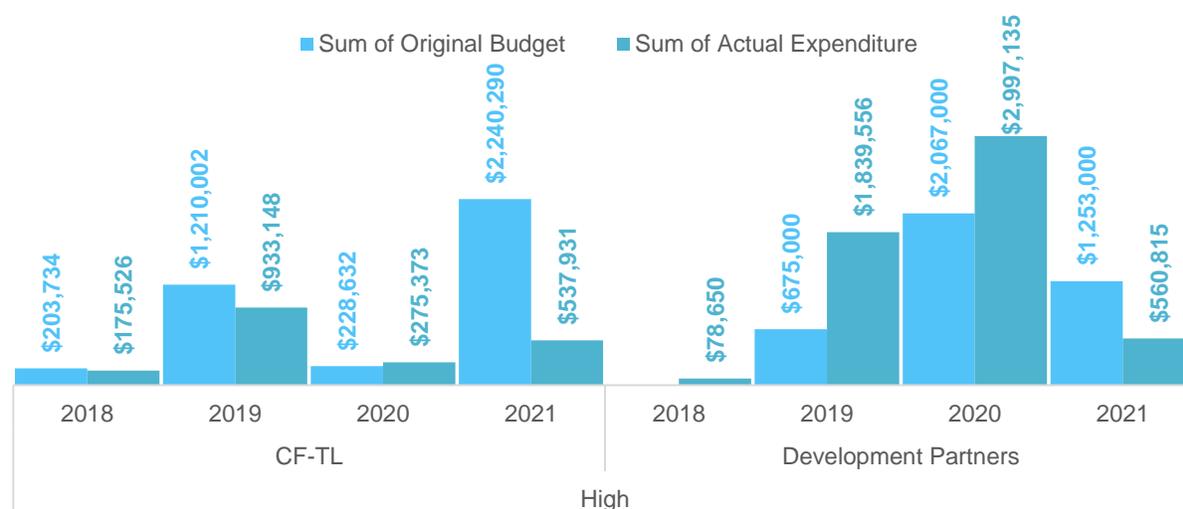
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		Dissemination of information on protection and conservation of biodiversity resources (Currently done as Activity 5900202)
		Participation in events and conferences on the environment at the international level (Currently done as Activity 5900208)
		Celebration of the International Day for Biological Diversity (Currently done as Activity 5900210)
		Restoration of degraded lands, biodiversity (Currently done as Activity 5900203)
National Directorate for Climate Change		Continue to implement the Integrated Vulnerability Assessment (IVA) program at the sucos level (Currently done as Activity 5900302)
		Mitigation Data Collection (Currently done as Activity 5900306)
		Attends regional and international meetings and participates in the Conference of the UNFCCC, Ozone, IRENA and CPLP (Currently done as Activity 5900309)
Designated National Authority		Increase national capacity to access Green Climate Fund (Currently done as Activity 5900401)
		Carbon trading (promote TL for the carbon market) (Currently done as Activity 5900402)
<b>Ministry of Agriculture and Fisheries</b>	National Directorate for Natural Conservation	Manage and protect forests (Currently done as Activity 5760105)
	National Directorate of Forests and Watershed Management	Develop an agroforestry system (Currently done as Activity 5760109)
		Operationalization of the Maubara permanent nurseries centers, permanent community nurseries of forests and mangroves (ai-parapa) (Currently done as Activity 5760110)

		Reforestation and rehabilitation of degraded areas. (Currently done as Activity 5760117)
		Promote the expansion of Community-Based Natural Resources Management programs, maintaining and strengthening communities' participation in the development of the forest sector. (Currently done as Activity 5760118)
National Directorate for Community Forest Development (DNDFC)		Promote investment in the forest sector, such as native plantations and bamboo. (Currently done as Activity 5760116)
		Promote investment in the forest sector, such as sandalwood and demarcate industrial plantations (sandalwood, teak, mahagoni, saria, bamboo, etc.) (Currently done as Activity 5760201)
		Promote investment in the forest sector such as commercial plantation: saria (Toona sureni), teak (Tecto- na grandis) and mahagoni (Swietenia sp) and pau rosa (Pterocarpus indicus) (Currently done as Activity 5760203)
<b>Ministry of Transport and Communications</b>	Directorate of Meteorology and Geophysics	Develop, manage and operate meteorological, climatology and seismology surveillance systems (Currently done as Activity 5560101)

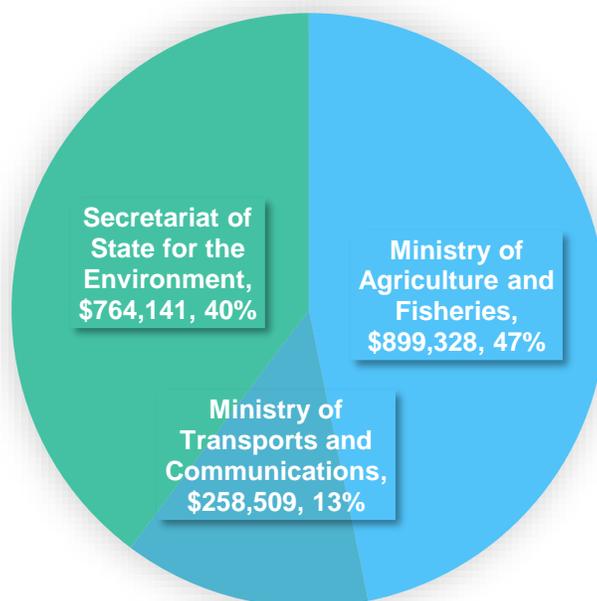
## Environment Sector Specific Climate Public Expenditure

**Between 2018 to 2021, the largest share of the environment sector specific climate public expenditure has been financed by development partners.** CF-TL funded environment sector specific climate public expenditure reached its highest value in 2019, but since then it has dwindled. In 2021, against a budget of \$2,240,290 only \$537,931 has been spent (Figure 12, Annex 1 Table 4).



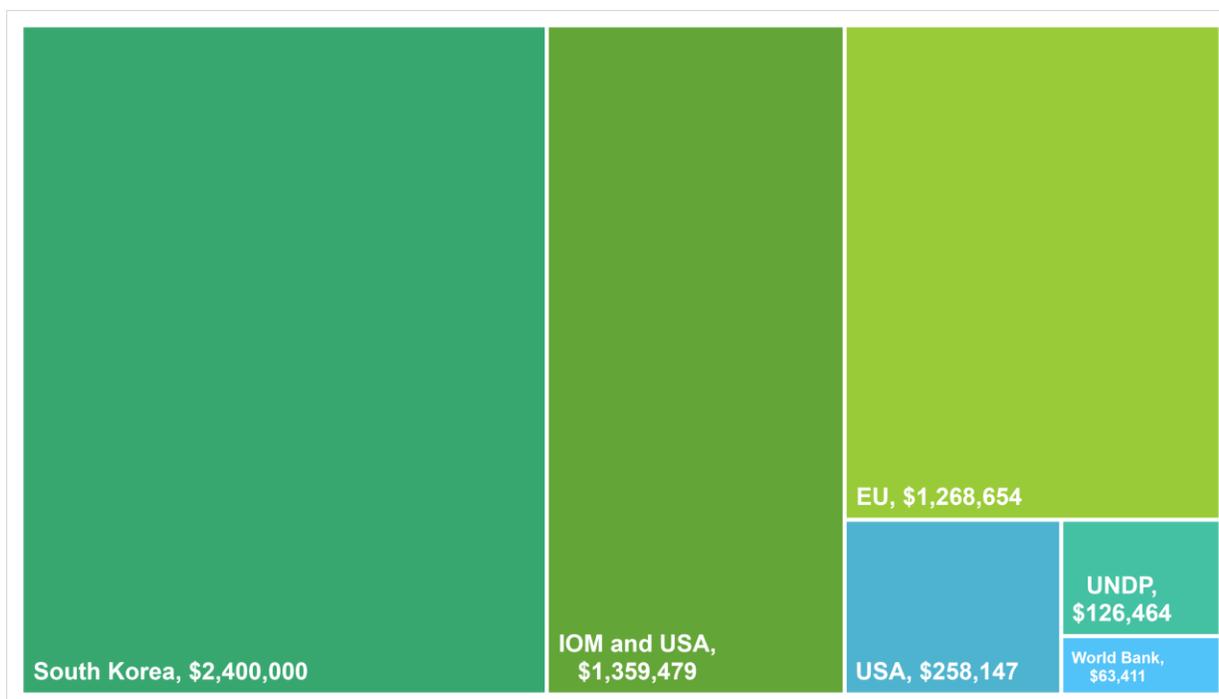
**FIGURE 12: ENVIRONMENT SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**

**47% of the CF-TL funded environment sector specific climate public expenditure has been disbursed through Ministry of Agriculture and Fisheries.** Ministry of Agriculture and Fisheries has used this money for different activities related to forest management. 40% of the CF-TL funded environmental sector specific climate public expenditure disbursed through Secretariat of State for the Environment has been used for activities like implementing Integrated Vulnerability Assessment at the sucos level, increasing national capacity to access Green Climate Fund, inspecting and monitoring implementation of environmental management plan, issuing environmental licenses, pollution control and waste management, implementing zero plastic policy, operating Tara Bandu program, and verifying project locations as part of environmental permit issuance. 13% of the CF-TL funded environmental sector specific climate public expenditure disbursed through Ministry of Transports and Communications has been used for developing, managing and operating meteorological, climatology and seismology surveillance systems (Figure 13).



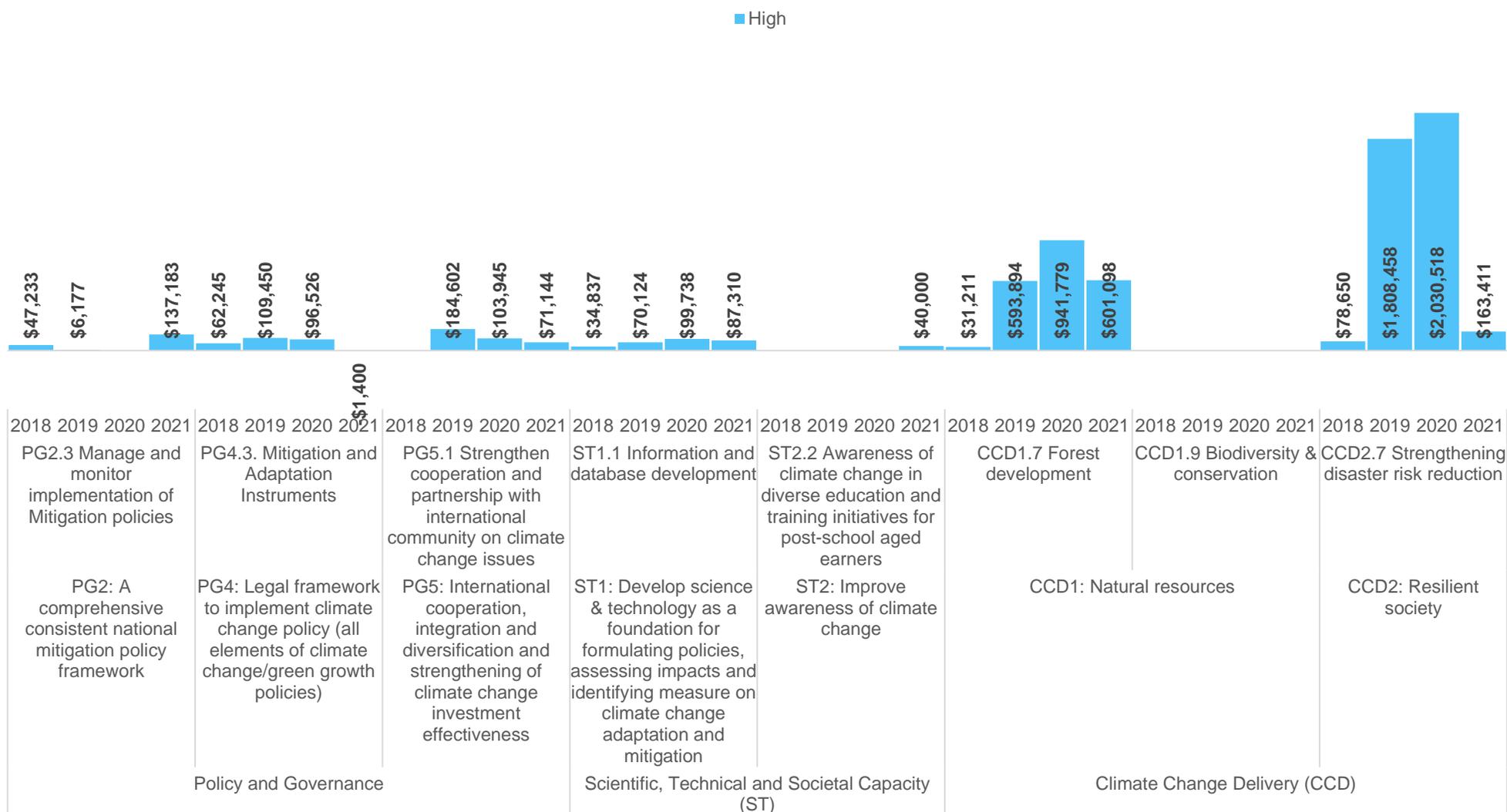
**FIGURE 13: DISTRIBUTION OF CF-TL FUNDED ENVIRONMENT SECTOR SPECIFIC CLIMATE EXPENDITURE BY MINISTRY**

**South Korea has been the biggest source of environmental sector specific climate finance received from development partners.** South Korea has provided \$2,400,000 for the Strengthening Critical Resilience Capacities to Climate Change and Natural Disasters in Timor-Leste project. Implemented by Korean International Cooperation Agency, this project aims to lessen consumption of plastic and reckless disposal of plastic waste, increase capacity to respond to extreme weather events like tsunami and flood, and increase the country's ability to access climate finance from international sources. The \$1,617,626 received from IOM and USA has also been spent for strengthening institutional capacity for disaster risk reduction and management. The \$1,268,654 received from EU has been spent on Rai Matak (Green Lands) Program that aims to help subsistence farmers build resilience against climate change by promoting community forestry, carbon farming, and other sustainable agroforestry practices (Figure 14).



**FIGURE 14: ENVIRONMENT SECTOR SPECIFIC CLIMATE FINANCE RECEIVED FROM DIFFERENT DEVELOPMENT PARTNERS BETWEEN 2018-2021**

**As per the CPEIR typology most of environment sector specific climate expenditure has been concentrated on strengthening disaster risk reduction and forest development.** All the initiatives focused on strengthening disaster risk reduction has been financed by development partners, while 41.8% (\$899,328) of the \$2,167,982 spent of forest development has come from CF-TL (Figure 15, Annex 2 Table 4).



**FIGURE 15: ACTUAL EXPENDITURE ON ENVIRONMENT SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOG**

## Recommendations for Strengthening Climate Response in Environment Sector

- **CF-TL funded budgetary allocations for environment sector specific climate actions undertaken by the Secretariat of State for the Environment and the Ministry of Agriculture and Fisheries should be boosted.**

Environment sector specific climate actions are well embedded into the annual action plans of the Secretariat of State for the Environment and the Ministry of Agriculture and Fisheries (Table 9), but their ability to deliver on them is limited by the low amount of financing received from CF-TL. CF-TL financed allocations for environment sector specific climate actions have varied significantly in the studied timeframe ranging from \$203,734 in 2018 to \$2,240,290 in 2021 (with significant fluctuations in 2019 and 2020, Figure 12). The higher allocations in 2021, however, was inadequately spent, as actual expenditure stood at \$537,931. It is recommended that more funding should be allocated out of CF-TL for implementing environment sector-specific climate actions, and the capacity of the relevant institutions of utilizing the funds allocated to them should be heightened.

- **Budgetary allocations should be made for shielding biodiversity conservation from the impacts of climate change.**

Although biodiversity conservation is identified as a national priority in National Biodiversity Strategy and Action Plan, no actual expenditure was directed towards it in the studied timeframe. National Directorate of Biodiversity Protection and Recovery - a division under Secretariat of State for the Environment – already has two activities defined in this regard (Activity 5900202, Activity 5900203; Table 9) but no budget was allocated towards them in any of the four fiscal years reviewed in this study. Restoring degraded lands and protecting biodiversity is an urgent necessity for Timor-Leste so budgetary allocations for these activities are highly necessary.

### 3.5 Culture and Heritage

#### Culture and Heritage Sector Specific Climate Vulnerabilities

**Timorese culture and heritage are threatened by the impacts of climate change.** Changes in seasonal patterns and heightened struggle to secure access to limited resources, can severely impact maintenance of culture and heritage (Massey 2020). An emerging body of research is exploring the impact of climate change on culture and heritage of small island developing states. It is well accepted in this string of literature that climate change poses significant threat to the intangible heritage of small island developing nations (Mihara 2020). Even though climate induced displacement endangers intangible aspects of cultural knowledge, customs and traditional practices (Aktürk and Lerski 2021), negative impacts of climate change on culture and heritage are usually discussed in the context of the threat it poses to tangible cultural properties like archeological sites, buildings, and monuments (Kim 2011). According to Kim 2011:

*“Where climate change combines with generally weak law and policy for culture and traditions, some SIDS may face significant cultural loss in the years to come.”*

## Culture and Heritage Sector Specific Climate Policy Response

Potential impacts of climate change on the culture and heritage of Timor-Leste are not addressed in any policy documents.

## Culture and Heritage Sector Specific Institutional Arrangement for Climate Action

Office of the Secretary of State of Arts and Culture, and National Directorate of Cultural Heritage have the necessary mandates for taking actions for protecting Timorese culture and heritage from the impacts of climate change. Office of the Secretary of State of Arts and Culture has the responsibility of providing strategic and policy guidance with regards to culture and heritage, and National Directorate of Cultural Heritage has a role to play in preservation and conservation of Timor-Leste's tangible and intangible cultural heritage from the effects of climate change. Both of these institutions are divisions under the Ministry of Higher Education, Science and Culture.

**TABLE 10: CULTURE AND HERITAGE SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Culture and Heritage Sector Specific Institutional Arrangement for Climate Action		
Ministry	Division	Climate Action Relevant Mandate
Ministry of Higher Education, Science and Culture	Office of the Secretary of State of Arts and Culture	Strategic Development and Policy Guidance (Potential climate action)
	National Directorate of Cultural Heritage	Preservation, and conservation of Timor-Leste's tangible and intangible cultural heritage from the effects of climate change (Potential climate action)

## Culture and Heritage Sector Specific Climate Public Expenditure

Given the lack of awareness about impact of climate change on culture and heritage, no expenditure has been directed towards this cause yet.

## Recommendations for Strengthening Climate Response in Culture and Heritage Sector

- **Localized research on how climate change threatens Timorese culture and heritage should be undertaken.**  
While an emerging body of research is exploring the impact of climate change on culture and heritage of small island developing states globally, understanding of the localized impact of climate change on Timorese culture and heritage is almost nonexistent. To understand the specific threats climate change poses to Timorese culture and heritage, localized research is needed.

- **National adaptation planning in Timor-Leste should be sensitive to intangible aspects of Timorese culture and heritage.**

Humans draw their sense of identity from intangible aspects of culture and heritage, and thus preservation of culture and heritage should be a fundamental component of adaptation efforts to climate change (Aktürk and Lerski 2021). It is – for example – important to understand how climate induced displacement or rural-urban migration threatens preservation of culture and heritage, and steps should be taken to design adaptation efforts with due sensitivity towards them.

- **Office of the Secretary of State of Arts and Culture, and National Directorate of Cultural Heritage should be informed about their role in protecting Timorese culture and heritage from the impacts of climate change.**

While Timor-Leste has the necessary institutional set up for taking climate action related to culture and heritage, the relevant institutions are inadequately informed about the role they have to play. It is important that Office of the Secretary of State of Arts and Culture, and National Directorate of Cultural Heritage are trained and supported to deliver on their duties regarding preservation and conservation of Timor-Leste's tangible and intangible cultural heritage from the effects of climate change.

## 4.CPEIR for Infrastructural Development

### 4.1 Roads and Bridges

#### Roads and Bridges Sector Specific Climate Vulnerabilities

**Timorese infrastructure, including but not limited to roads and bridges, is the 6<sup>th</sup> most vulnerable in the world according to Maplecroft Hazard Risk Index** (Cook, et al. 2019). Infrastructure of the small island developing state is regularly hit by natural calamities, and the infrastructural vulnerability is expected to increase with magnifying impacts of climate change. In spite of the threat, road infrastructure in the country is currently not designed to be disaster resilient, and there are inadequate allocations in the budget for their quality maintenance (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019). The budgetary limitations are primarily due to the fact that in small island developing states like Timor-Leste limited economies of scale is a key impediment for infrastructural development (Thomas, et al. 2020).

**Timorese roads in coastal regions and mountainous area are of varying nature but both are susceptible to the impacts of climate change.** Both types of roads are vulnerable to heavy rainfall and storms, but coastal roads face the added danger of submerging caused by rising sea levels (Chen and Dueñas 2010). A 2010 ADB assessment on climate proofing Timor-Leste's road infrastructure found that increase in temperature is expected to cause increase in precipitation, which in turn will increase flooding. Increase in flooding will cause increase in erosion, which will in turn clog the drainage systems and result in structural failure of the road network (Chen and Dueñas 2010).

**Impact of extreme weather events apart, even changes in general environment caused by climate change has direct and indirect impact on roads and bridges.** Bitumen used in road construction ages faster due to increasing temperature, and changing rain pattern disturbs the moisture balance. The resulting brittle failure and weakened waterproofing hastens creations of potholes and fast deterioration of road surfaces (Shao, Jenkins and Oh 2017).

#### Roads and Bridges Sector Specific Climate Policy Response

**In its INDC, Timor-Leste identified the following measures as possible mitigation and adaptation-oriented climate policy responses related to the roads and bridges sector:**

- Reform laws, regulations, and standards ensuring use of high-quality materials and adapted building codes to construct climate resilient physical infrastructure,
- Construct sea walls in most vulnerable coastal regions to guard against rising sea levels,
- Import only those vehicles that have been produced within 5 years of import date,
- Promote use of public transport (Government of Timor-Leste 2016).

**The Five-Year Action Plan 2019-2023 of National Directorate for Road, Bridge and Flood Control does not have any specific reference to climate change.** The directorate is housed under the Ministry of Public Works and is responsible for constructing, rehabilitating, and maintaining roads and bridges. The Five-Year Action Plan does not identify any action item for

adapting the roads and bridges to withstand the impacts of climate change but discusses post-calamity response to landslides and floods (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

## Roads and Bridges Sector Specific Institutional Arrangement for Climate Action

**Ministry of Public Works and Ministry of Transport and Communications are the two key ministries responsible for roads and bridges sector.** Ministry of Public Works has a large portfolio of climate relevant activities performed through National Directorate of Roads, Bridges, and Flood Control. The directorate is responsible for rehabilitating, maintaining, and conserving conditions of roads and bridges, but specific data on how much of the rehabilitation, maintenance, and conservation activities is conducted in response to climate change is absent. The directorate is, however, also responsible for recovering the conditions of roads and bridges in emergency situations and planning, researching, and designing flood control mechanisms which are both highly climate relevant actions. Ministry of Transport and Communications houses the National Directorate of Land Transports which currently perform two highly climate relevant activities of managing national vehicle registration system and constructing bus stops. Given the environmental footprint of motorized vehicles, proper maintenance of vehicle registration system and promoting use of public transport by building bus stops are critical steps towards mitigating climate change.

**TABLE 11: ROADS AND BRIDGES SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

## Roads and Bridges Sector specific Institutional Arrangement for Climate Action

Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Transport and Communications</b>	Office of the Minister of Transport and Communications	Provide strategic and political guidance for developing climate resilient transport and communications infrastructure (Potential climate action as part of Activity 5100108)
	National Directorate of Land Transport	Development of the legal framework and regulate the activities of the climate resilient land transport sector (Potential climate action as part of Activity 5540104)
		Keep and manage the national vehicle registration system (Currently done as Activity 5540106)
		Bus stop construction in (Bus stop) in Díli (Currently done as Activity 5540203)
<b>Ministry of Public Works</b>	National Directorate of Roads, Bridges and Flood Control	Rehabilitation of rural roads (Potential climate action as part of Activity 5480119, Activity 5480120, Activity 5480121, Activity 5480122, Activity 5480123, Activity 5480124, Activity 5480125, Activity 5480126, Activity 5480127, Activity 5480128, Activity 5480130, Activity 5480131, Activity 5480132, Activity 5480133, Activity 5480134, Activity 5480135, Activity 5480136, Activity 5480137, Activity 5480138, Activity 5480139, Activity 5480140, Activity 5480141, Activity 5480142, Activity 5480143, and Activity 5480144)
		Maintain and conserve the conditions of roads and bridges (Potential climate action as part of Activity 5480206, Activity 5480207, Activity 5480208, Activity 5480209, and Activity 5480210)
		Recovering the conditions of roads and bridges (emergency response) (Currently done as Activity 5480211)

Developing, dissemination and implementing legal frameworks; planning, researching and designing of roads, bridges and flood control; work quality control (Potential climate action as part of Activity 5480301, Activity 5480302, and Activity 5480304)

Planning, researching and designing and controlling of flood (Currently done as Activity 5480401)

## Roads and Bridges Sector Specific Climate Public Expenditure

The vast majority of roads and bridges sector specific climate public expenditure has been financed by Infrastructure Fund. However, most of this expenditure has only medium relevance to climate change, whereas roads and bridges sector specific climate public expenditure with high relevance to climate change has been demonstrating a declining trend. In 2018 Infrastructure Fund financed roads and bridges sector specific highly climate relevant actual expenditure stood at \$42,741,000 but that reduced to \$19,879,000 in 2020. In 2021, highly climate relevant roads and bridges sector specific projects had an even reduced allocations of \$13,428,000 but no actual expenditure was reported out of it till the month of September. A closer inspection of the data further suggests that highly climate relevant roads and bridges sector specific financing from Infrastructure Fund is primarily directed towards emergency response. Thus, the declining emergency expenditure could on one hand mean Timor-Leste is getting better at increasing climate resilience of its roads and bridges, but on the other hand it could indicate lower availability of funds for emergency response (Figure 16, Annex 1 Table 5).

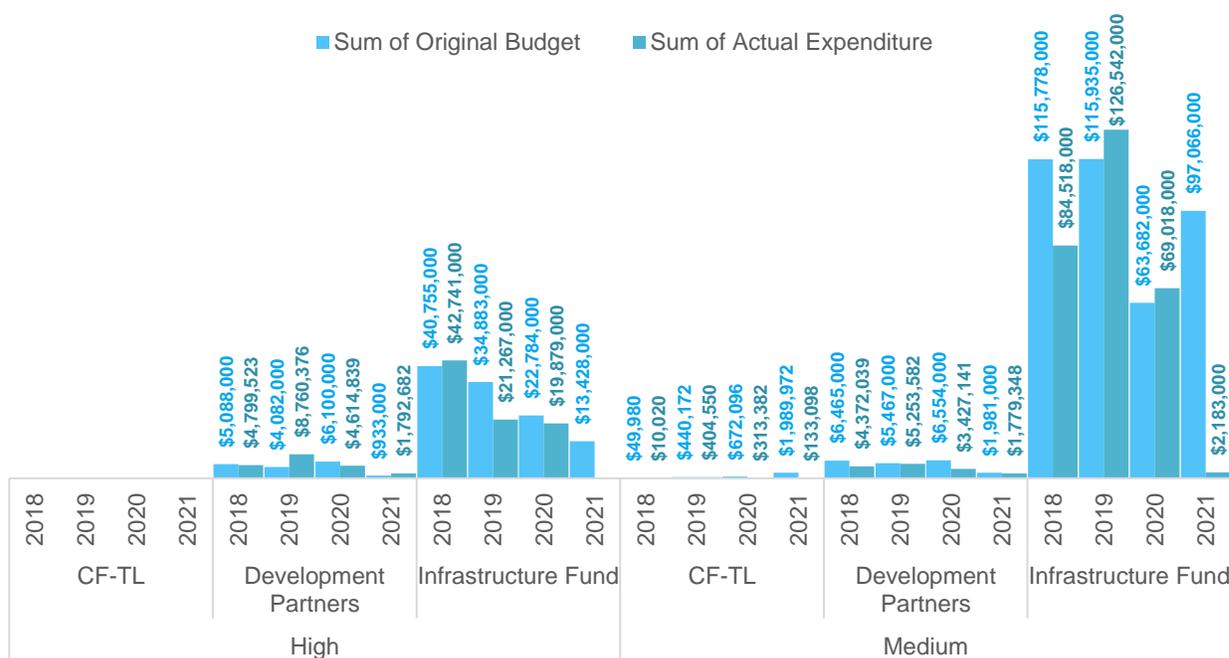
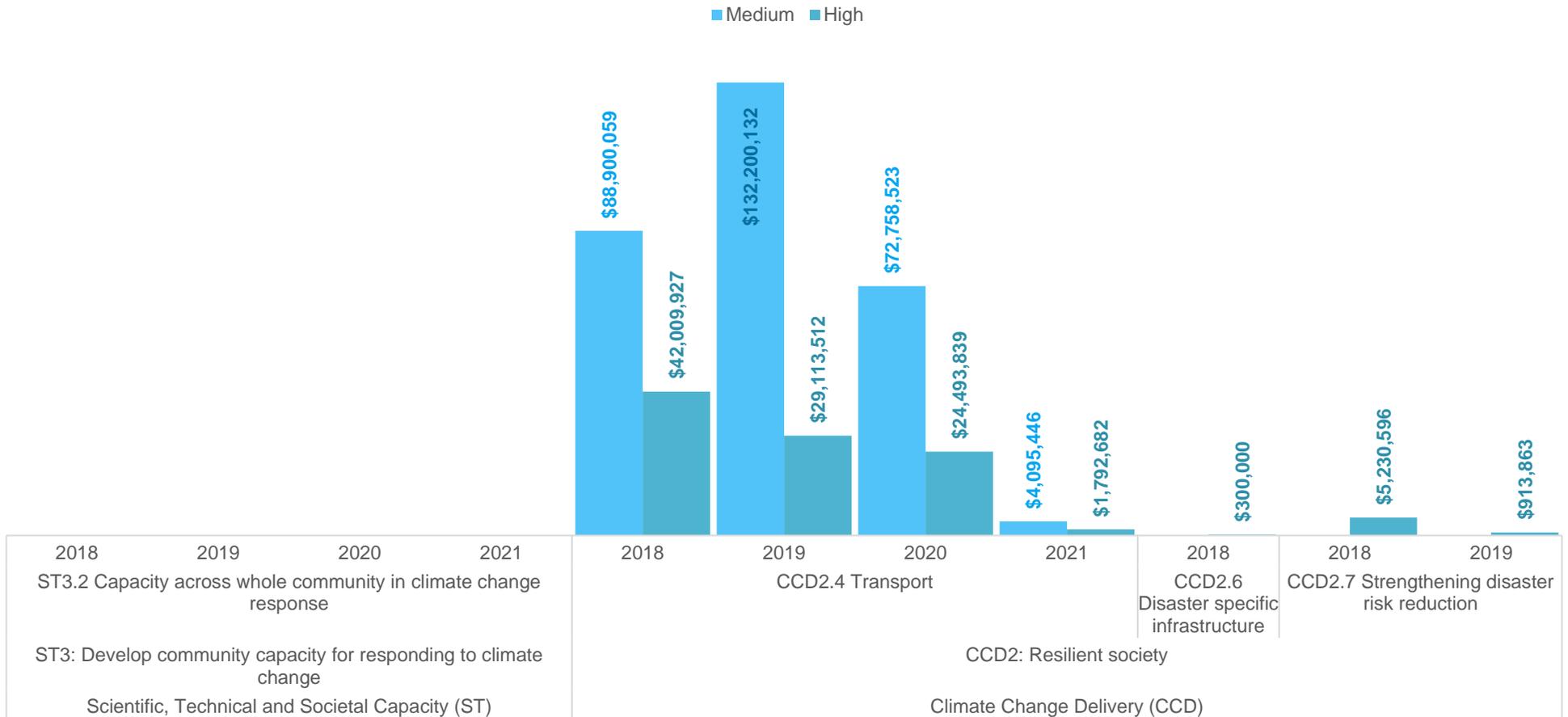


FIGURE 16: ROADS AND BRIDGES SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE

**The CPEIR typology-based classification of the roads and bridges sector relevant climate public expenditure is very straightforward.** As can be seen in Figure 17, almost all of such expenditure has been directed towards increasing resilience of the transport sector. What is interesting to note is that, there has been no expenditure on increasing scientific, technical, and societal capacity to respond to the impacts of climate change. This is because the CF-TL funded activity of planning, researching and designing flood control mechanisms of National Directorate of Roads, Bridges and Flood Control reported no budgetary allocations or expenditures in the last four fiscal years (Figure 17, Annex 2 Table 5).



**FIGURE 17: ACTUAL EXPENDITURE ON ROADS AND BRIDGES SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Roads and Bridges Sector

- **Budgetary allocations out of CF-TL should be availed to National Directorate of Roads, Bridges and Flood Control for planning, researching and designing mechanisms of flood control.**

Currently, even though the National Directorate of Roads, Bridges and Flood Control has an activity defined for planning, researching and designing mechanisms of flood control (Activity 5480401), no budget was allocated towards it in any of the last four fiscal years. Given the gravity of threat floods poses to Timor-Leste's social, capital, economic, and infrastructural development, budgets should be allocated for preventive measures like planning, researching and designing mechanisms of flood control to mitigate flood induced damages.

- **Climate and disaster resilient construction of roads and bridges should be an integral component of public investment management process.**

The Feasibility Study Guideline (FSG) for Infrastructure Fund financed projects published by the Major Projects Secretariat (MPS) already includes requirements regarding climate and disaster survey (Major Projects Secretariat, Infrastructure Fund 2020) . According to the 2018 PEFA Assessment, however, it cannot be confirmed that if findings of such surveys actually impact final selection of projects (The World Bank 2020). It is critically important that all the stakeholders involved in design, approval, implementation, and monitoring of capital investment projects work to ensure that roads and bridges are constructed to be climate and disaster resilient.

- **Climate budget tagging should be introduced to collect and disseminate data on rehabilitation, maintenance, and emergency expenditure on roads and bridge necessitated by climate change.**

Part of the reason climate change is not addressed with the urgency it warrants is that data on economic loss caused by climate crisis are not adequately gathered and shared. While Timor-Leste expends a significant amount of resources in rehabilitating, maintaining, and performing emergency work on roads and bridges, data on how much of expenditure is necessitated by climate change is absent. Climate budget tagging would offer a solution to this problem by enabling the decision makers in the government better quantify the economic cost of climate change.

## 4.2 Water and Sanitation

### Water and Sanitation Sector Specific Climate Vulnerabilities

**The limited natural water resources of Timor-Leste are severely threatened by the potential impacts of climate change.** A 2015 Service Delivery Assessment (SDA) conducted by the World Bank found that in spite of a training arranged in late 2012 for government officials on adapting the water and sanitation sector to the impacts of climate change, no plans were formulated or budget were allocated in this regard till the assessment date (International Bank for Reconstruction and Development; The World Bank 2015). Even though climate change induced water shortage is well recognized as a national threat, no attempts has been made to climate proof local water supply services (International Bank for Reconstruction and Development; The

World Bank 2015). Response to water and sanitation sector specific climate vulnerabilities is highly reactionary with emergency funding allocated to respond to climatic events. Forward planning or proactive steps to climate proof water and sanitation systems is absent (International Bank for Reconstruction and Development; The World Bank 2015).

**Climate change poses severe threat of undoing the gains in water, sanitation, and hygiene (WASH) infrastructure installation.** As per WaterAid, the WASH infrastructure installed by them is regularly damaged by floods and landslides unmaking their installation achievements (Silva 2019). Due to the vulnerability of water infrastructure, water supply is unreliable and inconsistent post natural disasters, threatening outbreak of waterborne diseases (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

## Water and Sanitation Sector Specific Climate Policy Response

**In its INDC, Timor-Leste identified the following measures as possible mitigation and adaptation-oriented climate policy responses related to the water sector:**

- Developing high-quality infrastructure to protect sources of water,
- Strengthening measures to respond to drought,
- Harvesting water,
- Improving water distribution and management systems,
- Controlling quality of water used by industries,
- Controlling water pollution due to coffee processing waste management, and
- Establishing ground water monitoring systems and hydrological network. (Government of Timor-Leste 2016)

**Water Sector Assessment and Roadmap 2018, co-developed by the World Bank and the General Directorate for Water Supply and Sanitation, further suggests that:**

- A national strategy would be developed to forecast the demand and supply of water for varying degrees of climate change,
- Early warning systems and monitoring mechanisms will be instituted to protect vulnerable population from extreme weather events that curtail the supply of water for drinking and agricultural usage, and
- Water resources will be made more climate resilient by establishing integrated basin management and strengthening local governance of water services (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

**The National Water Resource Management Policy 2020 places high importance on adapting water resource management to the impacts of climate change.** It identifies some key priority actions involving construction of climate resilient water infrastructure, strengthening strategic leadership for tackling water shortages, and improving water collection and storage mechanisms in Timor-Leste (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

## Water and Sanitation Sector Specific Institutional Arrangement for Climate Action

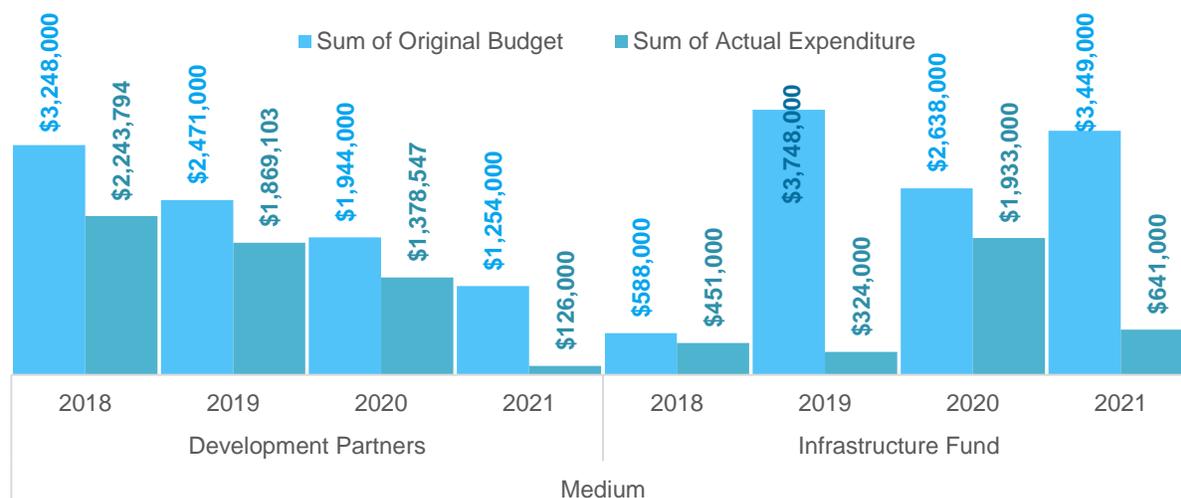
**Ministry of Public Works has the exclusive mandate for taking water sector specific climate action.** Four directorates of this ministry has specific roles to play: National Directorate of Water Supply Services has a role to play in creating and implementing climate aware legal framework for water supply, National Directorate of Water Resource and Management has a role to play in protecting water sources by collecting and analyzing hydrological data to respond to the impacts of climate change, General Directorate of Water and Sanitation has a role to play in ensuring climate-sensitive coordination and management of water and sanitation services, and National Directorate of Basic Sanitation Services has a role to play in climate proofing sanitation systems by developing the necessary legislative framework and updating current planning, developing, operating, and maintaining practices.

**TABLE 12: WATER AND SANITATION SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Water Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Public Works</b>	National Directorate of Water Supply Services	Develop and implement a water supply legal framework (Potential climate action as part of Activity 5500101)
		Invest in, operate, and maintain water supply systems in rural and urban areas (Potential climate action as part of Activity 5500102, Activity 5500103, Activity 5500104, Activity 5500105, and Activity 5500107)
	National Directorate of Water Resource and Management	Strategy for the implementation of water supply legal framework is outlined (Potential climate action as part of Activity 5510101)
		Prioritize and develop Monitoring programs for water resources and protection of water sources (Potential climate action as part of Activity 5510102)
		Protect water sources (Potential climate action as part of Activity 5510103)
		Survey and analysis of hydrological data (Potential climate action as part of Activity 5510104)
	General Directorate of Water and Sanitation	Coordinate and manage water and sanitation (Potential climate action as part of Activity 5100101)
	National Directorate of Basic Sanitation Services	Develop and implement the legislative framework in the area of sanitation (Potential climate action as part of Activity 5520101)
		Planning, developing, operating and maintaining the sanitation systems in the municipal centers and administrative posts (Potential climate action as part of Activity 5520103)

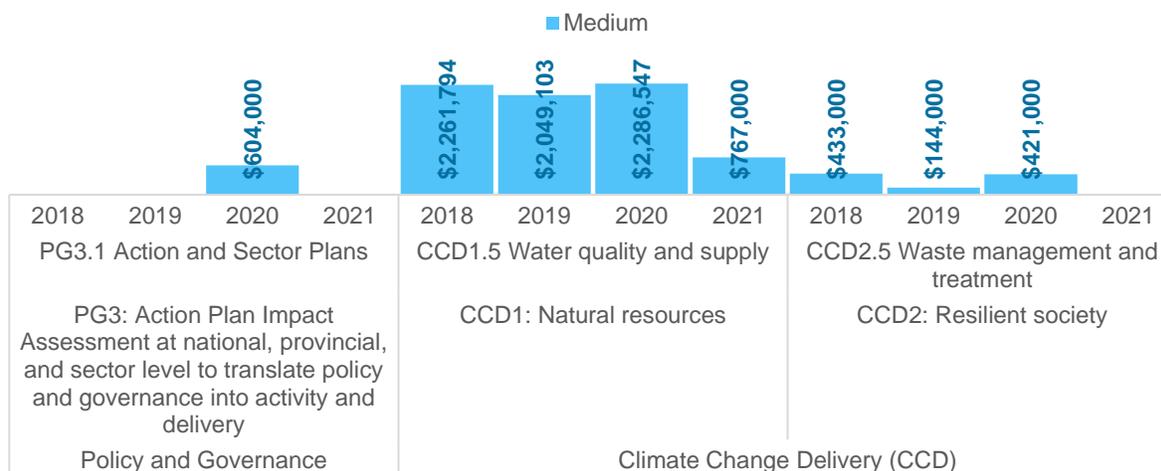
## Water and Sanitation Sector Specific Climate Public Expenditure

**All the water and sanitation sector specific climate public expenditure between 2018-2021 had medium climate relevance.** Our analysis did not detect any water and sanitation sector specific programs or projects that was highly relevant to climate change. This means, climate proofing the water and sanitation infrastructure has not been considered the primary objective in any sector specific programs or projects. Budget commitments and actual expenditure by development partners for developing water and sanitation infrastructure has decreased over the years, and allocations and expenditures from the Infrastructure Fund has been inconsistent. Poor utilisation of the budget allocated from the Infrastructure Fund has also been a problem; most noticeably so in 2019 when against an allocation of \$3,748,000 only \$324,000 was actually spent (Figure 18, Annex 1 Table 6).



**FIGURE 18: WATER AND SANITATION SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**

**According to the CPEIR typology most of the sector specific actual expenditure has been directed towards improving water quality and supply.** In 2020, \$604,000 was spent for developing the National Master Plan for Water and Sanitation, and between 2018 to 2020 \$998,000 was spent for construction and supervision of sewage system in Dili. All of this expenditure, as discussed earlier, are of medium relevance to climate change (Figure 19, Annex 2 Table 6).



**FIGURE 19: ACTUAL EXPENDITURE ON WATER AND SANITATION SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Water and Sanitation Sector

- **Policy declarations for water and sanitation sector adaptation should be embedded into annual action plans of institutions with relevant mandates, and key performance indicators (KPIs) for measuring their climate action relevant performance should be instituted.**

Although, the importance of adapting the water and sanitation sector to the impacts of climate change is well recognized in policy documents, there is inadequate reflection of such in the annual action plans of relevant divisions under the Ministry of Public Works, namely National Directorate of Water Supply Services, National Directorate of Water Resource and Management, General Directorate of Water and Sanitation, and National Directorate of Basic Sanitation Services. The aforementioned divisions should be sensitized about the role they have to play in adapting the water and sanitation sector as part of their annual action plans as detailed in Table 12, and key performance indicators (KPIs) for measuring their climate action relevant performance should be instituted.

- **Budgetary allocations for the water and sanitation sector should follow the sector specific climate policies adopted.**

In spite of the policy attention awarded to adapting the water and sanitation sector to the impacts of climate change, all the water and sanitation sector specific climate public expenditure between 2018-2021 had only medium climate relevance. This means, climate proofing the water and sanitation infrastructure has not been considered the primary objective in any sector specific programs or projects. It is imperative that initiatives are taken to develop the capacity of relevant institutions to implement the water and sanitation sector specific climate policies, and necessary budgets are allocated to them.

- **Reasons behind poor utilization of budgets allocated out of Infrastructure Fund for water and sanitation sector specific climate relevant projects should be investigated.** While it is recommended that budgetary allocations should be made available for highly

climate relevant water and sanitation sector specific programs and projects, it is also important to understand why budgetary allocations currently made for water and sanitation sector specific climate relevant projects – albeit of medium climate relevance – are often underutilized. Poor utilization of the budget allocated from the Infrastructure Fund has most noticeably been in 2019, when against an allocation of \$3,748,000 only \$324,000 was actually spent. It is recommended that reasons behind poor utilization of budgets allocated out of Infrastructure Fund for water and sanitation sector specific climate relevant projects are investigated, and corrective measures to ensure proper utilization of the allotted funds are taken.

- **Climate proofing water and sanitation infrastructure should be an integral component of public investment management process.**

Even though installations of WASH infrastructure are considered as important investments, no attempts are made to climate proof water and sanitation supply services (International Bank for Reconstruction and Development; The World Bank 2015). As noted earlier, response to water and sanitation sector specific climate vulnerabilities is highly reactionary with emergency funding allocated to respond to climatic events. It is highly recommended that proactive steps are taken to climate proof water and sanitation infrastructure to ensure uninterrupted WASH services post natural disasters, and to prevent outbreak to waterborne diseases (relevant example in Box 6 and Box 7).

#### **BOX 6: MADAGASCAN EXAMPLE OF BUILDING CLIMATE RESILIENT WASH INFRASTRUCTURE**

##### ***“Financing Climate Resilient Water and Sanitation and using Multiple User Systems in Madagascar***

*Madagascar has one of the worst levels of access to safe water in the world, with just 51 per cent of the population having access to safe water, a figure that has actually declined in the past three years. Malagasy children face multiple climate risks, as the country is prone to cyclones, droughts and floods.*

*In 2015, UNICEF Madagascar teamed up with the United Nations Development Programme and the Malagasy Climate Change Coordination Office (Ministry of Environment, Ecology and Forests) to apply for US\$5.8 million in climate financing from the Least Developed Countries Fund, managed by the Global Environment Facility. The program, four years in duration, consists of three main components: strengthening rural institutions; producing agrometeorological and hydraulic information to help facilitate climate smart programming decisions (e.g. remote sensing); and support for community-based climate resilience programming.*

*Specific WASH climate resilience programming approaches being utilized, as part of the program include:*

- *Remote sensing techniques to support to develop reliable groundwater suitability maps in drought-prone areas, improving the success rate of borehole siting and increasing program efficiency.*
- *The implementation of Multiple Use Water Systems (MUS) approach in drought prone communities. The MUS approach ensures that enough water is made available to*

*support livelihood needs in addition to household needs, whilst at the same time, ensuring the most efficient use of water resources.*

- *The scale-up of solar powered water systems, particularly in drought-prone regions.”*

Source<sup>8</sup>: (UNICEF 2016)

#### **BOX 7: BANGLADESHI EXAMPLE OF CLIMATE PROOFING POTABLE WATER SOURCES**

##### **“Creating safe underground water stores in Bangladesh**

*Bangladesh’s low-lying topography and its location on the Bay of Bengal, means that many of the country’s coastal communities are exposed to frequent flooding. Climate change is leading to more frequent and intense storms and rising sea levels. In addition to destroying WASH facilities, these climate hazards can also cause the salinization of groundwater sources (aquifers) which many communities rely on for their drinking water.*

*UNICEF and partners have worked with the University of Bangladesh and the Government of Bangladesh to pilot a Managed Aquifer Recharge (MAR) system. The concept is simple: water is collected from ponds and roofs. It is then passed through a sand filter and is injected into the shallow saline aquifer to create a freshwater “bubble” of drinkable water. Each MAR system can serve several hundred people and can be easily maintained by communities. The MAR system provides safe water when other traditional sources have been damaged by floods and storm surges. The approach has been scaled up and currently more than 100 MAR systems are operational. Their success so far indicates that the MAR system has the potential to be used throughout Bangladesh and other low-lying areas globally.”*

Source<sup>9</sup>: (UNICEF 2016)

## **4.3 Electricity**

### **Electricity Sector Specific Climate Vulnerabilities**

**The electricity sector is vulnerable to the impacts of climate change in a variety of ways.**

Increases in temperature are likely to lessen generation efficiency, and reduce carrying capacity of distribution technology (Burillo 2018). Climate change induced natural calamities, further, threatens to damage generation and distribution infrastructure (Johnston, Gomez and Laplante 2012) and interrupt supply chains and offshore activity (Burillo 2018).

**In 2020, only 1% of total electricity was generated from renewable sources in Timor-Leste.**

31% of the renewable electricity was generated as hydropower, while the remaining 69% was generated through solar energy. Capacity utilization of the solar energy, however, remains low, as in 2019 only 18% of the solar capacity was utilized in contrast to 53% capacity utilization of hydro-energy (International Renewable Energy Agency 2021). As the country heavily depends on imported, expensive diesel to generate electricity, scaling up the use of renewable energy would help it achieve both fiscal and environmental sustainability.

<sup>8</sup> Text in Box 6 is reproduced verbatim from (UNICEF 2016).

<sup>9</sup> Text in Box 7 is reproduced verbatim from (UNICEF 2016).

## Electricity Sector Specific Climate Policy Response

**In its Strategic Development Plan 2011-2030, Timor-Leste set the goal of meeting at least 50% of its energy needs from renewable sources by 2020.** The plan also envisioned that by 2020 about 100,000 homes will be lighted by solar powered electricity.

**Energy is recognized as one of the four priority sector shaping Timor-Leste's response to climate change in the nation's Intended Nationally Determined Contributions (INDC)** (Government of Timor-Leste 2016). In its INDC, the country identified the following measures as possible mitigation and adaptation-oriented climate policy responses related to the energy sector:

- Increasing use of renewable energy, especially in rural areas,
- Reducing reliance on fuel imports,
- Introducing the use of energy-efficient cookstoves that do not use wood-based or fossil fuels, and
- Promoting use of energy-efficient technologies at consumer level (e.g., energy-efficient lighting solutions, electrical engines, energy systems etc.) (Government of Timor-Leste 2016)

## Electricity Sector Specific Institutional Arrangement for Climate Action

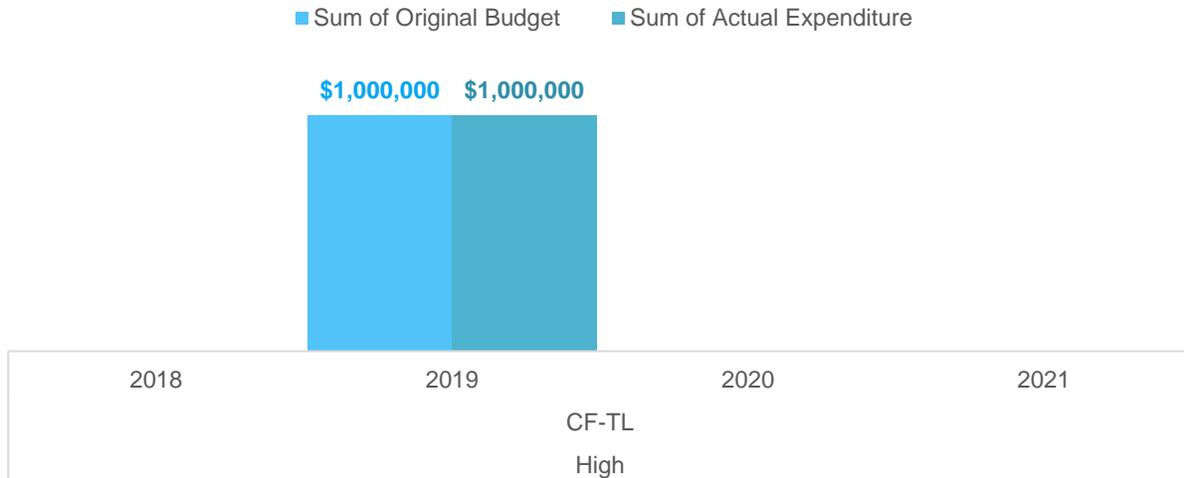
**Ministry of Public Works houses three directorates that have the mandate for taking electricity sector specific climate action.** These are: General Directorate of Electricity, National Directorate of Renewable Energies, and National Directorate of Research and Development. With its authority in coordinating and managing supply of electricity, General Directorate of Electricity has a role to play in increasing the supply of renewable energy in the nation. National Directorate of Renewable Energies has the exclusive responsibility of developing renewable energy production plants, and installing and maintaining photovoltaic systems. National Directorate of Research and Development, finally, has a role to play in preparing technical regulations for promotion of renewable energy and preparing renewable energy related electricity plan and technical studies.

TABLE 13: ELECTRICITY SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION

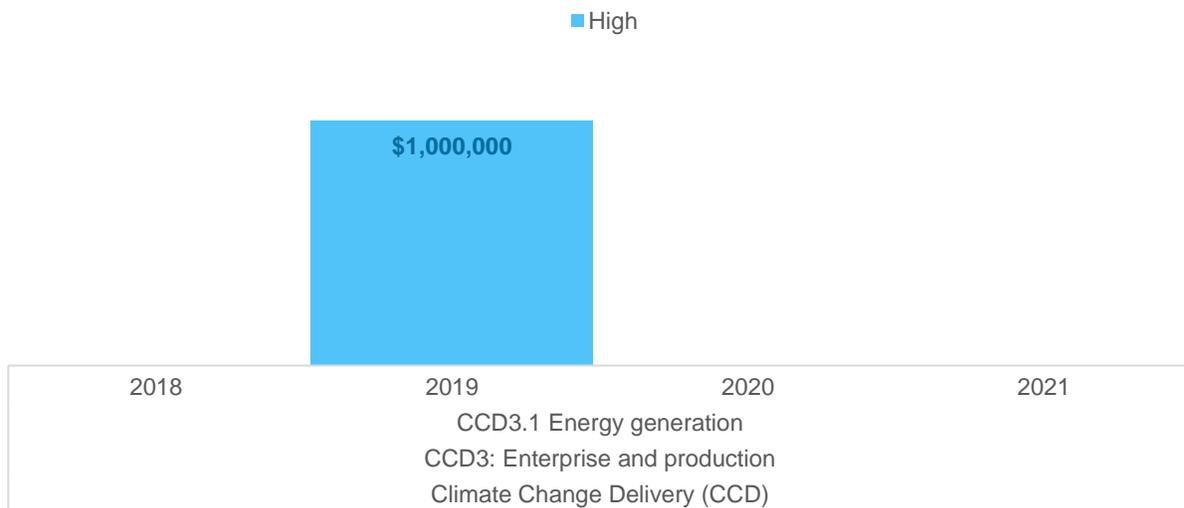
Electricity Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
Ministry of Public Works	General Directorate of Electricity	Coordinate and manage electricity (Potential climate action as part of Activity 5100104)
	National Directorate of Renewable Energies	Develop renewable energy production plants (Currently done as Activity 5470201)
		Install and maintain photovoltaic system (Currently done as Activity 5470701)
	National Directorate of Research and Electricity Development	Preparing technical regulations and norms (Potential climate action as part of Activity 5470801)
Preparing electricity plan and technical studies (Potential climate action as part of Activity 5470802)		

### Electricity Sector Specific Climate Public Expenditure

**There were no allocations or expenditures related to promotion of renewable energy in any year between 2018 to 2021 except in 2019.** In 2019, CF-TL funded two activities undertaken by Ministry of Public works related to developing renewable energy production plants, and installing and maintaining photovoltaic systems. There are media reports regarding some development partner financed new initiatives announced in 2020 that will increase production of renewable energy (UNDP Timor-Leste 2020; The Climate Technology Centre and Network 2020), but data on financing allocated to or expensed as part of those projects is not documented in national budget yet (Figure 20, Annex 1 Table 7).



**FIGURE 20: ELECTRICITY SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**



**FIGURE 21: ACTUAL EXPENDITURE ON ELECTRICITY SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Electricity Sector

- **Budgetary allocations should be made for implementing the policy position on meeting at least 50% of energy needs from renewable sources.**

In its Strategic Development Plan 2011-2030, Timor-Leste set the goal of meeting at least 50% of its energy needs from renewable sources by 2020. In 2020, however, only 1% of total electricity was generated from renewable sources (International Renewable Energy Agency 2021). Between the timeframe covered in this review, a total of \$1,000,000 were allocated to Ministry of Public Works only in 2019 for developing renewable energy production plants, and installing and maintaining photovoltaic systems out of CF-TL. No allocations were made out of Infrastructure Fund for any renewable energy related project. Given the high dependence of Timor-Leste on imported, expensive diesel, increasing budgetary allocations for expanding the use of renewable energy would benefit the country both fiscally and environmentally.

- **Reasons behind low utilization of renewable energy capacity should be investigated, and based on the findings corrective actions should be taken.**

Timor-Leste struggles with very low utilization of renewable energy capacity. Capacity utilization of the solar energy was only 18% in 2019, while of hydro-energy was only 53% (International Renewable Energy Agency 2021). The reasons behind such low utilization of renewable energy capacity should be investigated, and based on the findings corrective actions should be adopted.

- **Innovative financing models that capitalize on public private partnerships for popularizing use of renewable energy at household level should be adopted.**

The investment required for meeting at least 50% of energy needs from renewable sources would strain government's budgets, and thus, innovative financing models that capitalize on public private partnerships for popularizing use of renewable energy at household level should be adopted (relevant example in Box 8).

### BOX 8: BANGLADESHI EXAMPLE OF USING INNOVATIVE FINANCING MODEL FOR EMPOWERING 20 MILLION PEOPLE WITH SOLAR HOME SYSTEMS

#### *“Living in the Light: The Bangladesh Solar Home Systems Story*

*The Bangladesh Solar Home Systems (SHS) Program is the largest national program in the world for off-grid electrification. Begun in 2003, SHS installations under the Program ended in 2018. It is the longest, continuously operating off-grid electrification program in the world.*

*The SHS Program was led and implemented by the Infrastructure Development Company Ltd (IDCOL). Over a 15-year period beginning in 2003, over 4.1 million SHS were sold and supported using a competitive business model that offered consumers a choice of quality SHS, made affordable with financing. About 14 percent of the Bangladesh population (2011 Census), about 20 million people, obtained electricity services through the SHS Program. The SHS Program enabled one-quarter of the unelectrified rural population in 2003 to obtain electricity services far sooner than would have been possible with grid electricity. SHS were mainly used in rural homes for lighting, mobile phone charging, and powering TVs and radios. They were also used in about 200,000 rural businesses and religious facilities. The program led to SHS becoming a credible electricity source in Bangladesh and, more broadly, to the acceptance of*

solar photovoltaics (PV) as an electricity generation technology. Building on the credibility gained, SHS distribution to the poorest households under other government programs and commercial SHS sales picked up in later years along with IDCOL-financed sales.

### **Implementation Model**

IDCOL mobilized Partner Organizations (POs) that were mainly nongovernmental organizations (NGOs) and microfinance institutions (MFIs) with rural networks. The POs competitively marketed, sold, financed, installed, and serviced quality-certified SHS to rural customers. Beginning with 5 POs in 2003, their number grew to 57 by 2015. The customers were mainly rural households, businesses, and religious institutions.

The government obtained SHS Program funding from development partners, beginning with IDA funds from the World Bank. IDCOL obtained these funds from the government in local currency to refinance a portion of the loans given by POs to SHS customers. The POs sold SHS to customers on credit with payments spread out over a period of up to three years at interest rates of 12 to 16 percent. Small grants, declining over time from 19 percent of the cost in 2003 to 5 percent by 2017, were given to increase the affordability of the SHS and to help the POs strengthen their institutional capability. The customers repaid the loans to the POs which repaid their loans to IDCOL. IDCOL then repaid its loans from the government which repaid the development partners. This business model permitted loans of hundreds of millions of dollars from international sources to flow through to give microloans to millions of rural customers living in distant areas.

IDCOL led, managed, and supervised the overall program. IDCOL's strong and committed management was crucial to the program's success, to ensure that all parties met their financial and service obligations and that customers were satisfied. An independent Technology Standards Committee (TSC) was established by IDCOL to set and enforce quality standards. The POs sourced SHS and components from domestic and international suppliers that met quality and performance standards. IDCOL established an independent PO Selection Committee to screen and qualify POs. Crucial to the successful program management was an Operations Committee (OC) that met with the POs monthly to monitor progress, resolve problems, and share experiences and lessons. Technical quality audits, fields surveys, and consumer satisfaction surveys were conducted regularly.”

Source<sup>10</sup>: (Cabraal, et al. 2021)

## **4.4 Sea Ports**

### **Sea Ports Sector Specific Climate Vulnerabilities**

**Given their location on coasts vulnerable to sea-level rise and oceanic storms, or near deltas vulnerable to flooding, sea ports are particularly vulnerable to the impacts of climate change** (Becker, et al. 2012). While seaports are generally constructed to be various kinds of stress resilient, increases in frequency and intensity of extreme weather events can hasten the depreciation of seaport infrastructure and disrupt the provision of port services (Christodoulou, Christidis and Demirel 2018). Although no information is available about how - and if - Timor-Leste is preparing its seaports to wade the impacts of climate change, an international survey of port authorities conducted by Becker, et al. (2012) found that majority of them considered themselves generally unapprised about the potential impacts of climate change. Their survey also

<sup>10</sup> Text in Box 7 is reproduced verbatim from (Cabraal, et al. 2021).

reported that sea ports in developing countries were less prepared and less aware to adapt to the impact of climate change (Becker, et al. 2012).

## Sea Ports Sector Specific Climate Policy Response

Potential impacts of climate change on the sea ports of Timor-Leste are not addressed in any policy documents.

## Sea Ports Sector Specific Institutional Arrangement for Climate Action

**Ministry of Transport and Communications has the sole responsibility of managing sea ports of Timor-Leste.** Given their authority, Office of the Minister of Transport and Communications has an important climate relevant role to play by providing strategic and political guidance for developing climate resilient maritime infrastructure for National Directorate of Maritime Transport to implement.

**TABLE 14: SEA PORTS SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Sea Ports Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Transport and Communications</b>	Office of the Minister of Transport and Communications	Provide strategic and political guidance for developing climate resilient transport and communications infrastructure (Potential climate action as part of Activity 5100108)
	National Directorate of Maritime Transport	Develop, operate and maintain maritime infrastructures (Potential climate action as part of Activity 5570102)

## Sea Ports Sector Specific Climate Public Expenditure

Our review did not detect any climate relevant expenditure for the sea ports sector of Timor-Leste.

## Recommendations for Strengthening Climate Response in Sea Ports Sector

- **Localized research on how climate change threatens the sea ports of Timor-Leste should be undertaken to raise strategic, political, and managerial awareness about making maritime infrastructure climate resilient.**

As noted earlier, an international survey of port authorities conducted by Becker, et al. (2012) found that majority of them considered themselves generally unapprised about the potential impacts of climate change. Their survey also reported that sea ports in developing countries were less prepared and less aware to adapt to the impact of climate change (Becker, et al.

2012). Given the general lack of knowledge about the impacts of climate change on the sea ports of Timor-Leste, it is important that localized research is undertaken to understand specific climate vulnerabilities of the sea ports of Timor-Leste so that adaptive actions can be undertaken.

- **Office of the Minister of Transport and Communications, and National Directorate of Maritime Transport should be requested to develop an action plan to deliver on their role in protecting Timor-Leste’s sea ports from the impacts of climate change.**

While Timor-Leste has the necessary institutional set up for taking climate action related to sea ports management, the relevant institutions are inadequately appraised about the role they have to play. It is important that the Office of the Minister of Transport and Communications, and the National Directorate of Maritime Transport are trained and supported to deliver on their duties to protect Timor-Leste’s sea ports from the impact of climate change, and are requested to embed climate actions related to sea ports management into their annual action plans.

## 4.5 Airports

### Airports Sector Specific Climate Vulnerabilities

**Airports are vulnerable to extreme climatic events caused by climate change.** A climate risk and vulnerability assessment of Timor-Leste’s main international airport - Presidente Nicolau Lobato International Airport (PNLIA) – conducted by Asian Development Bank found that:

*“(i) The coastal revetment is sensitive to regional mean sea level rise, extreme sea levels, wave overtopping and coastal erosion;*

*(ii) Runway drainage is sensitive to the magnitude and frequency of heavy rainfall events (daily and sub-daily rainfall);*

*(iii) The runway, observation tower and airport operations are sensitive to extreme weather conditions caused by tropical storms or cyclones and associated high wind speeds.” (Asian Development Bank 2021)*

### Airports Sector Specific Climate Policy Response

**Potential impacts of climate change on the air ports of Timor-Leste are not addressed in any policy documents.**

### Airports Sector Specific Institutional Arrangement for Climate Action

**Civil Aviation Timor-Leste, housed under the Ministry of Transport and Communication, is responsible for managing airports in Timor-Leste.** As part of the PNLIA Expansion Project, airport management capacity of Ministry of Transport and Communication will be strengthened (Asian Development Bank 2021).

## Airports Sector Specific Climate Public Expenditure

**Very recently in the second half of 2021, an ADB and JICA financed project to expand PNLIA airport has been adopted.** Given the newness of this project, data on budgetary allocations or actual expenditure on it are still not included in budget documents. According to the project documents of the \$135,000,000 financed by ADB, \$1,810,000 will be used for adapting the PNLIA infrastructure to climate change (Asian Development Bank 2021).

## Recommendations for Strengthening Climate Response in Airports Sector

- **Climate change assessment as conducted for the PNLIA expansion project should be made an integral part of public investment management for all kinds of infrastructural development.**

The climate change assessment conducted for the PNLIA expansion project sets an excellent example of how climate risks should be assessed and adaptive measures should be adopted while investing on any infrastructural development project. Such climate change assessment should be made an integral part of Feasibility Study Guideline (FSG) for Infrastructure Fund financed projects<sup>11</sup>, and necessary measures for improving the technical capacity of public officials to carry and evaluate such assessments should be taken.

## 4.6 Telecommunications

### Telecommunications Sector Specific Climate Vulnerabilities

**Telecommunications sector – an enabler of both mitigation of and adaptation to the impacts of climate change – are not immune to the effects of climate change itself.** As climate change causes more frequent extreme weather events, rises in temperature, and changes in water supply levels, telecommunications sector will have to evolve fast to protect its own infrastructure and provide reliable communication services to consumers to prepare for and wade the impacts of climate change (Wong and Schuchard 2011).

**Climate induced vulnerabilities of the telecommunications sector primarily relates to its physical infrastructure.** Potential climate vulnerabilities of the telecommunications sector include:

*“...reduced service due to extreme-heat-related power outages, increased emergency communications and reduction in cable-provided services due to storm-damaged utility lines, and flooding of central offices during extreme storms, resulting in reduced or disrupted service.”* (New York Climate Change Science Clearinghouse 2018)

Further, heightened demand for emergency communications can stress system capacity as climate change induced natural hazards become more intense and frequent. In such circumstances

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<sup>11</sup> As noted earlier, the Feasibility Study Guideline (FSG) for Infrastructure Fund financed projects published by the Major Projects Secretariat (MPS) already includes requirements regarding climate and disaster survey (Major Projects Secretariat, Infrastructure Fund 2020). According to the 2018 PEFA Assessment, however, it cannot be confirmed that if findings of such surveys actually impact final selection of projects (The World Bank 2020).

populations in rural areas, in particular, may face heightened danger due to their inability to request for urgent help, as they are already underserved by telecommunications services (New York Climate Change Science Clearinghouse 2018).

**Along with the more obvious susceptibility of telecommunications sector to climate induce extreme weather events, ‘slow-onset’ of climate change also threatens telecommunications services** (Adams, et al. 2014). Impact of such slow-onset changes – like of increasing air temperature - to the telecommunications sector, however, gets less attention as they dampen operational efficiency and infrastructural damage at a slower rate. Telecommunications sector is heavily reliant on stable electricity supply, and the standalone threats of climate change to electricity generation and distribution - especially during extreme weather events - threatens the telecommunications sector to an even larger extent (Adams, et al. 2014).

## Telecommunications Sector Specific Climate Policy Response

**Potential impacts of climate change on the telecommunications sector of Timor-Leste are not addressed in any policy documents.**

## Telecommunications Sector Specific Institutional Arrangement for Climate Action

**Ministry of Transport and Communications is responsible for overseeing the telecommunications sector in Timor-Leste.** Office of the Minister of Transport and Communications – the key strategic unit of the ministry - has a role to play in providing strategic and political guidance for developing climate resilient telecommunications infrastructure.

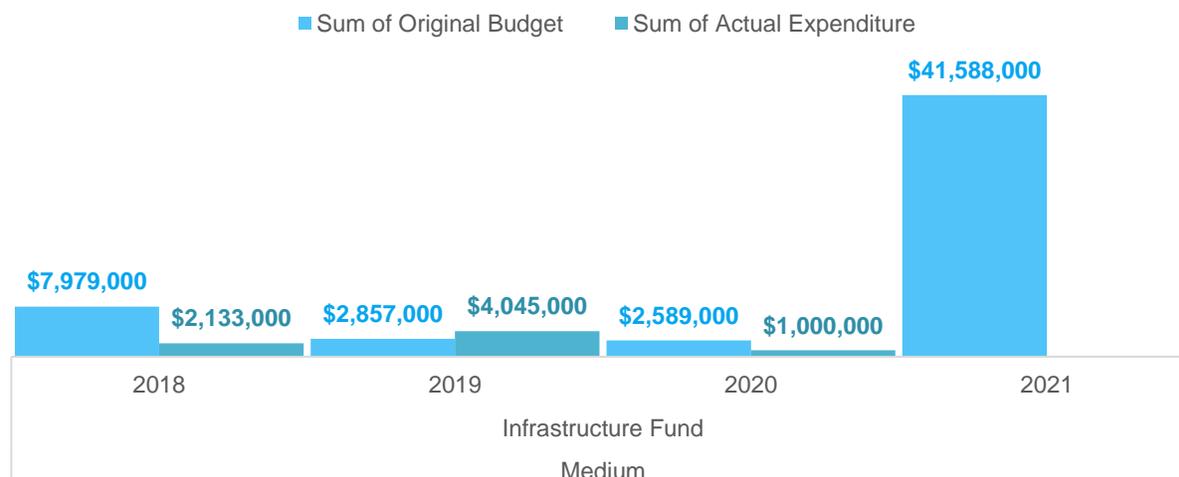
**TABLE 15: TELECOMMUNICATIONS SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Telecommunications Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Transport and Communications</b>	Office of the Minister of Transport and Communications	Provide strategic and political guidance for developing climate resilient transport and communications infrastructure (Potential climate action as part of Activity 5100108)

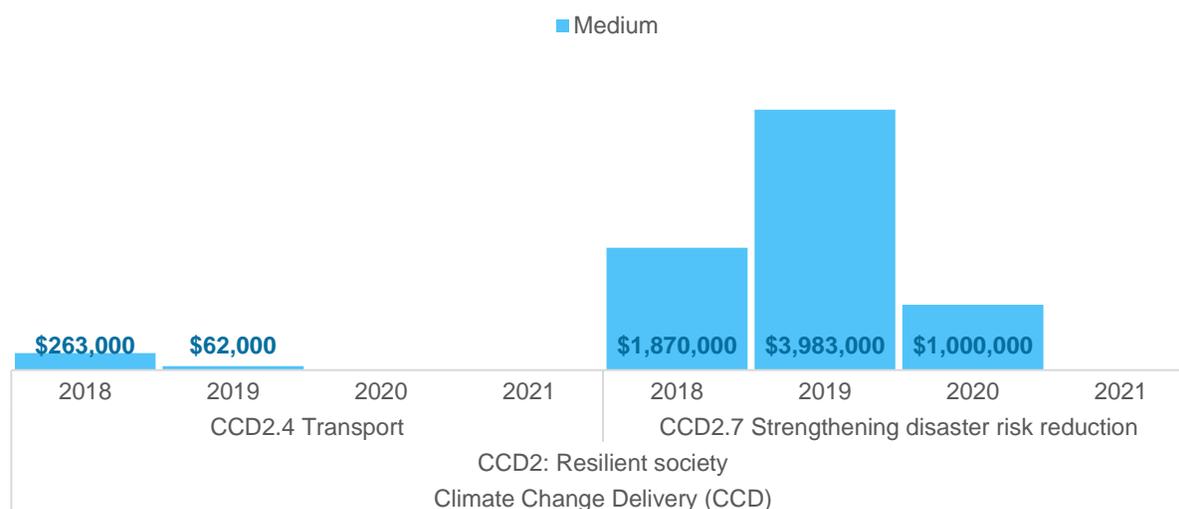
## Telecommunications Sector Specific Climate Public Expenditure

**All the telecommunications sector specific climate public expenditure between 2018-2021 has been of medium climate relevance.** All of this investment has been financed by Infrastructure Fund of the government. Between 2018 to 2020 original allocations for medium climate relevant telecommunications sector specific projects have ranged between \$2.5 million to \$7.9 million. In 2021, original allocation had a sharp increase to \$41.6 million owing to commitments to a study on installation of optical fiber. Final allocations for this project, however,

was later reduced to \$3.05 million, but no actual expenditure out of this allocation has been reported in 2021 yet (Figure 22, Annex 1 Table 8).



**FIGURE 22: TELECOMMUNICATIONS SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**



**FIGURE 23: ACTUAL EXPENDITURE ON TELECOMMUNICATIONS SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Telecommunications Sector

- Climate proofing telecommunications infrastructure should be made an integral part of public investment management.**  
 While there is a large body of technical guidelines available for adapting the telecommunications infrastructure from the impacts of climate change, lack of awareness hinders their implementation in Timor-Leste. It is important that Office of the Minister of

Transport and Communications takes the lead in providing strategic and political guidance for developing climate resilient telecommunications infrastructure, and climate proofing telecommunications infrastructure is made an integral part of public investment management process (relevant example in Box 9).

#### BOX 9: EXAMPLE OF MEASURES FOR CLIMATE PROOFING TELECOMMUNICATIONS INFRASTRUCTURE

- *“Protect against outages by maintaining backup supplies of poles and wires to be able to replace expediently those that are damaged, and having emergency restoration crews at the ready ahead of the storm’s arrival;*
- *Relocate central offices that house communications infrastructure out of future floodplains, including in coastal areas increasingly threatened by sea level rise combined with coastal storm surges;*
- *Make the backbone network redundant for most if not all service areas, and resilient to all types of extreme weather events;*
- *Decouple communication infrastructure from electric grid infrastructure to the extent possible, and make both more robust, resilient, and redundant;*
- *Protect against outages by trimming trees near power and communication lines;*
- *Place telecommunication cables underground where technically and economically feasible;*
- *Minimise the effects of power outages on communications services by providing backup power at cell towers, such as with generators, solar-powered battery banks, and “cells on wheels” that can replace disabled towers;*
- *Provide reliable backup power with sufficient fuel supply for extended grid power outages;*
- *Replace segments of the wired network most susceptible to weather (e.g., customer drop wires) with low-power wireless solutions;*
- *Further develop backup cell phone charging options at the customer’s end, such as car chargers, and create a standardised charging interface that allows any phone to be recharged by any charger;*
- *Assess, develop, and expand alternative telecommunication technologies if they promise to increase redundancy and/or reliability, including free-space optics (which transmits data with light rather than physical connections), power line communications (which transmits data over electric power lines), satellite phones, and ham radio;*
- *Develop high-speed broadband and wireless services in low-density rural areas to increase redundancy and diversity in vulnerable remote regions”*

Source<sup>12</sup>: (New York Climate Change Science Clearinghouse 2018)

<sup>12</sup> Text in Box 7 is reproduced verbatim from (New York Climate Change Science Clearinghouse 2018).

## 5.CPEIR for Economic Development

### 5.1 Rural Development

#### Rural Development Sector Specific Climate Vulnerabilities

**With about 70% of the population living in rural regions** (Global CAD 2018), **rural development is key driver of Timor-Leste's overall progress.** The 783km coastline of Timor-Leste is mostly settled by rural population who rely on fishing and farming for their livelihoods (Global CAD 2018). High dependency of the poverty-stricken rural population on natural resources is the key factor explaining ecosystems degradation in Timor-Leste (Global CAD 2018).

**Integrated Vulnerability Assessments (IVA) - conducted by the National Directorate of Climate Change (NDCC) since 2018 at the village level – has been a rich source of information on localized impacts of climate change.** The assessments identify vulnerable livelihood assets through an exploration of communities' lived experiences to detect priority actions for climate change adaptation. Early results suggest that scarcity of water is the key problem troubling most villages. Villagers find themselves vulnerable to the economic, environmental, and infrastructural damage caused by floods and landslides, and do not have access to resources required to adapt to the effects of climate change (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

#### Rural Development Sector Specific Climate Policy Response

**There is no standalone policy that exclusively addresses rural development in the context of climate change.** However, given the largely rural nature of Timor-Leste, climate policies in most other domains directly and indirectly stand to contribute to climate-responsive rural development.

#### Rural Development Sector Specific Institutional Arrangement for Climate Action

**General Directorate of Administration and Finance under the Ministry of Public Works is responsible for coordinating and managing cooperative services.** Within this mandate, the directorate can tap into the role of cooperatives in adapting the rural community to the impacts of climate change.

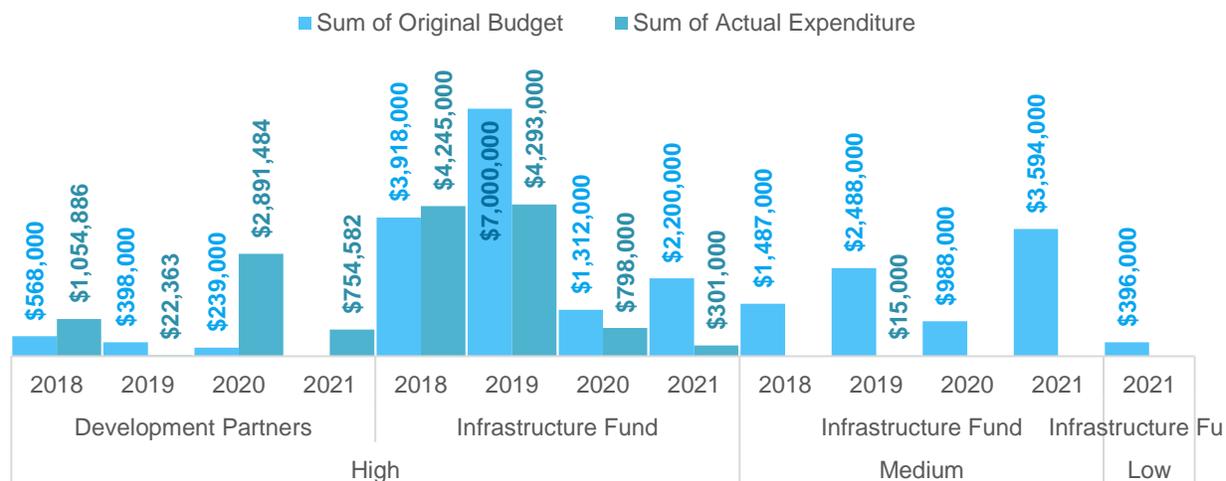
**TABLE 16: RURAL DEVELOPMENT SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Rural Development Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Public Works</b>	General Directorate of Administration and Finance	Coordinate and manage Cooperative Services (Potential climate action as part of Activity 5100110)

### Rural Development Sector Specific Climate Public Expenditure

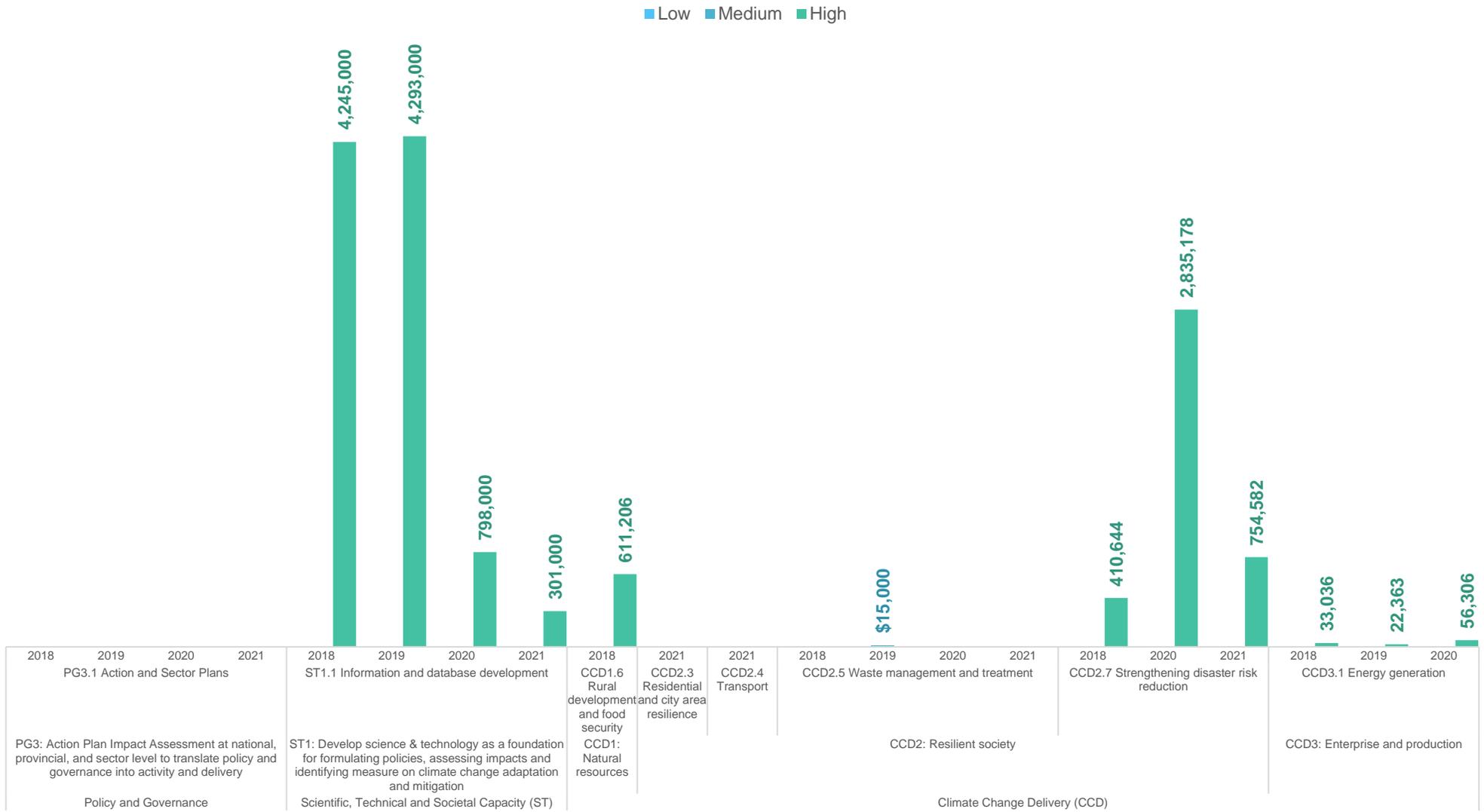
**Infrastructure Fund has been a key source of financing for climate adaptive rural and urban development.** In the absence of disaggregated data on climate relevant programs and projects that specifically benefit rural regions, allocation and expenditure data for climate relevant initiatives that contribute to the climate adaptive development of both rural and urban areas is discussed together in this section. Between 2018 – 2021, all of the allocations from Infrastructure Fund for highly climate relevant rural and urban development sector specific project has been directed to conducting LiDAR survey and spatial mapping of Timor-Leste. The other highly climate relevant rural and urban development sector specific projects within this timeframe have been financed by development partners. These include: Promoting Sustainable Bio-energy Production from Biomass, Global Climate Change Alliance (GCCA) Programme, Disaster Risk Reduction – Building Community Resilience in Timor-Leste, Maloa Urban Resilience Initiative, and Safeguarding Rural Communities and their Physical Assets from Climate Induced Disasters (Figure 24, Annex 1 Table 9).

**Infrastructure Fund also made allocations for three different rural and urban development sector specific initiatives with medium climate relevance between 2018-2021.** These budgetary allocations, however, were grossly underspent. Against an allocational of \$8,557,000 for three different projects on developing National Urban Planning, Municipal Spatial Planning, and Solid Waste Management in Dili, only \$15,000 was spent in 2019 for the Dili solid waste management project. The problem of non-utilized budget allocations was also true for Infrastructure Fund financed projects of this category with low climate relevance (Figure 24, Annex 1 Table 9).



**FIGURE 24: RURAL DEVELOPMENT SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**

**According to CPEIR typology, most of the climate relevant actual expenditure for rural and urban development sector has been directed towards developing climate relevant database.** Expenditures for conducting LiDAR survey and spatial mapping falls in this category. Expenditures for disaster risk reduction has been spent through the projects titled Disaster Risk Reduction – Building Community Resilience in Timor-Leste, Maloa Urban Resilience Initiative, and Safeguarding Rural Communities and their Physical Assets from Climate Induced Disasters (Figure 25, Annex 2 Table 9).



**FIGURE 25: ACTUAL EXPENDITURE ON RURAL DEVELOPMENT SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Rural Development Sector

- **Reasons behind poor utilization of budgets allocated out of Infrastructure Fund for rural and urban development sector specific climate relevant projects should be investigated.**

Poor utilization of resources allocated from the Infrastructure Fund for rural and urban development sector specific climate relevant projects has been spotted as a problem in each of the four fiscal years reviewed in this document (Figure 24). The reason behind such poor utilization of funds allocated out of Infrastructure Fund should be investigated and based on the findings corrective actions should be taken.

- **General Directorate of Administration and Finance under the Ministry of Public Works should be sensitized about the potential use of cooperatives to increase rural resilience against climate change.**

General Directorate of Administration and Finance under the Ministry of Public Works is responsible for coordinating and managing cooperative services in Timor-Leste. Within this mandate, the directorate can tap into the role of cooperatives in adapting the rural community to the impacts of climate change (relevant example in Box 10).

### BOX 10: INTERNATIONAL EXAMPLES OF USING COOPERATIVES TO INCREASE RURAL RESILIENCE AGAINST CLIMATE CHANGE

*“In Bangladesh, over 60,000 agricultural cooperatives with 2.3 million farm family members have been registered and are helping to prepare their members to cope with natural disasters and climate change more effectively, by raising public awareness, building cyclone shelters, providing immediate relief and rehabilitation in case of need, and promoting alternative farm and non-farm income opportunities. In India, about 107,000 primary agricultural cooperatives are reaching out to farmers in more than half a million villages, encompassing over 70 percent of all rural households. In India’s southern Tamil Nadu state, Sri Lanka, and Thailand, agricultural cooperatives were in the forefront of immediate relief and rehabilitation efforts after the December 2004 Indian Ocean Tsunami. In the Philippines, the Government Cooperative Development Authority (CDA) involves cooperatives in its environmental protection and conservation program and is helping to develop the capacities of cooperatives to respond to natural disasters, including by involving them in planning and programming to prepare for disasters. In Thailand, a national program is being developed to build the capacities of over 4,000 agricultural cooperatives to manage natural resources more effectively.”*

Source<sup>13</sup>: (FAO of the United Nations 2008)

## 5.2 Agriculture

### Agriculture Sector Specific Climate Vulnerabilities

**Timor-Leste’s National Disaster Risk Management Policy noted that:**

<sup>13</sup> Text in Box 10 is reproduced verbatim from (FAO of the United Nations 2008).

*“The country is prone to drought and other hazards affecting food security in vulnerable communities. Every year a large proportion of the population suffers from food shortage for a number of months. Assistance may be needed in some communities when localized food shortages result from a complex range of factors, including climatological changes. Recurrent food security issues need to be addressed through both risk reduction measures and contingency planning.”* (Ministry of Social Solidarity, GoTL 2008)

**With about 64% of population depending on agriculture for earning their livelihood, climate vulnerability of agricultural sector poses an existential threat to Timor-Leste.** Problems facing the sector is already varied – including but not limited to – low yields, underdeveloped farming technology, low crop diversity etc. (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019), and they stand to be aggravated by the impacts of climate change. Climate models portend that rainfall and temperature both are likely to rise in the coming years, threatening both livelihood of smallholder farmers and food security of population in general (The World Bank 2019). Climate change is also expected to cause inflation of food commodity prices in international market, making the poor – who are net buyers of food items– more food insecure (The World Bank 2019).

## **Agriculture Sector Specific Climate Policy Response**

**Agriculture is recognized as one of the four priority sector shaping Timor-Leste’s response to climate change in the nation’s Intended Nationally Determined Contributions (INDC)** (Government of Timor-Leste 2016). In its INDC, Timor-Leste identified the following measures as possible mitigation and adaptation-oriented climate policy responses related to the agriculture sector:

- Promoting use of biogas and bio-compost,
- Decreasing slash and burn agricultural practices,
- Promoting integrated agroforestry and watershed management,
- Ensuring sustainable land management,
- Putting plans and legal support in place to ensure sustainable farming of and food supply for livestock.

**Climate awareness is also reflected in Ministry of Agriculture and Fisheries Strategic Plan 2021-2025.** The plan recognizes vulnerability of the agriculture sector to rises in temperature and water shortages, and sets goal to support research on climate resilient sustainable agricultural practices. Mainstreaming climate awareness in the planning and budgeting processes of the ministry is also prioritized in the plan (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019).

**The National Adaptation Programme of Action on Climate Change, and the National Food and Nutrition Security Policy 2016 both recognize food security of the nation is susceptible to the impacts of climate change.** Both of these plans highlight the importance of increasing sustainable food production and making the food systems climate resilient. The National Food and Nutrition Security Policy 2016, in particular, set a target of increasing dietary diversity and increasing fish consumption to 15 kgs per capita by 2020 (Fanzo, et al. 2017)

## Agriculture Sector Specific Institutional Arrangement for Climate Action

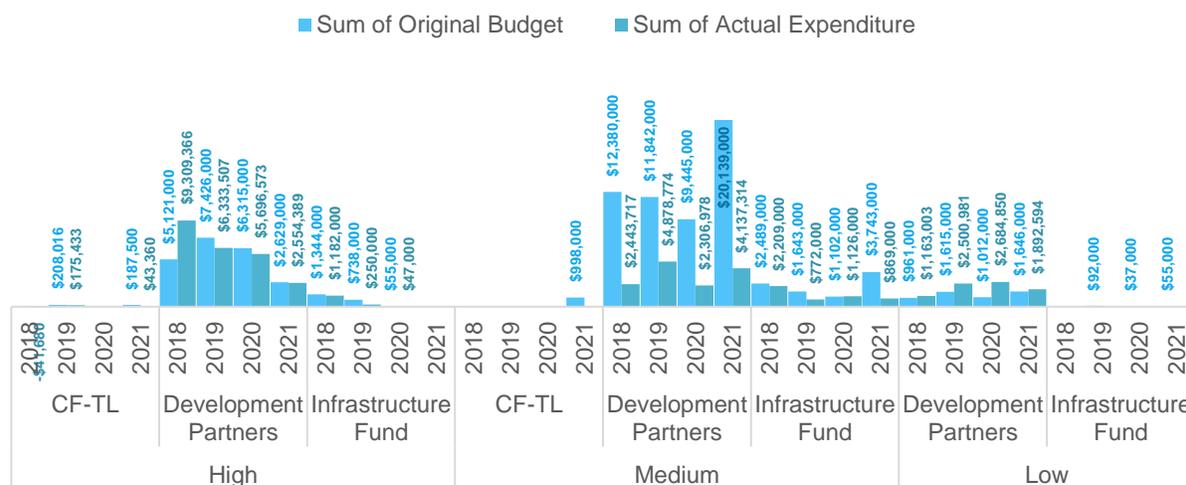
**Ministry of Agriculture and Fisheries is the key ministry responsible for agriculture sector.** Four divisions under the ministry have necessary mandates for taking actions for increasing climate resilience of the sector. National Directorate of Research and Statistics already has an activity defined for conducting adaptation research for local crops, National Directorate of Irrigation and Water Use Management is already responsible for constructing protection barriers and standardizing Agricultural Zones, and National Directorate of Livestock is already tasked with using and conserving agricultural waste, and producing organic fertilizers and biogas. In addition, National Directorate of Agricultural Extension (DNEA) can take climate relevant actions in future by providing climate adaptation training to agricultural extension personnel and farmers, and by developing and sharing climate sensitive agricultural technical information.

**TABLE 17: AGRICULTURE SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Agriculture Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Agriculture and Fisheries</b>	National Directorate of Research and Statistics	Adaptation research to crops of rice, maize, sweet potatoes, cassava, peanuts, wheat and other local crops (Currently done as Activity 5740101)
	National Directorate of Agricultural Extension (DNEA)	Training for agricultural extension personnel (Potential climate action as part of Activity 5740202)
		Capacity building for farmers groups (GA) and Farmers Groups Associations (AGA) (Potential climate action as part of Activity 5740203)
		Develop and produce agricultural technical information (Potential climate action as part of Activity 5740206)
	National Directorate of Irrigation and Water Use Management	Protection barrier construction and standardization of Agricultural Zone of Bebui-Uatulari (Secured and protected the Agricultural Zone of Bebui from the impact of floods) (Currently done as Activity 5740331)
National Directorate of Livestock	Use and conservation of agricultural waste (Currently done as Activity 5740602)	
	Production of organic fertilizers and biogas (Currently done as Activity 5740603)	

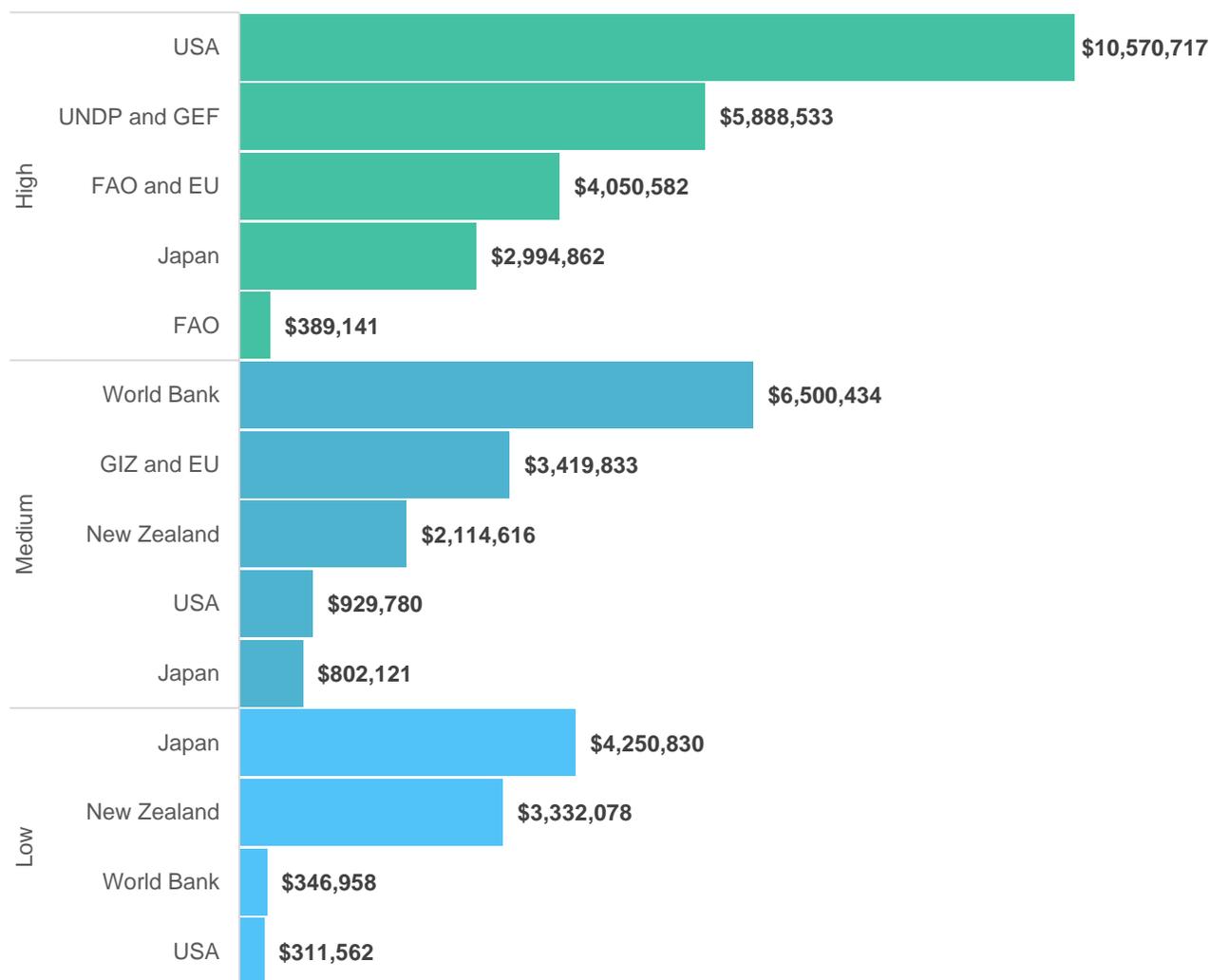
## Agriculture Sector Specific Climate Public Expenditure

**Between 2018-2021, most of the agriculture sector specific climate public expenditure has been financed by development partners.** Highly climate relevant agriculture sector specific financing received from development partners have a satisfactory record of actual expenditure, but development partners financed agriculture sector specific budgetary commitments with medium climate relevance have a poor record of being actually spent. Development partner financed highly climate relevant agriculture sector specific projects undertaken during the studied timeframe include: Avansa Agrikultura Project (\$9,965,530 actual expenditure financed by USA); Building Shoreline Resilience in Timor-Leste (\$5,511,359 actual expenditure financed by UNDP and GEF); Food and Nutrition Security Impact, Resilience, Sustainability and Transformation (FIRST) Policy Assistance (\$944,427 actual expenditure financed by EU and FAO); Implementation of the Arafura and Timor Seas Regional and National Strategic Action Programme (\$377,174 actual expenditure financed by UNDP and GEF); Pro-Resilience Timor-Leste (\$3,106,155 actual expenditure financed by FAO and EU), Support for Developing and Implementing Community Forestry (\$289,000 actual expenditure financed by FAO); Advancing the Agriculture Sector DRM/CCA Agenda (\$100,141 financed by FAO); Project for Community-Based Sustainable Natural Resource Management (\$2,994,862 financed by Japan); and Enhancing Food and Nutrition Security and Reducing Disaster Risk through the Promotion of Conservation Agriculture (\$605,187 financed by USA) (Figure 26, Annex 1 Table 10).



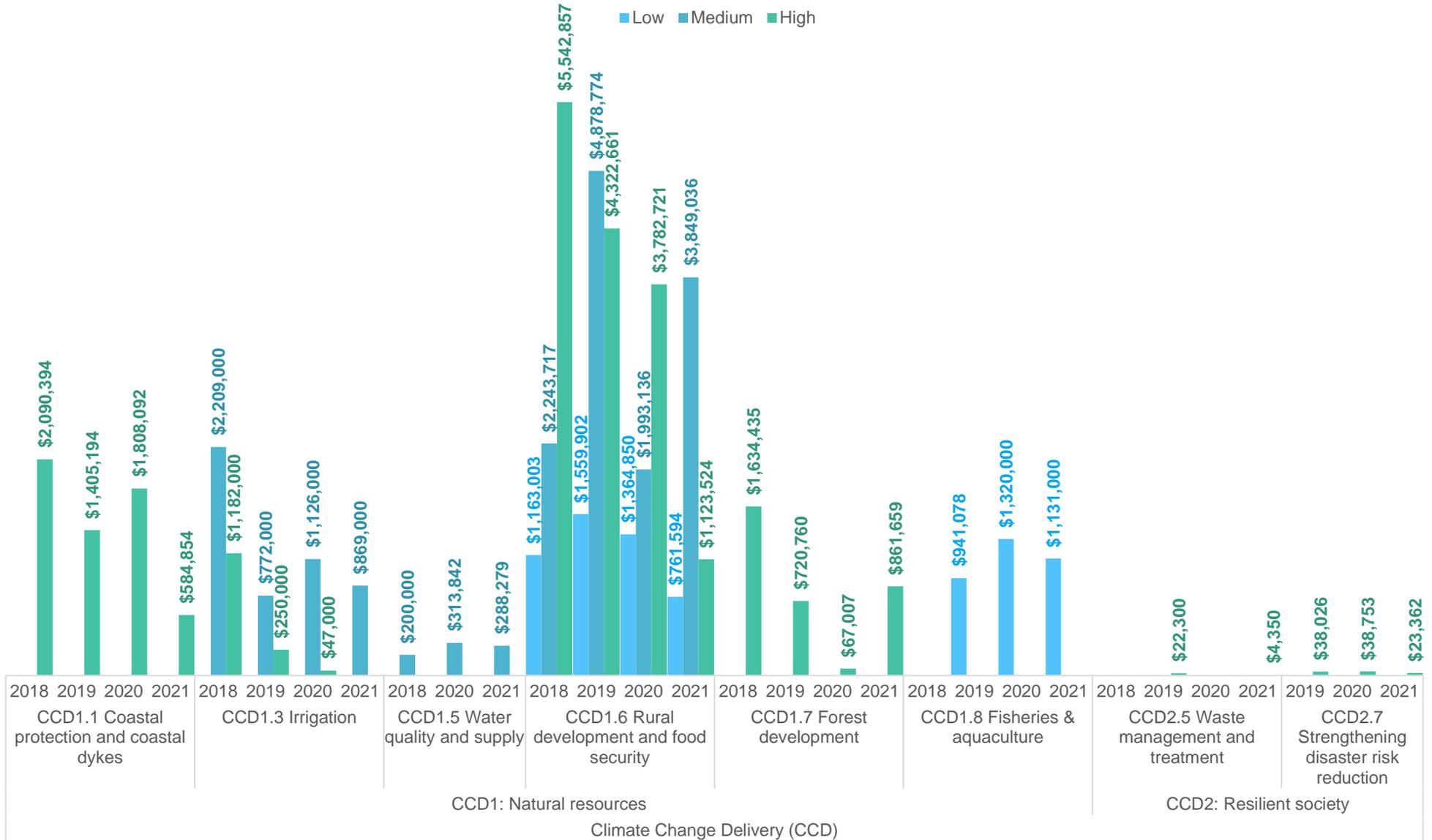
**FIGURE 26: AGRICULTURE SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**

**USA has been the source of the highest amount (\$10,570,717) of highly climate relevant agriculture sector specific climate investment.** USA has provided \$9,965,530 of this funding for Avansa Agrikultura Project that aims to support sustainable and inclusive transformation of the agriculture sector in Timor-Leste. UNDP and GEF have been collaborating to implement two projects titled 'Building Shoreline Resilience in Timor-Leste' and 'Implementation of the Arafura and Timor Seas Regional and National Strategic Action Programme': the first of which aims to introduce nature-based solutions for coastal protection, while the second is focused on restoration, conservation and sustainable management of marine-coastal ecosystems. The other highly climate relevant agriculture sector specific projects financed by FAO, EU, and Japan are also focused on increasing sustainability and disaster resilience of Timorese agricultural system (Figure 27).



**FIGURE 27: CLIMATE RELEVANT AGRICULTURE SECTOR SPECIFIC EXPENDITURE FINANCED BY DEVELOPMENT PARTNERS BETWEEN 2018-2021**

Going by the CPEIR typology, most of agriculture sector specific climate public expenditure has been directed towards enhancing rural development and food security. This has followed expenditures for coastal protection and coastal dykes, and forest development. Expenditure on strengthening irrigation facilities has been declining over the years, and expenditure on fisheries and aquaculture has totaled \$3,392,078 between 2018-2021 (Annex 2 Table 10). Climate relevance of these expenditures is color coded in Figure 28 (Annex 2 Table 10).



**FIGURE 28: ACTUAL EXPENDITURE ON AGRICULTURE SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Agriculture Sector

- **Proactive measures should be taken by Ministry of Agriculture and Fisheries to attract more investment from development partners for highly climate relevant agriculture sector specific projects.**

While development partners have been the biggest source of agriculture sector specific climate public finance between 2018-2021, funding received from them have been on a declining trend (Figure 26). It is important that Ministry of Agriculture and Fisheries takes proactive steps to design proposal for projects that address the climate vulnerabilities of the agriculture sector of Timor-Leste, and approach development partners for funding them.

- **CF-TL funded budgetary allocations to Ministry of Agriculture and Fisheries for undertaking climate relevant activities should be augmented, and their capacity to utilize the allotted budget should be strengthened.**

While the Ministry of Agriculture and Fisheries has several climate relevant activities defined in its annual action plan, budgetary allocations for undertaking them has been limited (Annex 1 Table 10). Our review reveals that for highly climate relevant activities like adaptation research for crops (Activity 5740101), production of organic fertilizer and biogas (Activity 5740603), and use and conservation of agricultural waste (Activity 5740602) there was no CF-TL funded allocations in 2018 and 2020. In 2019 and 2021, a total of \$395,516 were allocated to these activities (revised allocations \$345,516), but actual expenditure stood at only \$218,793. For medium climate relevant agriculture sector specific activity like protection barrier construction and standardization of agricultural zone of Bebui-Uatulari (Activity 5740331) \$998,000 were allocated out of CF-TL in 2021 (revised allocation \$904,828) but none of it has been spent. As such, it is not sufficient to only increase CF-TL funded budgetary allocations to Ministry of Agriculture and Fisheries for undertaking climate relevant activities, but their capacity to utilize the allotted budget should also be strengthened.

- **National Directorate of Agricultural Extension (DNEA) should be sensitized about the climate relevant roles they have to play, and key performance indicators (KPIs) for measuring their climate action relevant performance should be instated.**

National Directorate of Agricultural Extension (DNEA) has the potential to deliver on important climate relevant roles by providing climate adaptation training to agricultural extension personnel (as part of Activity 5740202), building capacity of farmers' groups and Farmers Groups Associations for adapting agricultural practicing to climate change (as part of Activity 5740203), and developing and sharing climate sensitive agricultural technical information (as part of Activity 5740206). National Directorate of Agricultural Extension (DNEA) should be sensitized about these climate relevant roles they have to play, and key performance indicators (KPIs) for measuring their climate action relevant performance should be instated.

## 5.3 Petroleum

### Petroleum Sector Specific Climate Vulnerabilities

**Climate change threatens both demand and supply sides of petroleum sector of Timor-Leste.** On one side, petroleum sector infrastructure is susceptible to speedy depreciation and damage due to climate change induced extreme weather events (Katopodis and Sfetsos 2019), while on the other, climate policies of different nations are expected to stress demand for petroleum products itself. According to Cruz (2010), natural hazards are usually ignored when risk assessment and emergency response plans for offshore petroleum plants are devised, leaving operations the petroleum sector highly vulnerable to climate induced disasters (Cruz 2010).

**Physical threat to the petroleum infrastructure aside, climate change also poses economic threat to the sector's very existence.** Timorese economy is heavily reliant on petroleum, and petroleum extraction is an economic activity that is heavily reliant on funding from international sources. When Timor-Leste earned its freedom in 2002, the expectation was that its revenue from petroleum reserves would support its economy for ages (Grigg 2021). It has, however, turned out to be an unfeasible case. The Bayu-Undan fields are almost depleted, and financing for the Greater Sunrise fields is getting increasingly harder to secure, as in a bid to achieve net zero emissions by 2050, major commercial lenders are staying away from funding new projects in the petroleum sector (Grigg 2021).

### Petroleum Sector Specific Climate Policy Response

**In its INDC, Timor-Leste identified the following measure as possible mitigation and adaptation-oriented climate policy response related to the oil and gas sector:**

- Improve early warning systems, data collection capacities, and safety of equipment to protect offshore oil and gas related infrastructure from strong waves and other climate induced disasters (Government of Timor-Leste 2016).

### Petroleum Sector Specific Institutional Arrangement for Climate Action

**Ministry of Petroleum and Minerals is responsible for overseeing the petroleum sector.** Office of the Minister of Petroleum and Minerals has the mandate for developing legislative proposals in the oil, mineral, and environmental sectors.

**TABLE 18: PETROLEUM SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Petroleum Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
Ministry of Petroleum and Minerals	Office of the Minister	Development of legislative proposal in the oil, mineral and environmental sectors (Potential climate action as part of Activity 4010101)

## Petroleum Sector Specific Climate Public Expenditure

Our review did not detect any climate relevant expenditure for the petroleum sector of Timor-Leste.

## Recommendations for Strengthening Climate Response in Petroleum Sector

- **Urgent actions need to be taken to reduce Timor-Leste’s reliance on petroleum revenue and to diversify its economic base.**

While the physical vulnerabilities of Timor-Leste’s offshore petroleum infrastructure to the impacts of climate change is real, the graver concern is the economic threat that climate change poses to the sector’s very existence. Climate change will reduce both demand for petroleum products by different nations around the world with strong climate commitments, and possibility of securing funding to develop Greater Sunrise fields in coming days. As such there is an urgent need to reduce Timor-Leste’s reliance on petroleum revenue and to diversify its economic base.

## 5.4 Tourism

### Tourism Sector Specific Climate Vulnerabilities

**Tourism sector – a budding candidate for livelihood diversification in Timor-Leste – is not immune to the threat of climate change.** Escalating risk of climate induced extreme weather events and deterioration of coastal ecosystems threaten development potential of tourism sector in Timor-Leste (Kapoor, et al. 2021). Climate change, on one hand, threatens the tourism sector related built infrastructure with extreme weather events, and on the other, endangers the tourist attracting natural resources by causing coral bleaching and erosion of beaches (Chemonics International Inc. 2021).

### Tourism Sector Specific Climate Policy Response

**National Adaptation Plan 2019 identified two different programs composed of several activities as adaptation priority for the tourism sector.** These programs are: (1) supporting climate-resilient tourism resources in Timor-Leste, and (2) strengthening the market for climate-resilient nature-based tourism (Secretariat of State for Environment and Coordinating Minister for

Economic Affairs of GoTL 2019). The different activities enlisted as part of these programs are presented in Box 11.

### BOX 11: TOURISM SECTOR SPECIFIC ADAPTATION PROGRAMS AS PER NATIONAL ADAPTATION PLAN 2019

Tourism Sector specific Adaptation Programmes as per National Adaptation Plan 2019	
<p><b>“Program 1: Supporting Climate-Resilient Tourism Resources in Timor-Leste”</b></p> <ul style="list-style-type: none"> <li>• <i>“Support assessments to find out the potential climate change stress and loss and damage potential on the tourism sector and the tourism sector on the natural resources.</i></li> <li>• <i>Introduce fees to utilize ecosystem-based tourism hotspots as one of the options to generate income stream contributing towards the Climate Fund/Trust Fund to support better management and sustainable development of the area.</i></li> <li>• <i>Work with the National Directorate for Pollution Control and Environmental Impacts to ensure that any potentially damaging tourism enterprise, conducts a full-scale EIA and mitigates all the negative impacts on the environment.</i></li> <li>• <i>Identify areas that are biodiversity hotspots or the areas that are or could be vulnerable to over-exploitation by the tourism sector and introduce zonation and prohibition mechanisms.”</i></li> </ul>	<p><b>“Program 2: Strengthening the Market for Climate-Resilient Nature-Based Tourism”</b></p> <ul style="list-style-type: none"> <li>• <i>“Promote eco-tourism with adequate environmental management aspects integrated into the eco-tourism approach. (NCCP).</i></li> <li>• <i>Help the Tourism sector identify and integrate climate resilience measures to reduce the adverse impacts in the sector.</i></li> <li>• <i>Identify the potential environmentally friendly tourism promotional aspects such as biodiversity hotspots, wilderness, water-based sports and introduce adaptation strategies that can be linked to biodiversity and natural resource protection to enhance sustainable tourism development.</i></li> <li>• <i>Identify and promote tourism aspects that have low degrading impact on the nature yet can contribute significantly to the local and rural livelihood, such as wilderness photography, home-stay options, etc.</i></li> <li>• <i>Document and map knowledge, knowhow and capacity of the tourism stakeholders that can be adopted to the Timorese context, which would enhance the adaptive capacity of the tourism sector to climate stress.</i></li> <li>• <i>Making conscious and consistent efforts to promote sustainable and conservation agriculture with minimal negative impact on the environment, and to avoid the agricultural activities in the climate risk prone areas to Minimize the loss and damage in the agricultural sector.</i></li> <li>• <i>Reforest degraded lands and provide a sustainable alternative fuel wood source to areas with high vulnerability.”</i></li> </ul>

Source<sup>14</sup>: (Secretariat of State for Environment and Coordinating Minister for Economic Affairs of GoTL 2019)

<sup>14</sup> Text in Box 11 is reproduced verbatim from National Adaptation Plan 2019.

## Tourism Sector Specific Institutional Arrangement for Climate Action

**Ministry of Tourism, Commerce – Trade and Industry has the primary responsibility of developing tourism sector in Timor-Leste.** Three divisions under this ministry have specific mandates that enable them to take climate actions relevant to this sector – General Directorate of Tourism has the mandate to develop climate responsive tourism policy and strategic plans, National Directorate of Entrepreneur, Activities and Touristic Products has the mandate to support the private sector to provide environmentally sustainable tourism products and services, and National Directorate of Tourism Development has the mandate to develop green tourism infrastructure, establish green Integrated Tourism Development Zones, and campaign for sustainable tourism practices.

**Ministry of Agriculture and Fisheries is specifically responsible for promoting ecotourism activities in the country.** National Directorate of Natural Conservation – a division under the Ministry of Agriculture and Fisheries – is tasked with developing and maintaining ecotourism potentials in the protected areas of the small island developing state.

**TABLE 19: TOURISM SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Tourism Sector Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
Ministry of Agriculture and Fisheries	National Directorate of Natural Conservation	Develop and maintenance of ecotourism potentials in protected areas (Currently done as Activity 5760114)
	General Directorate of Tourism	Climate responsive tourism policy and strategic plan development (Potential climate action as part of Activity 5310201)
	National Directorate of Entrepreneur, Activities and Touristic Products	Support the private sector to provide environmentally sustainable tourism services (Potential climate action as part of Activity 5310111)
Ministry of Tourism, Commerce – Trade and Industry	National Directorate of Tourism Development	Develop green tourism infrastructure (Potential climate action as part of Activity 5340103)
		Establish green Integrated Tourism Development Zones (ZDTI) (Potential climate action as part of Activity 5310601)
		Awareness raising campaign for sustainable tourism practices (Potential climate action as part of Activity 5320105)

## Tourism Sector Specific Climate Public Expenditure

Development partners have been the exclusive source of all tourism sector specific climate public expenditure between 2018-2021. All of such expenditures, however, had only medium climate relevance. \$9,648,129 of the \$11,210,461 financing from development partners have come from USA. This money has been disbursed through USAID’s Tourism for All Project. The other \$1,562,332 have been financed by New Zealand for a project titled ‘Timor-Leste Tourism Development Activity’. Funding for this project from New Zealand has been received in 2019 and 2021 within the studied timeframe. USAID has provided funding for the Tourism for All Project in each of the last four fiscal years, but the funding value has widely fluctuated. Only \$6,500 were budgeted for developing and maintaining ecotourism potentials in the protected areas in 2021 out of CF-TL, but this allocation was actually not spent (Figure 29, Annex 1 Table 11).

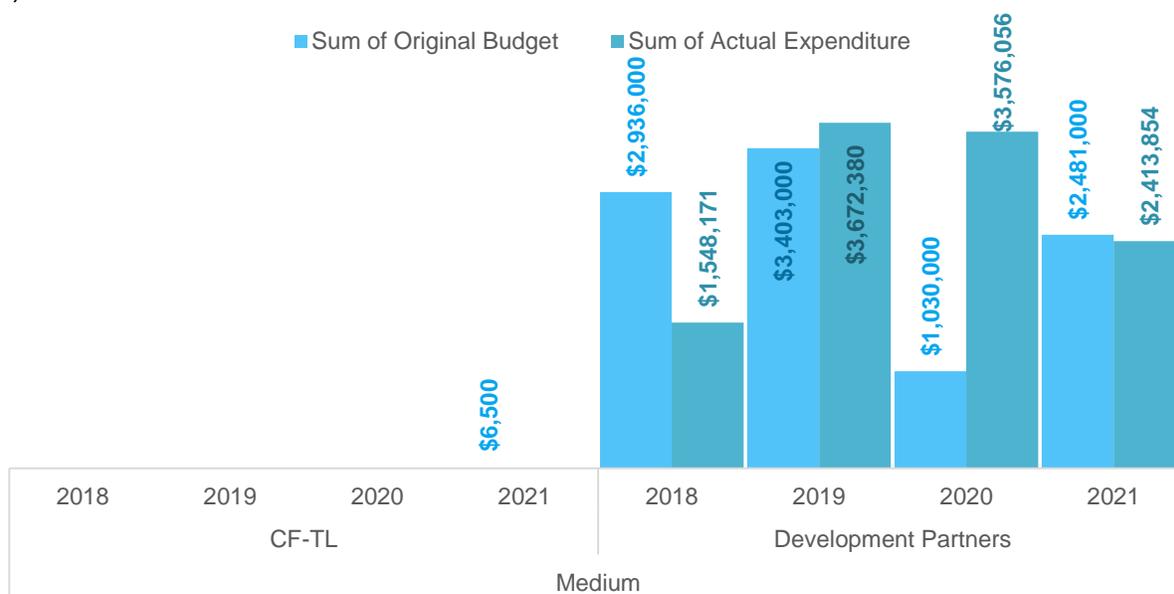


FIGURE 29: TOURISM SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE

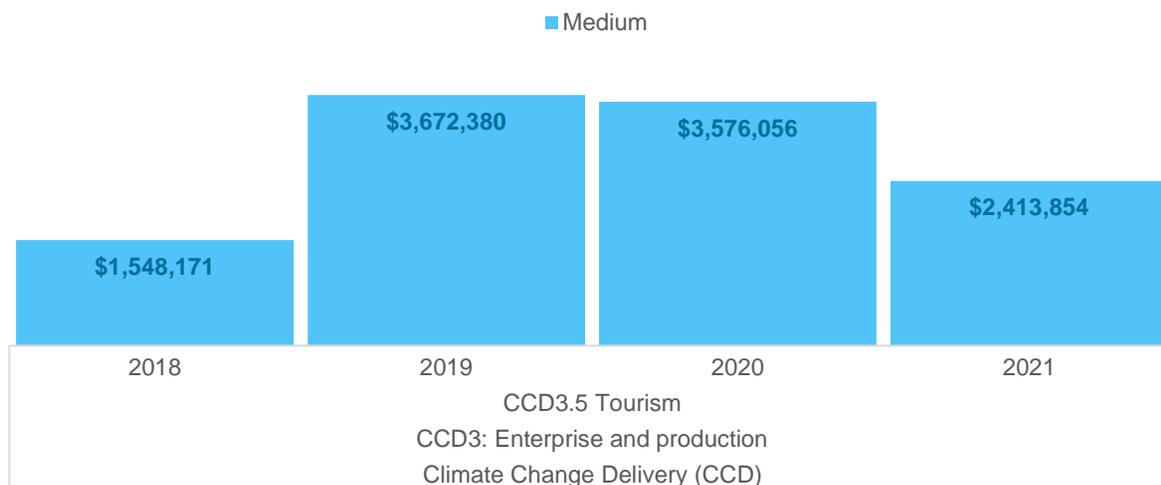


FIGURE 30: ACTUAL EXPENDITURE ON TOURISM SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY

## Recommendations for Strengthening Climate Response in Tourism Sector

- **National Directorate of Natural Conservation of the Ministry of Agriculture and Fisheries should be empowered with capacity building training and appropriate allocations out of CF-TL to develop and maintain ecotourism potentials of protected areas of Timor-Leste.**

The National Directorate of Natural Conservation was allocated only \$6,500 for developing and maintaining ecotourism potentials of the protected areas (Activity 5760114) in 2021 out of CF-TL, but this allocation was actually not spent. The directorate should be empowered with capacity building training and appropriate allocations to actually perform the activity as defined in its annual action plan.

- **Relevant divisions under the Ministry of Tourism, Commerce – Trade and Industry should be sensitized about the role they have to play in promoting climate sensitive tourism in Timor-Leste, and key performance indicators (KPIs) for measuring their climate action relevant performance should be ordained.**

General Directorate of Tourism; National Directorate of Entrepreneur, Activities and Touristic Products; and National Directorate of Tourism Development – all of which are divisions under the Ministry of Tourism, Commerce – Trade and Industry – should be sensitised about the role they have to play in promoting climate sensitive tourism in Timor-Leste as detailed in Table 19 of this document. Further, key performance indicators (KPIs) for measuring their climate action relevant performance should be placed in the annual action plan of Ministry of Tourism, Commerce – Trade and Industry.

- **To capitalise on the economic potential of Tourism sector for promoting livelihood diversification in Timor-Leste while protecting its local environment and scarce natural resources ‘high value, low volume’ tourism policy should be adopted.**

Tourism sector is a budding candidate for livelihood diversification in Timor-Leste, but the sector should be strategically developed in a way that ensures the local environment, protected areas, and scarce natural resources are not stressed. Towards that end a policy to promote ‘high value, low volume’ tourism should be adopted (relevant example in Box 12)

### BOX 12: BHUTANESE EXAMPLE OF PROMOTING HIGH VALUE, LOW VOLUME TOURISM

#### *“Features of Bhutan’s high value, low volume tourism*

*The policy of HVLV is operationalized through numerous practices and regulations that go far beyond tourism.*

#### **1) Bhutan’s tourism vision**

*The Tourism Policy of the Kingdom of Bhutan 2020 aims to make Bhutan a green, sustainable, inclusive, viable, and high-value tourism destination.*

*The vision pertains to high value, low volume tourism wherein Bhutan manages tourism and tourism development based on the quality of visitation, not the quantity of visitors. This quality over quantity approach serves to enhance the travel experience while sustaining the character of our place and maximizing tourism’s benefit to local communities.*

Assisting the Royal Government in achieving this national vision is a non-governmental organization, the Bhutan Sustainable Tourism Society (BSTS). BSTS is represented at the nation's apex decision-making body for tourism.

### **2) Sustainable development fee (SDF) and minimum daily package rate (MDPR)**

Reflecting the sustainability objective of tourism promotion and development, every tourist pays a Sustainable Development Fee (SDF), which the Royal Government reinvests into the preservation and conservation of nature and culture. The present SDF is USD 65 per person per day.

All tours to Bhutan are pre-paid and pre-arranged. This requires advance payment of the minimum package tour cost, after which the tour is confirmed with the issuance of a tourist visa. The minimum cost, known as the 'minimum daily package rate' (MDPR), is prescribed by the Royal Government. It is at present USD 250 per tourist per day, which includes the aforementioned SDF.

### **3) Minimum tourism service standards**

All tours have to be arranged by a licensed Bhutanese tour operator. With the balance of the MDPR (USD 185), the chosen licensed Bhutanese tour operator must provide the following minimum services to the tourist:

- Minimum three-star accommodation in a Government-certified hotel or village homestay. (Tourists who trek must stay in designated campsites mainly to control the senseless abuse of nature and the environment, notwithstanding the assurance of the safety of tourists.)
- All meals (breakfast, lunch, and dinner).
- Ground transportation with a private chauffeur.
- A licensed English-speaking Bhutanese tour guide must accompany every tourist; to assist and guide the tourist as necessary.

### **4) Carbon-neutrality, tree planting, organic farming, et cetera**

Bhutan has pledged to remain a carbon-neutral economy and has rolled out a series of measures to achieve that, including:

- Subsidizing electricity in rural communities so as to reduce wood burning and other dirtier fuel substitutes. A fixed quota of electricity is provided free to households in rural areas.
- Tax-free imports of electric cars.
- A 'green tax' on automobiles that use fossil fuels.

Source<sup>15</sup>: (Dhradhul 2021)

## **5.5 Private Sector Investment**

### **Private Sector Specific Climate Vulnerabilities**

Like most SIDS, Timor-Leste has low levels of industrial activities and limited resource base. Private sector of the country is dominated by informal micro and small enterprises - and given their limited capital base - such businesses are critically vulnerable to climate change induced natural and economic threats. With revenue from oil fields predicted to decline over the coming decade, it is high time Timor-Leste focuses on economic diversification, particularly

<sup>15</sup> Text in Box 7 is reproduced verbatim from (Dhradhul 2021).

focusing on developing the key sectors of agriculture, fisheries, and tourism. Climate vulnerabilities of these sectors in question have already been discussed earlier in this document.

## Private Sector Specific Climate Policy Response

**There is not policy position on helping the private sector adapt to or using them to mitigate the impact of climate change.** However, climate policies regarding key sectors like agriculture, fisheries, and tourism are also relevant for those sector specific private enterprises.

## Private Sector Specific Institutional Arrangement for Climate Action

**Ministry of Tourism, Commerce – Trade and Industry, Promotion Agency for Investment and Export of Timor-Leste, and Institute for Support to Business Development have necessary mandates that enable them to play a critical role in climate proofing the private sector of Timor-Leste.** Three directorates under the Ministry of Tourism, Commerce – Trade and Industry are particularly relevant: National Directorate of Industrial Development can use its mandate to establish green industrial centers, National Directorate of Manufacturing Industry can use its mandate to provide technical support and training for green manufacturing industry, National Directorate of Support and Development of Micro, Small and Medium Enterprise can use its mandate to offer support for development of green MSMEs.

**Promotion Agency for Investment and Export of Timor-Leste, popularly known as TradeInvest Timor-Leste, also has the potential to make important contributions.** The agency can facilitate investment growth in key sectors, advocate government for necessary policy support, and mainstream climate sensitive gender concerns in the operations of private sector businesses.

**Finally, Institute for Support to Business Development can facilitate green diversification of the private sector by providing knowledge support.** The institute can train green entrepreneurs, conduct market research for green products and services, develop innovative ideas, provide business incubation support, and offer 'business matchmaking' services for designing green value chains.

**TABLE 20: PRIVATE SECTOR SPECIFIC INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Private Sector Development Specific Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Tourism, Commerce – Trade and Industry</b>	National Directorate of Industrial Development	Establish green industrial centers (Potential climate action as part of Activity 5870701)
	National Directorate of Manufacturing Industry	Provide technical support and training for green manufacturing industry (Potential climate action as part of Activity 5870804)
	National Directorate of Support and Development of Micro, Small and Medium Enterprise	Support development of green MSMEs (Potential climate action as part of Activity 5870805)
<b>Promotion Agency for Investment and Export of Timor-Leste, I.P. (TradeInvest)</b>	TradeInvest Timor-Leste	Facilitate investment growth in 4 key sectors (Potential climate action as part of Activity 3860102)
		Advocate government for greater role and policy change (Potential climate action as part of Activity 3860301)
		Gender Mainstreaming (Potential climate action as part of Activity 5100111)
<b>Institute for Support to Business Development</b>	Institute for Support to Business Development	Training and Consulting Assistance to Entrepreneurs- Trained beneficiaries will receive consultancy assistance provided to entrepreneurs (Potential climate action as part of Activity 4260101)
		Conducting a market study- Reports of potential products studies in municipalities produced (Potential climate action as part of Activity 4260102)
		Develop Innovative Business Idea (Potential climate action as part of Activity 4260103)
		Business Incubation Support (Potential climate action as part of Activity 4260104)
		Promote the business relationship (Business Matchmaking) (Potential climate action as part of Activity 4260105)

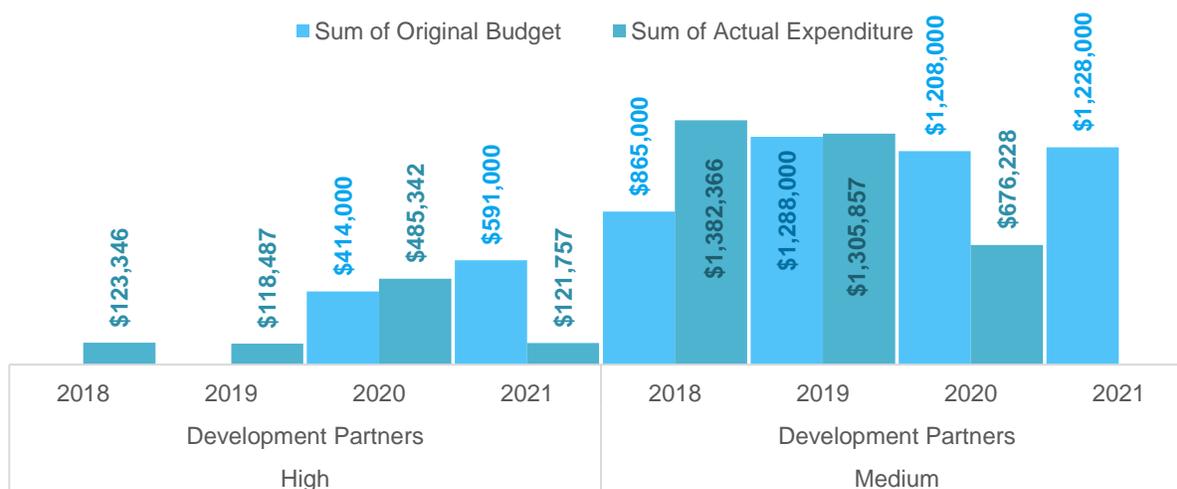
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Research, Planning and development  
(Potential climate action as part of Activity  
5100106)

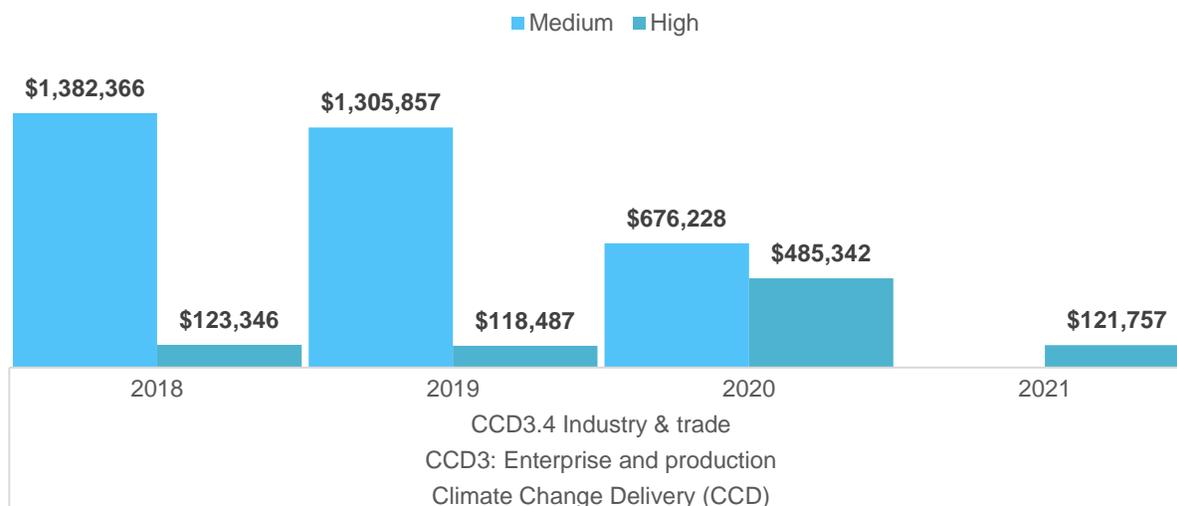
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## Private Sector Specific Climate Public Expenditure

Between 2018-2021 all the private sector specific climate public expenditure has been financed by development partners. \$848,932 of this financing had high climate relevance, while \$3,364,451 had medium relevance to climate change. Financing for the highly climate relevant activities funded private sector led recycling ventures, while financing for activities with medium climate relevance funded development of maritime related industries in Timor-Leste. Financing for the recycling related ventures came from EU (\$351,124), Japan (\$123,346), and USA (\$374,462); while funding for development of the maritime related industries came from German Cooperation Funds and GIZ (\$3,364,452) (Figure 31, Annex 1 Table 12).



**FIGURE 31: PRIVATE SECTOR SPECIFIC CLIMATE PUBLIC EXPENDITURE**



**FIGURE 32: ACTUAL EXPENDITURE ON PRIVATE SECTOR SPECIFIC CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Climate Response in Private Sector

- Policy positions should be adopted and actions should be taken for both helping the private sector adapt to and using them to mitigate the impact of climate change.**

When we talk about private sector in Timor-Leste, we are essentially referring to a sector dominated by informal micro and small enterprises with limited capital base. Such businesses are critically vulnerable to the impacts of climate change, and so actions should be taken for helping them adapt to the impacts of climate change. Support to micro and small enterprises adapt to the impact of climate change could be provided in the form of helping them access weather forecasts and early warnings for natural disasters (UNDP 2015b), offering them microcredit and microinsurance, providing them training to conduct climate adaptive business practices etc. Using private sector enterprises – particularly medium and large size businesses – mitigate the impact of climate change could include deployment of market-based policy instruments that reward them with tax rebates or subsidies for adopting green business models (like sustainable ecotourism) or marketing green products and services (like marketing solar panels, energy efficient electronics, climate resilient seeds etc.).

## 6. Coordinating Ministries and Inter-ministerial Commissions

### Cross-Sectoral Climate Policy Response

**The importance of national institutional capacity development for fighting the impacts of climate change is recognized in Timor-Leste's INDC.** In its INDC, Timor-Leste identified the following measures as possible mitigation and adaptation-oriented climate policy responses related to the national institutional capacity development for climate change:

- Empowering cross-sectoral national climate change committee with more mandates,
- Setting up a Climate Change Unit to support national policies and program development,
- Supporting non-governmental institutions become climate resilient,
- Adopting a National Climate Change Strategy and Action Plan,
- Supporting regional capacity development for climate change adaptation,
- Developing National Hydro-Meteorological Department's capacity to process and publicize data related to climate change (Government of Timor-Leste 2016).

### Cross-Sectoral Institutional Arrangement for Climate Action

**Along with the sector specific ministries and secretariats, several coordinating ministries and inter-ministerial commissions have been playing climate relevant roles in Timor-Leste.** Ministry of Public Works; Ministry of Finance; Ministry of Tourism, Commerce – Trade and Industry; Ministry of Foreign Affairs and Cooperation; and Office of the Prime Minister are particularly relevant in this domain. Ministry of Tourism, Commerce – Trade and Industry has been the focal point for GCF Readiness Support for Timor-Leste; while Ministry of Finance, Ministry of Foreign Affairs and Cooperation, and Office of the Prime Minister have been co-responsible for Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste.

**A Working Group on Climate Change (WG-CC) has been established in 2017 under the National Directorate for Climate Change (NDCC).** The WG-CC is meant to facilitate collaboration between NDCC, Center of Climate Change and Biodiversity (CCCB), National Directorates within relevant ministries, and national and international NGOs whose work in Timor-Leste focus on climate change (Jornal da República 2017). NDCC is composed of three departments: Department of Multilateral Environmental Agreements, Department of Climate Change, and Department for Control of Ozone-Depleting Substances (Jornal da República 2017). The Center of Climate Change and Biodiversity (CCCB) has been established through collaboration between the Ministry of Tourism, Commerce – Trade and Industry and National University of Timor-Leste to conduct climate change related research for supporting the government in making policies backed by evidence (Government of Timor-Leste 2016).

**Ministry of Public Works - with its large portfolio of activities – has already been discussed to be responsible for climate actions in roads and bridges, and water and sanitation sectors.** The ministry also oversees a host of activities related to housing, construction, urban planning, and public works that have high relevance to climate change. Scope of embedding

climate action within the annual action plan of National Directorate of Housing, National Directorate of Urban Planning, Office of General Directorate for Housing and Urban Planning, National Directorate of Research and Public Works Development, National Directorate of Building / Construction is detailed in Table 21.

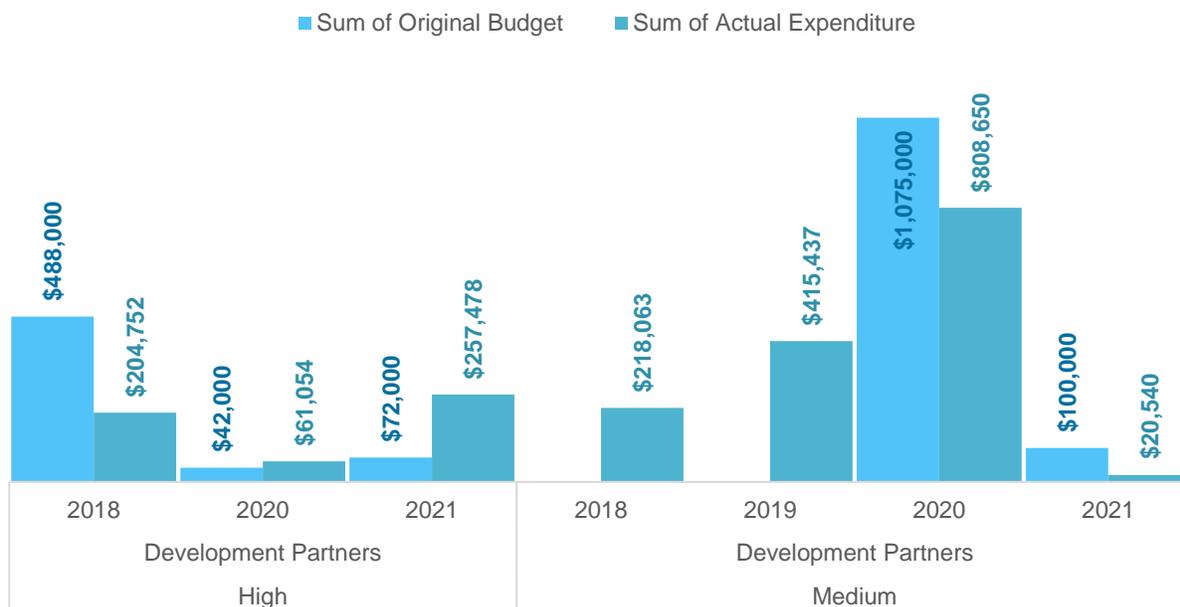
**TABLE 21: CROSS-SECTORAL INSTITUTIONAL ARRANGEMENT FOR CLIMATE ACTION**

Cross-Sectoral Institutional Arrangement for Climate Action		
Ministry / Secretariat	Division	Climate Action Relevant Mandate
<b>Ministry of Public Works</b>	National Directorate of Housing	Establishing, Socializing, Reformulating Three Legal Regimes and Law of Housing - Number of regulations and technical standard developed and approved the Law for Housing (Potential climate action as part of Activity 1370101)
	National Directorate of Urban Planning	Establishing, Socializing, Reformulating Three Legal Regimes, Planning the National Plan for Land Use (Territorial) Management and Law of Housing - Number of regulations and technical norms developed and approved (Potential climate action as part of Activity 1370301)
		Study and analysis through research and public consultation on Master Plan for Four (4) Municipalities (Potential climate action as part of Activity 1370302)
	Office of General Directorate for Housing and Urban Planning	Coordinate and manage housing and urban planning (Potential climate action as part of Activity 5100147)
	National Directorate of Research and Public Works Development	Designing, preparing and write regulations on engineering best practices (Potential climate action as part of Activity 5490201)
		Examine construction materials (Potential climate action as part of Activity 5490202)
		Conduct inspection on materials and construction (Potential climate action as part of Activity 5490203)
Scientific investigation on construction materials (Potential climate action as part of Activity 5490205)		
National Directorate of Building / Construction	Establish and develop Laws and Regulations of activities for buildings/constructions sector (Potential climate action as part of Activity 5490301)	

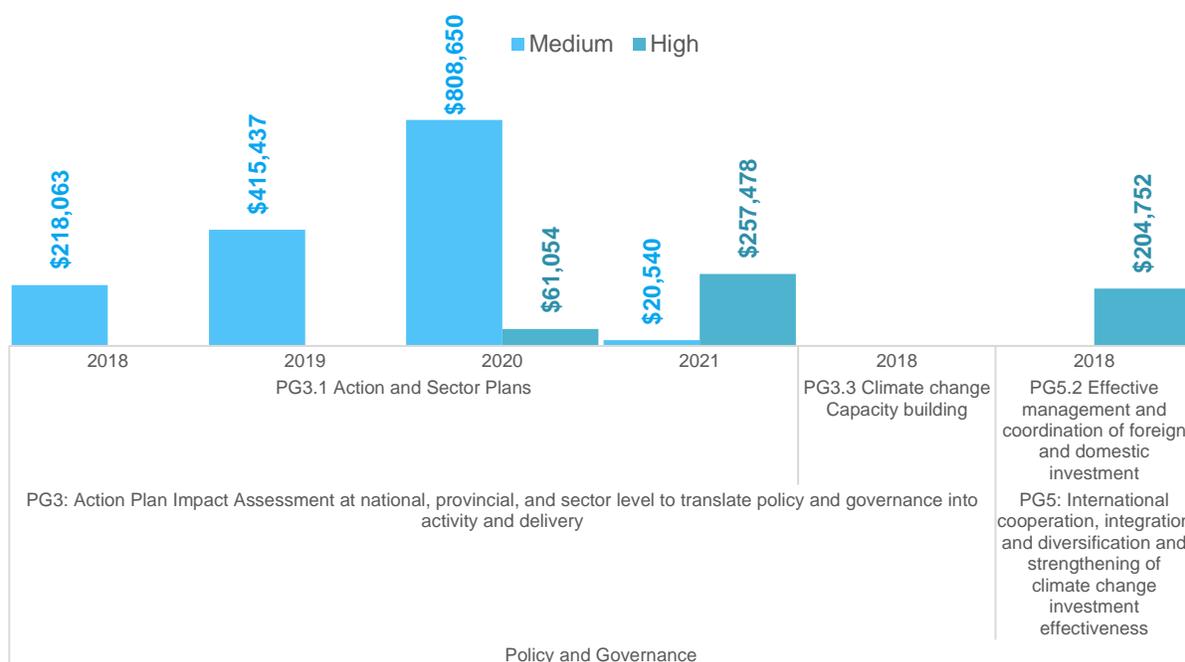
		Evaluate, supervise and audit the implementation of construction activities (Potential climate action as part of Activity 5490302)
		Coordinating, planning of constructions activities of private buildings and public sector constructions (Potential climate action as part of Activity 5490303)
		Control, approve and issue of permission for implementation of construction projects in areas of private building/constructions (Potential climate action as part of Activity 5490304)
<b>Ministry of Finance</b>	Executive Office	Strategic Development and Political Guidance (Potential climate action as part of Activity 5100108)
		Co-responsible for Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste
<b>Ministry of Tourism, Commerce – Trade and Industry</b>	-	Focal point for GCF Readiness Support
<b>Office of the Prime Minister</b>	-	Co-responsible for Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste
<b>Ministry of Foreign Affairs and Cooperation</b>	-	Co-responsible for Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste

## Cross-Sectoral Climate Public Expenditure

Between 2028-2021, a total of \$523,284 development partner financed highly climate relevant public funds has been disbursed as cross-sectoral climate public expenditure. \$204,752 of this funding has been used for GCF Readiness Support for Timor-Leste and the remaining \$318,532 has supported the project on Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste (Figure 33, Annex 1 Table 13). As per CPEIR typology, all of this expenditure has been used for strengthening climate relevant policy and governance (Figure 34, Annex 2 Table 13).



**FIGURE 33: CROSS-SECTORAL CLIMATE PUBLIC EXPENDITURE**



**FIGURE 34: ACTUAL EXPENDITURE ON CROSS-SECTORAL CLIMATE ACTION BY CPEIR TYPOLOGY**

## Recommendations for Strengthening Cross-Sectoral Climate Response

- Institutional arrangement for realizing the cross-sectoral national capacity development for fighting the impacts of climate change as stipulated in Timor-Leste’s INDC should be ascertained.**

While the INDC identifies several measures for strengthening cross-sectoral response to climate change, no institutional arrangement for implementing the measures has been

specified. This creates the risk of no institution being accountable for realizing cross-sectoral climate actions like supporting non-governmental institutions become climate resilient, adopting a National Climate Change Strategy and Action Plan, or supporting regional capacity development for climate change adaptation. To ensure actual implementation of the cross-sectoral national capacity development measures as stipulated in INDC for fighting the impacts of climate change, specific institutional arrangement should be ascertained.

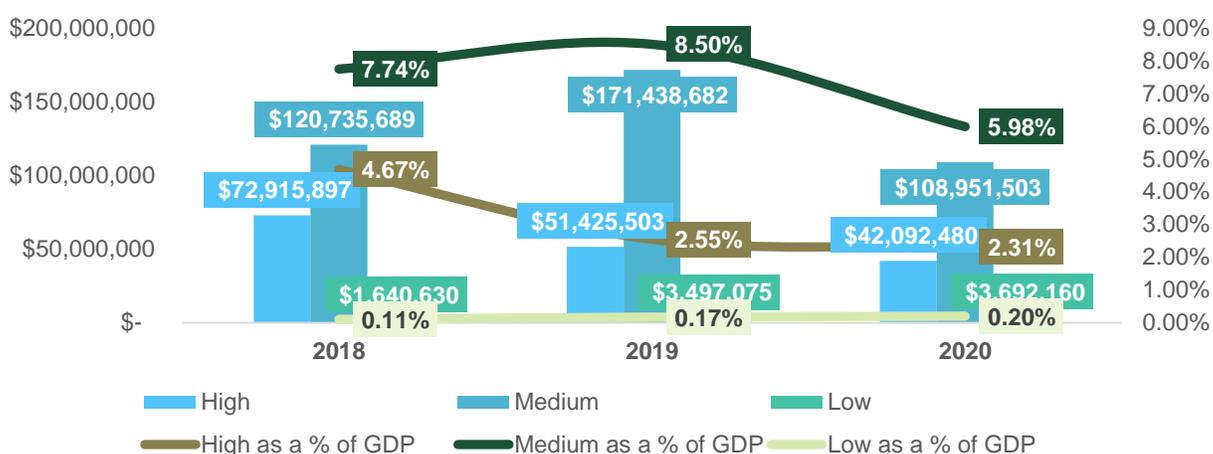
- **Relevant divisions under the Ministry of Public Works should be sensitized about the role they have to play in developing climate resilient housing, general infrastructure, urban planning, and public works; and key performance indicators (KPIs) for measuring their climate action relevant performance should be sited.**

National Directorate of Housing, National Directorate of Urban Planning, Office of General Directorate for Housing and Urban Planning, National Directorate of Research and Public Works Development, National Directorate of Building / Construction – all of which are divisions under the Ministry of Public Works – should be sensitized about the role they have to play in developing climate resilient housing, general infrastructure, urban planning, and public works in Timor-Leste as detailed in Table 21 of this document. Further, key performance indicators (KPIs) for measuring their climate action relevant performance should be sited in the annual action plan of Ministry of Public Works.

## 7. Synthesis of Findings and Way Ahead

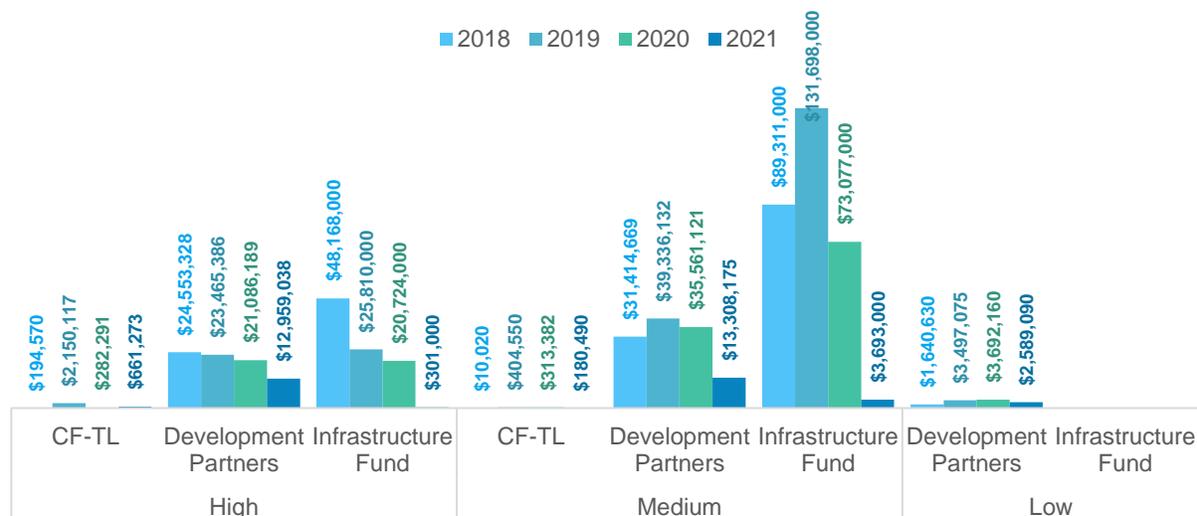
### 7.1 Synthesis of Findings

**Actual public expenditure on highly climate relevant programs and activities has been declining over the years.** In 2018, Timor-Leste spent 4.67% of its GDP in highly climate relevant programs and projects, but the percentage came down to 2.31% in 2020. Actual expenditure on programs and projects with medium climate relevance has been consistently higher than actual expenditure on highly climate relevant programs and projects in each of the three recent fiscal years (Figure 35).



**FIGURE 35: ACTUAL CLIMATE EXPENDITURE AS A SHARE OF GDP**

**Most of the climate relevant expenditure has been financed by internal resources through the Infrastructure Fund.** However, Infrastructure Fund financed highly climate relevant public expenditure has rapidly declined over the years. In 2018, \$48,168,000 was spent out of Infrastructure Fund on highly climate relevant projects, but the expenditure came down to \$20,724,000 in 2020. In 2021, highly climate relevant expenditure financed by Infrastructure Fund was only \$301,000. Development partner financed highly climate relevant public expenditure has also decreased over the studied timeframe, but at a slower rate; from a high of \$24,553,328 in 2018 it has come down to \$12,959,038 in 2021. CF-TL has accounted for a very minor share of climate public expenditure between 2018-2021 (Figure 36).



**FIGURE 36: CLIMATE PUBLIC EXPENDITURE BY CLIMATE RELEVANCE AND FUNDING SOURCES**

Roads and Bridges sector has received the highest amount of highly climate relevant public expenditure over the studied timeframe (\$103,854,420). This sector has been followed by agriculture (\$25,549,948), health (\$19,514,591), and urban and rural development (\$14,360,315) sectors in that order. In the most recent fiscal year highly climate relevant public expenditure in the social inclusion sector has experienced a sharp rise due to the relief activities in the aftermath of the devastating floods in April 2021. Highly climate relevant public expenditure in the environment sector has fluctuated between a high of \$3,272,507 in 2020 and a low of \$254,176 in 2018 in the studied timeframe. Highly climate relevant public expenditure for all key sectors has demonstrated a declining trend (Figure 37).

Ministry of Public Works (\$100,869,665) has been recipient of the highest amount of highly climate relevant public expenditure followed by Ministry of Agriculture and Fisheries (\$26,449,276), and Ministry of Health (\$19,514,591). Actual expenditure of highly climate relevant public expenditure by all three of these ministries has gradually decreased every year in the studied timeframe (Figure 38).

According to CPEIR typology most of the highly climate relevant public expenditure in the last four fiscal years has been directed towards climate change delivery schemes (\$168,911,050). \$10,103,751 of the highly climate relevant public expenditure has been spent for developing scientific, technical, and societal capacity related to climate change, and \$1,340,390 has been spent for strengthening climate policy and governance (Figure 39). Most of the climate change delivery schemes have been related to roads and bridges, followed by agriculture and health (Figure 40).

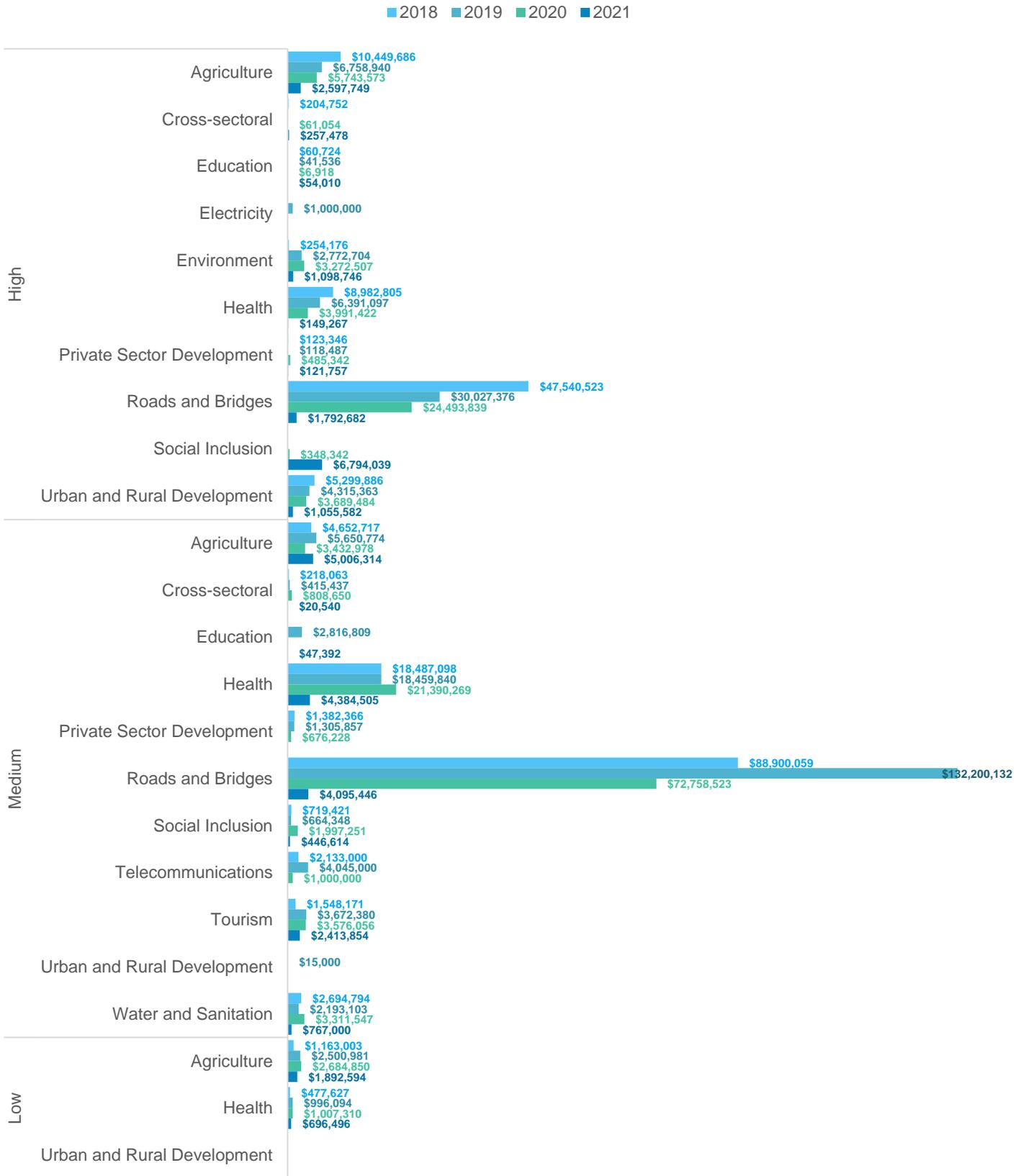


FIGURE 37: CLIMATE PUBLIC EXPENDITURE BY CLIMATE RELEVANCE AND SECTOR

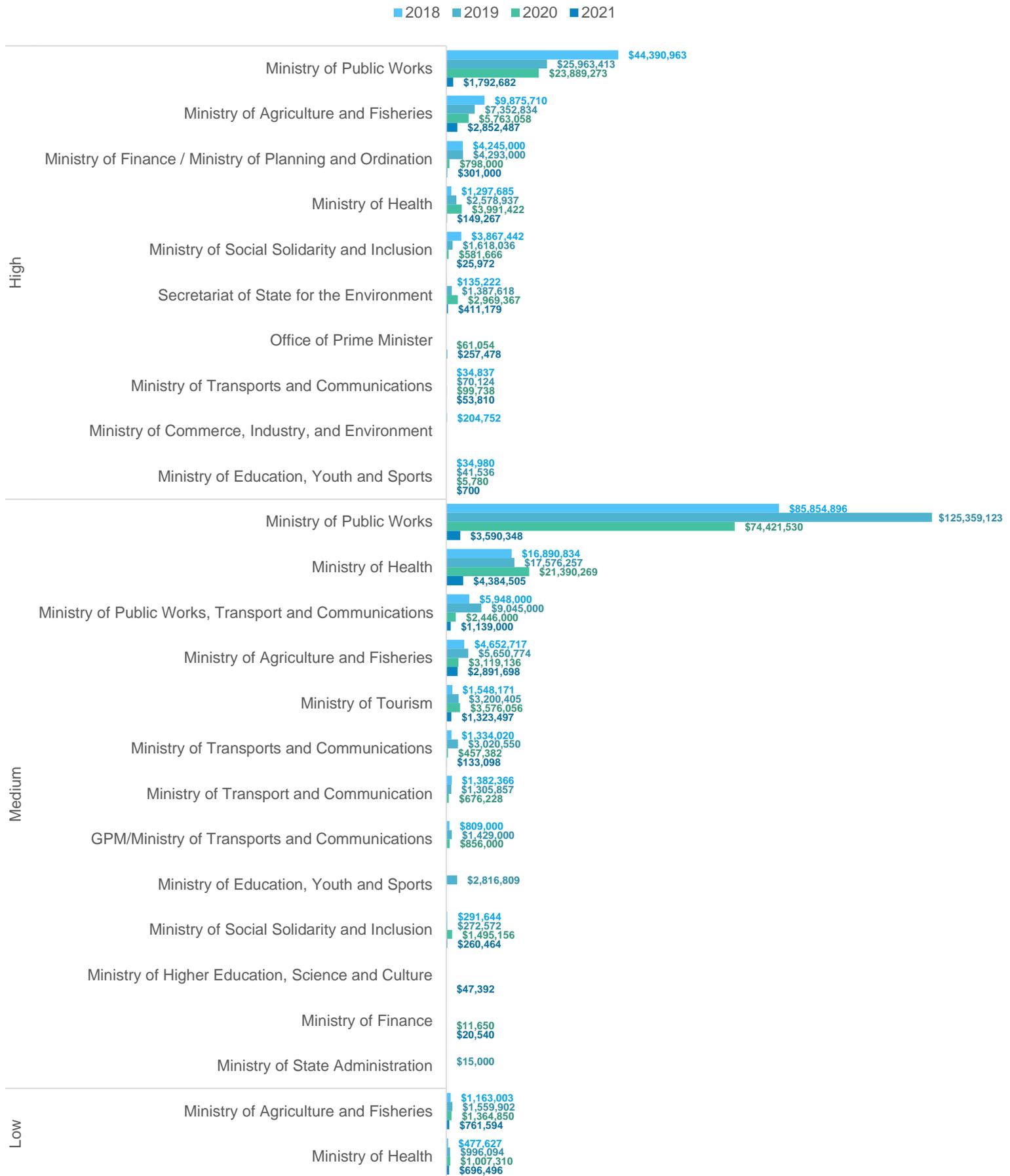


FIGURE 38: CLIMATE PUBLIC EXPENDITURE BY CLIMATE RELEVANCE AND MINISTRY/ SECRETARIAT

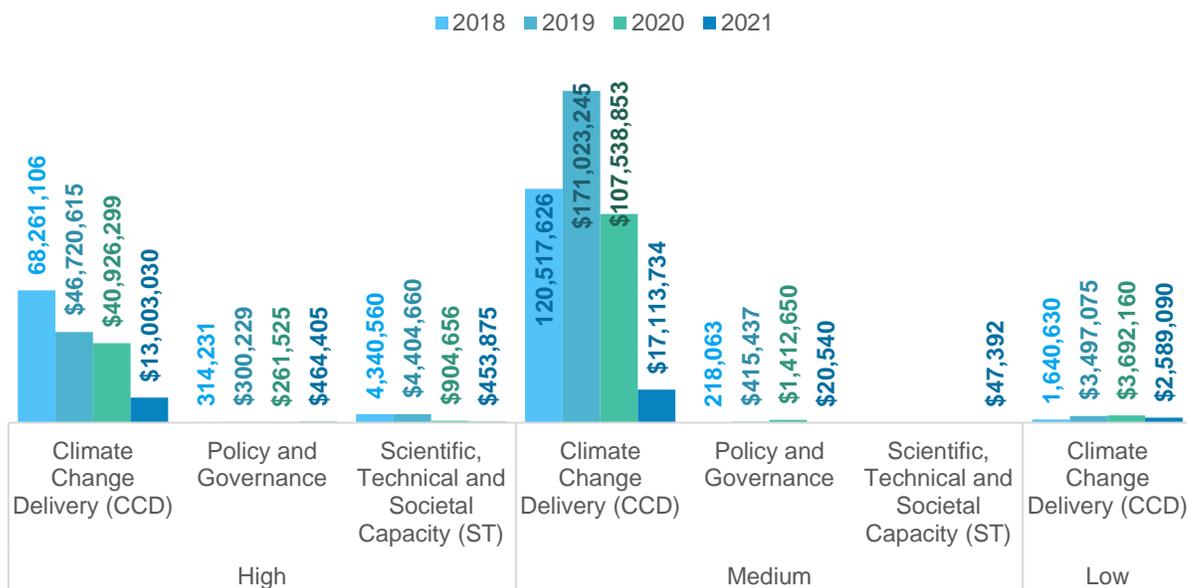


FIGURE 39: CLIMATE PUBLIC EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

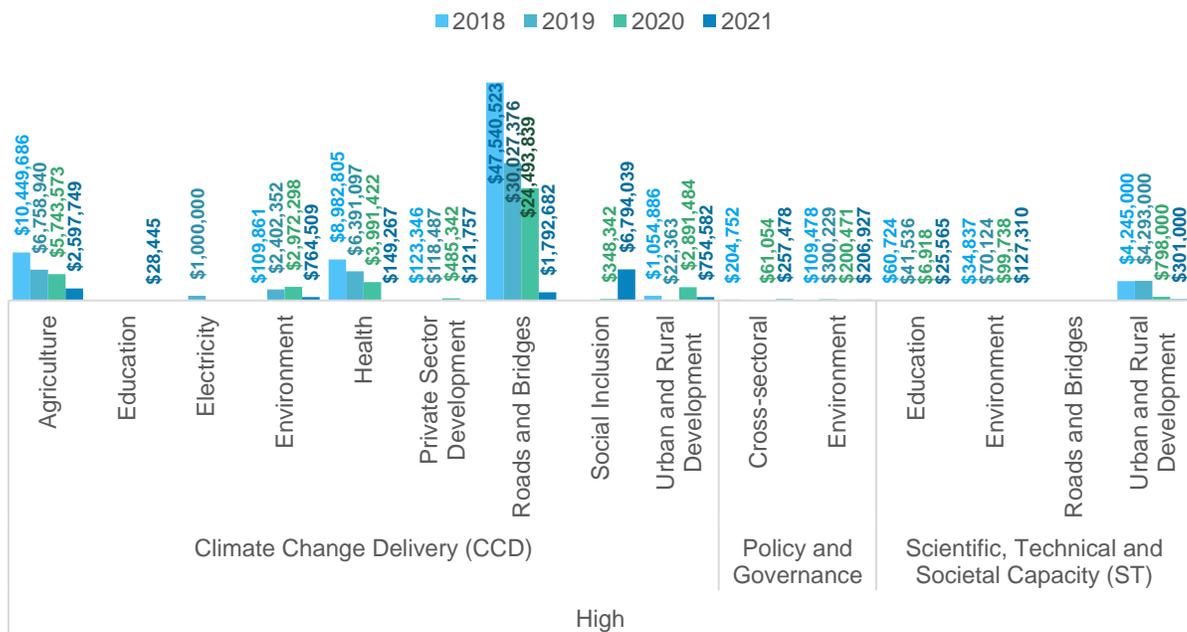


FIGURE 40: HIGHLY CLIMATE RELEVANT PUBLIC EXPENDITURE BY CPEIR TYPOLOGY AND SECTOR

## 7.2 Way Ahead

**Securing the people, peace, and prosperity of Timor-Leste from the impacts of climate change would require economy wide effort for climate adaptation of all 16 sectors critical for its development.** In chapters 3 to 6 of this report, we have offered specific recommendations for strengthening climate response at sectoral level. We conclude this report by putting forward some overarching recommendations relevant at national scale:

- **Localized research for understanding the climate vulnerabilities of educational ecosystem, culture and heritage, and sea ports of Timor-Leste should be undertaken.**  
Our review revealed lack of required research for contextualizing the climate vulnerabilities of educational ecosystem, culture and heritage, and sea ports of Timor-Leste. As such, there is inadequate awareness and climate policy response in these domains. It is important that localized research for understanding the climate vulnerabilities of educational ecosystem, culture and heritage, and sea ports of Timor-Leste is undertaken, so that evidence backed climate policy response and climate action plan can be formulated.
- **In devising climate policy response for service sectors like education and health, systems thinking approach should be adopted.**  
The current climate policy responses for education and health sectors do not address the whole range of climate vulnerabilities of the sectors in question. For example, while importance of adapting healthcare services to the impacts of climate change is widely recognized in policy documents, the importance of designing healthcare infrastructure and auxiliary services to be climate induced disaster resilient is not addressed. Similarly, while the roles of education sector in equipping students with knowledge about climate change and in producing climate relevant research are emphasized, infrastructural vulnerability of educational institutions to climate induced disasters or potential reduction in learning capabilities caused by hotter climate are not underlined. As such, in devising climate policy response for service sectors like education and health, systems thinking approach should be adopted, so that climate vulnerabilities of all constituents of such systems and their interrelationships are duly noted and addressed.
- **Investments should be made for developing scientific, technical, and societal capacity to tackle the impacts of climate change by collecting and disseminating data on the impact of climate change at sectoral level.**  
Classification of the climate public expenditure data by CPEIR typology revealed that in the last four fiscal years only 5.6% (\$10,103,751) of total highly climate relevant public expenditure has been spent towards developing scientific, technical, and societal capacity to tackle the impacts of climate change. Our analysis further suggests that lack of data on the impacts of climate change at sectoral level is a major impediment towards planning and implementing sector specific climate actions. For example, there is no data on damage to WASH infrastructure caused by climate induced disasters, or number of school days children miss attending classes in the aftermath of climatic events. As such, it is important that investments are made for developing scientific, technical, and societal capacity to tackle the impacts of climate change by collecting and disseminating data on the impacts of climate change at sectoral level, so that well planned sector specific climate actions can be taken.

- **Budgetary allocations for line ministries should match the climate policies adopted.**  
 A recurrent finding in our review has been that inadequate budgetary allocations are made to implement the climate policies adopted by the government. For example, although biodiversity conservation is identified as a national priority in National Biodiversity Strategy and Action Plan, no actual expenditure was directed towards it in the studied timeframe. Again, in spite of the policy attention awarded to adapting the water and sanitation sector to the impacts of climate change, all the water and sanitation sector specific climate public expenditure between 2018-2021 had only medium climate relevance. This means, climate proofing the water and sanitation infrastructure has not been considered the primary objective in any sector specific programs or projects. It is imperative that initiatives are taken to develop the capacity of line ministries to design programs and projects meant to realize the climate policies adopted by the government, and that budgetary allocations are made to implement them.
- **Policy positions with respect to climate should be embedded into the annual actions plans of institutions with relevant mandates, and key performance indicators (KPIs) for measuring their climate action relevant performance should be instituted.**  
 Throughout chapters 3 to 6, we have mapped institutions with the mandates to take climate actions at sectoral level and provided tables detailing how climate actions are already embedded into their annual actions plans, or can potentially be embedded into their annual action plans. Policy positions with respect to climate should be embedded into the annual actions plans of the institutions with relevant mandates following the entry points identified the tables<sup>16</sup>, and key performance indicators (KPIs) for measuring their climate action relevant performance should be instituted.
- **Climate change assessment and design for structural climate resilience should be made an integral component of all public investment management.**  
 Even though the Feasibility Study Guideline (FSG) for Infrastructure Fund financed projects published by the Major Projects Secretariat (MPS) already includes requirements regarding climate and disaster survey (Major Projects Secretariat, Infrastructure Fund 2020) , according to the 2018 PEFA Assessment it cannot be confirmed that if findings of such surveys actually impact final selection of projects (The World Bank 2020). The climate change assessment and design for structural climate resilience pursued for the PNLIA expansion project sets an excellent example of how climate risks should be assessed and adaptive measures should be adopted while investing on any infrastructural development project. Such climate change assessment should be made an integral part of all public investment management, and necessary measures for improving the technical capacity of all the stakeholders involved in design, approval, implementation, and monitoring of capital investment projects to carry and evaluate such assessments should be taken.
- **Investments should be made to mitigate the impacts of climate induced natural disasters to lessen losses in the aftermath of climatic events.**  
 Natural disasters can't be prevented, but actions can be taken to increase the social, economic, and infrastructural resilience against them. Our analysis reveals that only 6.9% (\$12,514,630) of the highly climate relevant public expenditure in the last four fiscal years

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<sup>16</sup> Table no. 4, 5, 7, 9 to 21.

were directed towards building resilience and pre-disaster preparedness. Such investments should be increased so that damages caused by natural disasters can be lessened.

- **Climate budget tagging should be introduced to collect and disseminate data on climate public expenditure at sectoral and national level.**

While most of the climate relevant expenditure has been financed by the Infrastructure Fund over the last four fiscal years, our analysis shows a rapid decline in Infrastructure Fund financed highly climate relevant public expenditure over the years. In 2018, \$48,168,000 was spent out of Infrastructure Fund on highly climate relevant projects, but the expenditure came down to \$20,724,000 in 2020. Development partner financed highly climate relevant public expenditure has also decreased over the studied timeframe, and CF-TL has accounted for a very minor share of climate public expenditure between 2018-2021. Such unplanned and declining allocations to tackle the impacts of climate change threatens implementation of National Adaptation Plan, INDC, and other climate relevant policy documents. It is recommended that climate budget tagging should be introduced to collect and disseminate data on climate public expenditure at sectoral and national level, so that line ministries can plan their climate actions to implement the climate policies adopted by the government with intent.

- **Climate financing strategy should be developed at both sectoral and national levels.**

Our analysis reveals varying levels of climate awareness and climate public expenditure for the 16 key sectors important for Timor-Leste's development. Some sectors like culture and heritage, and sea ports management do not attract any climate relevant expenditure, while others like health, and tourism are completely reliant on development partners for climate finances. Some sectors are - and in future will also be - fully reliant on public expenditure on adaptation finance (e.g., education), while for others innovative funding solutions and public-private partnerships could be viable alternative source of climate finances (e.g., electricity). Market-based fiscal instruments are more suited for some sectors like tourism, and private sector investment, while non-market based fiscal tools are a better match for sectors like roads and bridges, water and sanitation, and health. The point is, there is no one size fits all solution for sourcing climate finance for all sectors of the economy, and thus climate financing strategy should be developed at sectoral level. The bigger point is, we need to address the elephant in the room and acknowledge that Timor-Leste's petroleum resources are practically depleted. The biggest threat climate change poses to Timor-Leste is making funding hard to secure for development of Greater Sunrise fields as in a bid to achieve net zero emissions by 2050, major investors are staying away from funding new projects in the petroleum sector. As such, there is an urgent need to develop a national level sustainable development goals financing strategy to help Timor-Leste transition into an era of reduced reliance on petroleum revenue and diversify its economic base.

## **Annex 1: Budgetary Allocations and Actual Expenditures by Climate Relevance, Ministry and Source of Fund**

**ANNEX 1 TABLE 1: EDUCATION SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>High Climate Relevance</b>	\$80,360	\$82,337	\$60,724	\$47,172	\$54,806	\$41,536	\$5,406	\$8,779	\$6,918	\$127,683	\$127,683	\$54,010
<b>Ministry of Education, Youth and Sport</b>	\$45,337	\$45,337	\$34,980	\$47,172	\$54,806	\$41,536	\$3,860	\$5,780	\$5,780	\$27,233	\$27,233	\$700
<b>CF-TL</b>	\$45,337	\$45,337	\$34,980	\$47,172	\$54,806	\$41,536	\$3,860	\$5,780	\$5,780	\$27,233	\$27,233	\$700
Agroecology based school garden programme	\$45,337	\$45,337	\$34,980	\$47,172	\$54,806	\$41,536	\$3,860	\$5,780	\$5,780	\$7,660	\$7,660	\$700
Establish an attractive environment to promote learning through school environmental activities										\$18,520	\$18,520	
Providing students emergency support against natural disasters										\$1,053	\$1,053	
<b>Secretariat of State for the Environment</b>	\$35,023	\$37,000	\$25,744				\$1,546	\$2,999	\$1,138	\$100,450	\$100,450	\$53,310
<b>CF-TL</b>	\$35,023	\$37,000	\$25,744				\$1,546	\$2,999	\$1,138	\$100,450	\$100,450	\$53,310
Coordination and development of national environmental education policy	\$35,023	\$37,000	\$25,744				\$1,546	\$2,999	\$1,138	\$43,102	\$43,102	\$24,865
Green School										\$57,348	\$57,348	\$28,445
<b>Medium Climate Relevance</b>						\$2,816,809	\$4,487,000			\$4,516,839	\$100,839	\$47,392
<b>Ministry of Education, Youth and Sport</b>						\$2,816,809	\$4,487,000			\$4,416,000		
<b>Development Partners</b>						\$2,816,809	\$4,487,000			\$4,416,000		
HATUTAN Education and Nutrition Programme						\$2,816,809	\$4,487,000			\$4,416,000		
<b>Ministry of Higher Education, Science and Culture</b>										\$100,839	\$100,839	\$47,392
<b>CF-TL</b>										\$100,839	\$100,839	\$47,392
Introduce and implement education programmes for citizenship and education for sustainable development										\$100,839	\$100,839	\$47,392
<b>Grand Total</b>	\$80,360	\$82,337	\$60,724	\$47,172	\$54,806	\$2,858,345	\$4,492,406	\$8,779	\$6,918	\$4,644,522	\$228,522	\$101,401

**ANNEX 1 TABLE 2: HEALTH SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure
<b>High</b>	\$6,289,000		\$8,982,805	\$4,920,000		\$6,391,097	\$7,968,000		\$3,991,422	\$8,869,000		\$149,267
<b>Ministry of Health</b>	\$6,289,000		\$8,982,805	\$4,920,000		\$6,391,097	\$7,968,000		\$3,991,422	\$8,869,000		\$149,267
<b>Development Partners</b>	\$6,289,000		\$8,982,805	\$4,920,000		\$6,391,097	\$7,968,000		\$3,991,422	\$8,869,000		\$149,267
Capacity Building on Tuberculosis Diagnosis and Management in Timor-Leste						\$1,000,000	\$600,000		\$1,436,660	\$1,326,000		
Category 12 (Preparedness, Surveillance & Response): 5.1 Alert & Response Capacities; 5.2 Epidemic & Pandemic Prone Diseases; 5.3	\$33,000		\$172,188	\$35,000		\$276,557	\$35,000			\$53,000		



	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure
approach to malaria control in the Democratic Republic of Timor Leste												
TMP-708-G04-T – Reducing the Burden of Tuberculosis in the Democratic Republic of Timor-Leste			\$3,551,038			\$1,505,267						
<b>Medium</b>	<b>\$14,703,000</b>		<b>\$18,487,098</b>	<b>\$17,080,000</b>		<b>\$18,459,840</b>	<b>\$19,406,000</b>		<b>\$21,390,269</b>	<b>\$21,360,000</b>		<b>\$4,384,505</b>
<b>Ministry of Health</b>	<b>\$14,703,000</b>		<b>\$18,487,098</b>	<b>\$17,080,000</b>		<b>\$18,459,840</b>	<b>\$19,406,000</b>		<b>\$21,390,269</b>	<b>\$21,360,000</b>		<b>\$4,384,505</b>
<b>Development Partners</b>	<b>\$14,703,000</b>		<b>\$18,487,098</b>	<b>\$17,080,000</b>		<b>\$18,459,840</b>	<b>\$19,406,000</b>		<b>\$21,390,269</b>	<b>\$21,360,000</b>		<b>\$4,384,505</b>
Australia - Timor-Leste Partnership for Human Development - Health Sector	\$9,356,000		\$7,436,905	\$7,788,000		\$7,086,873	\$9,159,000		\$12,660,000	\$8,149,000		\$3,638,738
Australia - Timor-Leste Partnership for Human Development - Other (Multisector)			\$2,478,968			\$2,316,863	\$605,000		\$1,054,965	\$495,000		
Category 1: Communicable Diseases: 1.1.HIV/AIDS; 1.2.TB; 1.3.Malaria; 1.4.NTDs (Neglected Tropical Diseases); 1.5.EPI/VPDs (Expanded Programme on Immunization/Vaccine Preventable Diseases)	\$952,000		\$808,991	\$1,270,000		\$1,013,910	\$1,270,000			\$1,270,000		
Category 4 (Health Systems); 4.1 National Health Policies, Strategies & Planning; 4.2 Integrated People-centered Health Services; 4.3 Access to Medicines & Health Technology; 4.4 Health System Information & Evidence based/Health Research	\$498,000		\$1,823,043	\$1,845,000		\$1,687,113	\$1,845,000			\$1,845,000		
Corporate Pillar 4: More effective and efficient WHO to better supporting countries							\$201,000		\$386,260	\$1,058,000		
HATUTAN Education and Nutrition Programme						\$929,780	\$553,000			\$1,448,000		
National HIV/AIDS Programme (NAP)/ Expanded Comprehensive Response to HIV/AIDS in Timor-Leste	\$1,512,000			\$754,000			\$759,000			\$1,263,000		
Provide nutritious foods and raise awareness through social behaviour change communication (SBCC) for children under 5, adolescent girls and pregnant and lactating women and other targeted individuals (activity category 6)	\$452,000		\$540,626	\$3,474,000		\$254,376	\$500,000		\$504,525	\$933,000		\$65,307
Provide technical assistance and evidence to government and partners for enhancing efficiency of national programmes and safety nets (activity category 9)	\$525,000		\$83,958	\$816,000		\$188,902	\$461,000		\$293,798	\$358,000		\$66,384

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure	Original Budget	Final Budget	Actual Expenditure
Strategic Priority 1: 2020-21 TLS ACTIVITY WORKPLAN SP-1 Universal Health Coverage (UHC)							\$3,046,000		\$2,932,587	\$2,774,000		
TOMAK-Farming for Prosperity (Timor-Leste)	\$1,408,000		\$3,718,343	\$1,133,000		\$4,098,439	\$1,007,000		\$3,558,134	\$1,767,000		\$614,075
TLS-H-MOH - Expanded Comprehensive Response to HIV/AIDS in Timor-Leste			\$1,596,264			\$883,584						
<b>Low</b>	<b>\$887,000</b>		<b>\$477,627</b>	<b>\$417,000</b>		<b>\$996,094</b>	<b>\$622,000</b>		<b>\$1,007,310</b>	<b>\$1,297,000</b>		<b>\$696,496</b>
<b>Ministry of Health</b>	<b>\$887,000</b>		<b>\$477,627</b>	<b>\$417,000</b>		<b>\$996,094</b>	<b>\$622,000</b>		<b>\$1,007,310</b>	<b>\$1,297,000</b>		<b>\$696,496</b>
<b>Development Partners</b>	<b>\$887,000</b>		<b>\$477,627</b>	<b>\$417,000</b>		<b>\$996,094</b>	<b>\$622,000</b>		<b>\$1,007,310</b>	<b>\$1,297,000</b>		<b>\$696,496</b>
Provide technical expertise for the development of an efficient and effective supply chain management system to government (activity category 9)	\$887,000		\$477,627	\$417,000		\$340,168	\$234,000		\$597,940	\$497,000		\$308,693
Strengthening Service Assistance for Primary Health Care through Community Participation in Atauro & Metinaro Administrative Posts, including remote areas in Dili						\$655,926	\$388,000		\$409,370	\$800,000		\$387,803
<b>Grand Total</b>	<b>\$21,879,000</b>		<b>\$27,947,529</b>	<b>\$22,417,000</b>		<b>\$25,847,031</b>	<b>\$27,996,000</b>		<b>\$26,389,001</b>	<b>\$31,526,000</b>		<b>\$5,230,268</b>

**ANNEX 1 TABLE 3: SOCIAL INCLUSION SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>High</b>									\$348,342	\$746,800	\$276,800	\$6,794,039
<b>Ministry of Social Solidarity and Inclusion</b>										\$676,800	\$276,800	\$25,972
<b>CF-TL</b>										\$676,800	\$276,800	\$25,972
Emergency support for affected community of disaster - Population affected by natural disaster were received little things - kitchen utensils										\$40,000		
Humanitarian Aid (immediate and timely) - Families victims of natural disasters received building materials										\$40,000		
										\$636,800		
										\$236,800	\$25,972	
<b>Secretary of State for the Environment</b>									\$4,443	\$70,000		\$6,730
<b>Development Partners</b>									\$4,443	\$70,000		\$6,730
Addressing Environmental Migration Resulting from Coastal Change									\$4,443	\$70,000		\$6,730
<b>Unspecified Ministerial Affiliation</b>									\$343,899			\$6,761,338
<b>Development Partners</b>									\$343,899			\$6,761,338

Humanitarian Support for Flood Response in Dili, Timor-Leste					\$343,899		\$6,637,741
Supporting Flood response and recovery							\$123,597
<b>Medium</b>	<b>\$81,000</b>	<b>\$719,421</b>	<b>\$664,348</b>	<b>\$785,000</b>	<b>\$1,997,251</b>	<b>\$1,927,000</b>	<b>\$446,614</b>
<b>Ministry of Social Solidarity and Inclusion</b>	<b>\$81,000</b>	<b>\$427,854</b>	<b>\$356,600</b>	<b>\$785,000</b>	<b>\$1,716,285</b>	<b>\$1,927,000</b>	<b>\$389,924</b>
<b>Development Partners</b>	<b>\$81,000</b>	<b>\$427,854</b>	<b>\$356,600</b>	<b>\$785,000</b>	<b>\$1,716,285</b>	<b>\$1,927,000</b>	<b>\$389,924</b>
ACTION/Portugal (Phase II) – Strengthening of the Social Protection Systems in Timor-Leste	\$81,000		\$84,028	\$267,000	\$221,129	\$334,000	\$129,460
Australia - Timor-Leste Partnership for Human Development - Social Protection Sector		\$136,210	\$272,572	\$518,000	\$1,495,156	\$1,593,000	\$260,464
<b>Unspecified Ministerial Affiliation</b>		<b>\$291,567</b>	<b>\$307,748</b>		<b>\$280,966</b>		<b>\$56,690</b>
<b>Development Partners</b>		<b>\$291,567</b>	<b>\$307,748</b>		<b>\$280,966</b>		<b>\$56,690</b>
8948- Fight Against Poverty		\$291,567	\$307,748		\$279,130		
Timor-Leste Social Protection System Strengthening. P174699					\$1,836		\$56,690
<b>Grand Total</b>	<b>\$81,000</b>	<b>\$719,421</b>	<b>\$664,348</b>	<b>\$785,000</b>	<b>\$2,345,593</b>	<b>\$2,673,800</b>	<b>\$276,800 \$7,240,653</b>

**ANNEX 1 TABLE 4: ENVIRONMENT SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>High</b>	<b>\$203,734</b>	<b>\$266,668</b>	<b>\$254,176</b>	<b>\$1,885,002</b>	<b>\$1,171,000</b>	<b>\$2,772,704</b>	<b>\$2,295,632</b>	<b>\$283,353</b>	<b>\$3,272,507</b>	<b>\$3,493,290</b>	<b>\$2,207,396</b>	<b>\$1,098,746</b>
<b>Ministry of Agriculture and Fisheries</b>			<b>\$31,211</b>	<b>\$760,000</b>	<b>\$715,000</b>	<b>\$593,894</b>		<b>\$19,620</b>	<b>\$19,485</b>	<b>\$1,286,361</b>	<b>\$1,286,361</b>	<b>\$254,738</b>
<b>CF-TL</b>			\$31,211	\$760,000	\$715,000	\$593,894		\$19,620	\$19,485	\$1,286,361	\$1,286,361	\$254,738
Develop an agroforestry system				\$7,000	\$7,000	\$5,000				\$2,000	\$2,000	
Manage and protect forests			\$20,148					\$3,000	\$2,925	\$38,500	\$38,500	\$5,700
Operationalization of the Maubara permanent nurseries centres, permanent community nurseries of forests and mangroves (ai-parapa)			\$11,063	\$330,000	\$283,500	\$224,729		\$4,565	\$4,565	\$577,011	\$577,011	\$119,543
Promote investment in the forest sector, such as sandalwood (Santalum album). er and demarcate industrial plantations (sandalwood, teak, mahagoni, saria, bamboo, etc.)				\$223,000	\$220,000	\$192,925		\$4,420	\$4,360	\$251,740	\$251,740	\$84,826
Promote investment in the forest sector such as commercial plantation: saria (Toona sureni), teak (Tecto- na grandis) and mahagoni (Swietenia sp) and pau rosa (Pterocarpus indicus)				\$154,000	\$158,500	\$129,942		\$6,820	\$6,820	\$173,210	\$173,210	\$35,393
Promote investment in the forest sector, such as native plantations and bamboo				\$15,000	\$15,000	\$12,000		\$815	\$815	\$46,500	\$46,500	



	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Pollution control and waste management and implementation of zero plastic policy	\$11,162	\$23,000	\$21,273	\$6,500	\$6,500	\$5,880				\$172,119	\$162,119	\$75,002
Provide the training of good environmental practices and intervention in the areas of greater risk of degradation										\$2,894		
Restoration of degraded lands, biodiversity												
Survey and definition of annual environmental status and environmental resource										\$6,000	\$6,000	\$1,500
Tara Bandu (11 Tara Bandu seminars / awareness and culture sessions held)										\$100,000	\$100,000	\$40,000
Verification of project locations as part of environmental permit issuance	\$35,377	\$58,965	\$62,245	\$10,800	\$10,800	\$10,800	\$70,290	\$94,860	\$93,820			-\$880
<b>Development Partners</b>						\$1,000,000	\$1,842,000		\$2,322,294	\$1,253,000		
ENV/2020/416278 -Rai Matak (Green Lands) Programme: Carbon Farming for Timor-Leste							\$442,000		\$922,294	\$653,000		
Strengthening Critical Resilience Capacities to Climate Change and Natural Disasters in Timor-Leste						\$1,000,000	\$1,400,000		\$1,400,000	\$600,000		
<b>Unspecified Ministerial Affiliation</b>			\$5,009			\$135,383			\$93,174			\$560,815
<b>Development Partners</b>			\$5,009			\$135,383			\$93,174			\$560,815
ENV/2021/423328 - Technical Assistance to Support Carbon Farming, Location -Timor-Leste												\$346,360
Strengthening Government of Timor-Leste Capacity for Disaster Management-Logistical Support for ICS Training in Timor-Leste (Phase II) -CS.0822			\$5,009						\$8,698			
CS.0822-Strengthening Government of Timor-Leste Capacity for Disaster Management-Logistical Support for ICS Training in Timor-Leste (Phase II)						\$104,285			\$40,154			
Strengthening targeted national capacities to improve decision-making and mainstreaming global environmental obligations into national development priorities (00108967)						\$31,098			\$44,322			\$51,044
Enhancing Rapid Disaster Response for Flooding in Timor-Leste-DP.2326												\$100,000
Tropical Cyclone Seroja post-disaster assessment and support to resilience building.												\$63,411
<b>Grand Total</b>	<b>\$203,734</b>	<b>\$266,668</b>	<b>\$254,176</b>	<b>\$1,885,002</b>	<b>\$1,171,000</b>	<b>\$2,772,704</b>	<b>\$2,295,632</b>	<b>\$283,353</b>	<b>\$3,272,507</b>	<b>\$3,493,290</b>	<b>\$2,207,396</b>	<b>\$1,098,746</b>







	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Construction and supervision for the road development Dili-Mantuto-Baucau (L-CF)	\$2,583,000	\$2,383,000	\$2,214,000	\$4,500,000	\$5,478,000	\$4,102,000	\$1,853,000	\$2,718,000	\$2,291,000	\$1,500,000	\$1,500,000	
Construction and Supervision of Baucau Roads Lautem (L-CF)	\$1,000	\$501,000	\$311,000	\$2,500,000	\$2,000,000	\$1,410,000	\$1,082,000	\$1,347,000	\$1,276,000	\$1,500,000	\$1,500,000	\$349,000
Construction and Supervision of Baucau Roads Viqueque (L-CF)	\$5,000,000	\$5,000,000		\$4,000,000	\$1,200,000	\$1,046,000	\$1,200,000	\$2,090,000	\$1,989,000	\$3,857,000		
Construction and Supervision of Roads Four Ways Tasi Tolu-Porto Tibar (L-CF)	\$3,060,000	\$2,382,000	\$1,768,000	\$2,500,000	\$2,500,000	\$1,063,000	\$1,900,000	\$1,754,000	\$1,362,000	\$2,700,000	\$1,000,000	\$381,000
Construction and Supervision of Rotunda in Porto Tibar (Include indiminizasaun)							\$204,000	\$204,000		\$3,000,000	\$3,000,000	
Construction Be'emos Bridge iha Comoro type ulun				\$500,000								
Construction of new bridge at Kaboska River Aldeia Bemetan suku Betano in Same, Manufahi				\$329,000	\$95,000	\$95,000	\$201,000			\$33,000		
Estrada Soebada - Fatukamanaun	\$1,642,000	\$1,200,000	\$1,200,000	\$1,218,000	\$305,000	\$300,000	\$773,000	\$1,349,000	\$1,349,000	\$688,000	\$521,000	\$12,000
List of Preparation projects for the Feasibility Study and Detailed Design of MOP Infrastructure Projects Annex 17										\$9,107,000	\$660,000	
List of proposed projects for study technical and detailing in the implements a Project				\$1,500,000								
Manatuto-Natarbora Design, Supervision and Other Costs associated with the road development (L-CF)	\$5,093,000	\$5,035,000	\$4,232,000	\$5,298,000	\$3,714,000	\$3,068,000	\$500,000	\$790,000		\$700,000	\$700,000	\$69,000
National Road Rehabilitation (Potholes Repair)	\$261,000	\$84,000	\$84,000	\$177,000								
Rehabilitasaun Roads Maubise - Bubur Laran Dalan ba Turiskai (Pacote I)	\$394,000				\$387,000	\$387,000						

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Rehabilitation and construction of urban roads Phase II	\$15,756,000	\$6,918,000	\$6,116,000	\$12,380,000	\$5,080,000	\$4,384,000	\$2,556,000	\$4,057,000	\$4,028,000	\$7,025,000		
Rehabilitation of Aituto-Same Roads	\$8,432,000	\$8,432,000	\$8,373,000	\$3,893,000	\$3,883,000	\$3,832,000						
Rehabilitation of Dili-Manleuana roads-Solerema-Aileu 15 km	\$7,104,000	\$4,916,000	\$4,520,000	\$4,995,000	\$4,398,000	\$4,363,000	\$2,737,000	\$2,861,000	\$2,443,000	\$7,587,000		
Rehabilitation of Edmumu-Irabere Roads				\$100,000								
Rehabilitation of Ermera-Hatulia Roads				\$178,000								
Rehabilitation of Jct. Balibo Cowa Postu UPF hasnaruk Road (Sta 10+000-19+250) Bridge Section Jct. Katimun Ren Aisukar	\$200,000			\$400,000	\$400,000	\$111,000	\$150,000			\$600,000	\$300,000	
Rehabilitation of laleno road project road section (Sta 0+000-6+210) maina 2 in Lautem	\$1,000,000			\$800,000	\$1,229,000	\$1,229,000	\$500,000	\$1,231,000	\$916,000	\$950,000	\$750,000	
Rehabilitation of Lospalos-Iloa Roads	\$368,000	\$368,000	\$368,000									
Rehabilitation of Luro-Buihumau Roads	\$212,000			\$495,000	\$564,000					\$563,000	\$472,000	
Rehabilitation of Maubesse-Turiskai Roads	\$275,000	\$221,000		\$221,000	\$215,000	\$215,000						
Rehabilitation of Ossu - Viqueque Roads	\$681,000	\$1,000		\$400,000	\$400,000	\$186,000	\$170,000			\$400,000	\$400,000	
Rehabilitation of road Monumento-Laclubar, mercado hu-Lu Manatuto	\$251,000	\$441,000	\$441,000		\$1,191,000	\$1,150,000	\$460,000			\$280,000		
Rehabilitation of Urban Roads				\$297,000								
Rehabilitation of Urban Roads in Same	\$2,666,000	\$2,666,000	\$2,666,000									
Rehabilitation of Wiuka District Roads - Quelikai					\$1,127,000	\$1,127,000	\$250,000	\$360,000	\$360,000	\$1,479,000	\$979,000	
Road construction and supervision Aitutu - Hatubuliko - Letefoho Ermera - Gleno (L - CF)				\$1,910,000	\$1,910,000		\$150,000			\$500,000		
Road Maintenance Routines (Annex 13)	\$2,753,000	\$2,383,000	\$2,311,000	\$1,955,000	\$1,055,000	\$816,000	\$301,000	\$214,000	\$214,000	\$178,000		

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Road network Upgrading Sector Project, Upgrading and maintenance of Maubara - Karimbala and Atabae - Mota Ain Roads	\$1,021,000	\$301,000	\$249,000	\$3,000,000	\$2,500,000	\$1,107,000	\$730,000	\$612,000	\$526,000	\$1,250,000	\$1,250,000	\$233,000
Road Rehabilitation A01 Jct Caira Vela - Cacido - Baucau Airport	\$3,511,000	\$4,306,000	\$4,306,000	\$1,800,000	\$1,972,000	\$1,970,000						
Road Rehabilitation Package 135 project iha 11 Municipalities (*****) Annex 11	\$13,714,000	\$38,484,000	\$13,714,000	\$27,654,000	\$79,096,000	\$69,620,000	\$35,898,000	\$47,109,000	\$44,237,000	\$36,925,000		
Road Rehabilitation s Atauro Villa - Beloi -Biqueli	\$483,000	\$483,000	\$483,000									
Rural Road (R4D) Annex 13	\$8,014,000	\$5,665,000	\$5,830,000	\$9,628,000	\$3,678,000	\$2,384,000	\$3,198,000	\$1,929,000	\$1,701,000	\$6,287,000		
<b>Ministry of Public Works, Transport and Communications</b>	<b>\$10,628,000</b>	<b>\$6,069,000</b>	<b>\$5,948,000</b>	<b>\$9,650,000</b>	<b>\$9,550,000</b>	<b>\$9,045,000</b>	<b>\$3,301,000</b>	<b>\$2,487,000</b>	<b>\$2,446,000</b>	<b>\$4,864,000</b>	<b>\$1,948,000</b>	<b>\$1,139,000</b>
<b>Infrastructure Fund</b>	<b>\$10,628,000</b>	<b>\$6,069,000</b>	<b>\$5,948,000</b>	<b>\$9,650,000</b>	<b>\$9,550,000</b>	<b>\$9,045,000</b>	<b>\$3,301,000</b>	<b>\$2,487,000</b>	<b>\$2,446,000</b>	<b>\$4,864,000</b>	<b>\$1,948,000</b>	<b>\$1,139,000</b>
Bridge rehabilitation	\$141,000	\$282,000	\$282,000	\$300,000	\$78,000	\$78,000						
Construction of Arch Bridge for Comoro I/II	\$1,422,000	\$106,000	\$106,000	\$800,000	\$2,061,000	\$2,060,000	\$432,000	\$432,000	\$432,000	\$100,000		
Construction of Baer Bridge	\$316,000	\$5,000		\$700,000						\$316,000		
Construction of Bidau-Santa Ana bridge	\$2,314,000	\$664,000	\$664,000	\$1,000,000	\$2,943,000	\$2,862,000	\$437,000				\$480,000	\$480,000
Construction Of New Steel Truss Bridge 50m In Vila Ma ria - Hatolia, Ermera District	\$360,000			\$600,000	\$851,000	\$850,000						
Construction of Taroman Bridge	\$328,000			\$600,000			\$34,000			\$293,000	\$293,000	
Construction Of Wai Wono Bridge In Baucau District	\$468,000	\$504,000	\$404,000	\$300,000	\$269,000	\$269,000						
Construction of New Steel Bridge Jct. 100m in Milotu Sahe River, Jct. Fatucmanaun, Soibada	\$1,746,000			\$1,100,000	\$121,000	\$121,000	\$565,000	\$1,213,000	\$1,213,000	\$1,175,000	\$1,175,000	\$659,000
Mota Masin bridge construction in Suai	\$1,182,000	\$957,000	\$957,000	\$300,000	\$220,000	\$220,000						



	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Design, construction and Supervision of Urban water supply and sanitation for 7 municipalities (Covalima, Aileu, Ainaro, Bobonaro, Ermera, Liquica and Manatuto)							\$100,000					
Dili Water Supply (PPP)	\$100,000	\$213,000	\$5,000	\$213,000	\$208,000	\$45,000	\$163,000	\$163,000	\$163,000	\$27,000	\$27,000	\$27,000
Emergency project ba Inundasaun 13 de Framework 2020 (Water and Sanitation)							\$442,000	\$442,000	\$240,000	\$225,000	\$225,000	
Feasibility Study of Surface Water Resource Development for the Water Supply of Dili Metropolitan Area + Pre- Feasibility Study of a Ground Water Resources Development Project for the Water Supply of Dili Metropolitan Area + Detailed Design for water retention and transmission + Construction and Supervision for water retention and transmission + Prioritization of national water resources and Baragem development programme monitoring of water resources and studies surface water + Prioritization of national water resources and Baragem development programme ground water monitoring	\$100,000	\$100,000		\$500,000	\$500,000	\$114,000	\$605,000	\$166,000	\$162,000	\$122,000	\$122,000	
Infrastructure development of water supply and sanitation in Municipal Centers				\$1,300,000	\$1,138,000		\$400,000	\$400,000	\$343,000	\$1,524,000	\$1,374,000	\$614,000
Master plan, system design and studies related to Water and Sanitation (national level)				\$500,000	\$500,000		\$500,000	\$604,000	\$604,000	\$998,000	\$848,000	
Study, Design and Construction Line of Potable Water Distribution in Zones 2-9 in Dili and Suai	\$18,000	\$13,000	\$13,000	\$35,000	\$21,000	\$21,000						
Water and Sanitation project in Baucau Municipality (L- CF)										\$500,000	\$500,000	
<b>Grand Total</b>	<b>\$3,836,000</b>	<b>\$1,331,000</b>	<b>\$2,694,794</b>	<b>\$6,219,000</b>	<b>\$2,896,000</b>	<b>\$2,193,103</b>	<b>\$4,582,000</b>	<b>\$2,203,000</b>	<b>\$3,311,547</b>	<b>\$4,703,000</b>	<b>\$3,149,000</b>	<b>\$767,000</b>

**ANNEX 1 TABLE 7: ELECTRICITY SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>High</b>				<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>						

<b>Ministry of Public Works</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>		
<b>CF-TL</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>		
Develop renewable energy production plants	\$500,000	\$512,000	\$512,000		
Install and maintain photovoltaic system	\$500,000	\$488,000	\$488,000		
<b>Grand Total</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>		

**ANNEX 1 TABLE 8: TELECOMMUNICATIONS SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>Medium</b>	<b>\$7,979,000</b>	<b>\$4,794,000</b>	<b>\$2,133,000</b>	<b>\$2,857,000</b>	<b>\$6,108,000</b>	<b>\$4,045,000</b>	<b>\$2,589,000</b>	<b>\$2,107,000</b>	<b>\$1,000,000</b>	<b>\$41,588,000</b>	<b>\$4,638,000</b>	
<b>GPM/Ministry of Transport and Communications</b>	<b>\$4,438,000</b>	<b>\$2,160,000</b>	<b>\$809,000</b>	<b>\$1,194,000</b>	<b>\$2,594,000</b>	<b>\$1,429,000</b>	<b>\$1,101,000</b>	<b>\$1,050,000</b>	<b>\$856,000</b>	<b>\$500,000</b>	<b>\$500,000</b>	
<b>Infrastructure Fund</b>	<b>\$4,438,000</b>	<b>\$2,160,000</b>	<b>\$809,000</b>	<b>\$1,194,000</b>	<b>\$2,594,000</b>	<b>\$1,429,000</b>	<b>\$1,101,000</b>	<b>\$1,050,000</b>	<b>\$856,000</b>	<b>\$500,000</b>	<b>\$500,000</b>	
Extension of the Fiber-Optical Network PCN II	\$4,438,000	\$2,160,000	\$809,000	\$1,194,000	\$2,594,000	\$1,429,000	\$1,101,000	\$1,050,000	\$856,000	\$500,000	\$500,000	
<b>Ministry of Planning and Ordination</b>							<b>\$199,000</b>			<b>\$40,000,000</b>	<b>\$3,050,000</b>	
<b>Infrastructure Fund</b>							<b>\$199,000</b>			<b>\$40,000,000</b>	<b>\$3,050,000</b>	
Study on Installation of Optical Fiber							\$199,000			\$40,000,000	\$3,050,000	
<b>Ministry of Transport and Communications</b>	<b>\$3,541,000</b>	<b>\$2,634,000</b>	<b>\$1,324,000</b>	<b>\$1,663,000</b>	<b>\$3,514,000</b>	<b>\$2,616,000</b>	<b>\$1,289,000</b>	<b>\$1,057,000</b>	<b>\$144,000</b>	<b>\$1,088,000</b>	<b>\$1,088,000</b>	
<b>Infrastructure Fund</b>	<b>\$3,541,000</b>	<b>\$2,634,000</b>	<b>\$1,324,000</b>	<b>\$1,663,000</b>	<b>\$3,514,000</b>	<b>\$2,616,000</b>	<b>\$1,289,000</b>	<b>\$1,057,000</b>	<b>\$144,000</b>	<b>\$1,088,000</b>	<b>\$1,088,000</b>	
National Connectivity Project	\$236,000	\$363,000	\$263,000	\$363,000	\$363,000	\$62,000	\$65,000			\$363,000	\$363,000	
Satellite Internet Connectivity Upgrade from 20 Mbps to 60/80 Mbps	\$3,305,000	\$2,271,000	\$1,061,000	\$1,300,000	\$3,151,000	\$2,554,000	\$1,224,000	\$1,057,000	\$144,000	\$225,000	\$225,000	
Supply and Installation of National Connectivity Project VII										\$500,000	\$500,000	
<b>Grand Total</b>	<b>\$7,979,000</b>	<b>\$4,794,000</b>	<b>\$2,133,000</b>	<b>\$2,857,000</b>	<b>\$6,108,000</b>	<b>\$4,045,000</b>	<b>\$2,589,000</b>	<b>\$2,107,000</b>	<b>\$1,000,000</b>	<b>\$41,588,000</b>	<b>\$4,638,000</b>	



	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
disasters in Timor-Leste.107295												
<b>Medium</b>	<b>\$1,487,000</b>			<b>\$2,488,000</b>	<b>\$2,000,000</b>	<b>\$15,000</b>	<b>\$988,000</b>	<b>\$1,000</b>		<b>\$3,594,000</b>	<b>\$2,994,000</b>	
<b>Ministry of Finance / Ministry of Planning and Ordination</b>	<b>\$487,000</b>			<b>\$488,000</b>			<b>\$100,000</b>			<b>\$388,000</b>	<b>\$388,000</b>	
<b>Infrastructure Fund</b>	<b>\$487,000</b>			<b>\$488,000</b>			<b>\$100,000</b>			<b>\$388,000</b>	<b>\$388,000</b>	
Studies and design plan for National Urban Planning	\$487,000			\$488,000			\$100,000			\$388,000	\$388,000	
<b>Ministry of Planning and Ordination</b>										<b>\$1,000,000</b>	<b>\$400,000</b>	
<b>Infrastructure Fund</b>										<b>\$1,000,000</b>	<b>\$400,000</b>	
Municipal Spatial Planning										\$1,000,000	\$400,000	
<b>Ministry of State Administration</b>	<b>\$1,000,000</b>			<b>\$2,000,000</b>	<b>\$2,000,000</b>	<b>\$15,000</b>	<b>\$888,000</b>	<b>\$1,000</b>		<b>\$2,206,000</b>	<b>\$2,206,000</b>	
<b>Infrastructure Fund</b>	<b>\$1,000,000</b>			<b>\$2,000,000</b>	<b>\$2,000,000</b>	<b>\$15,000</b>	<b>\$888,000</b>	<b>\$1,000</b>		<b>\$2,206,000</b>	<b>\$2,206,000</b>	
Solid Waste Management Urbana do Municipality of Dili	\$1,000,000			\$2,000,000	\$2,000,000	\$15,000	\$888,000	\$1,000		\$2,206,000	\$2,206,000	
<b>Low</b>										<b>\$396,000</b>	<b>\$246,000</b>	
<b>Ministry of Public Works</b>										<b>\$396,000</b>	<b>\$246,000</b>	
<b>Infrastructure Fund</b>										<b>\$396,000</b>	<b>\$246,000</b>	
Bicycle line (Jogging track) husi Ponte Habibe ba Christ the King										\$250,000	\$100,000	
Construction garden iha munisipiu (munisipiu Dili-garden iha MJ at CNE nia oin)										\$146,000	\$146,000	
<b>Grand Total</b>	<b>\$5,973,000</b>	<b>\$5,218,000</b>	<b>\$5,299,886</b>	<b>\$9,886,000</b>	<b>\$9,000,000</b>	<b>\$4,330,363</b>	<b>\$2,539,000</b>	<b>\$801,000</b>	<b>\$3,689,484</b>	<b>\$6,190,000</b>	<b>\$5,440,000</b>	<b>\$1,055,582</b>

**ANNEX 1 TABLE 10: AGRICULTURE SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>High</b>	<b>\$6,465,000</b>	<b>\$1,290,000</b>	<b>\$10,449,686</b>	<b>\$8,372,016</b>	<b>\$465,016</b>	<b>\$6,758,940</b>	<b>\$6,370,000</b>	<b>\$55,000</b>	<b>\$5,743,573</b>	<b>\$2,816,500</b>	<b>\$187,500</b>	<b>\$2,597,749</b>
<b>Ministry of Agriculture and Fisheries</b>	<b>\$6,465,000</b>	<b>\$1,290,000</b>	<b>\$10,449,686</b>	<b>\$8,372,016</b>	<b>\$465,016</b>	<b>\$6,758,940</b>	<b>\$6,370,000</b>	<b>\$55,000</b>	<b>\$5,743,573</b>	<b>\$2,816,500</b>	<b>\$187,500</b>	<b>\$2,597,749</b>
<b>CF-TL</b>			<b>-\$41,680</b>	<b>\$208,016</b>	<b>\$158,016</b>	<b>\$175,433</b>				<b>\$187,500</b>	<b>\$187,500</b>	<b>\$43,360</b>
Adaptation research to crops of rice, maize, sweet potatoes,			-\$41,680	\$185,016	\$135,016	\$153,134				\$170,500	\$170,500	\$39,010

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
cassava, peanuts, wheat and other local crops (new seed and improve varieties developed in research centres through adaptive testing, such as irrigated rice (red), dry season rice, corn, beans, duhaen, soybeans, european potatoes and wheat)												
Production of organic fertilisers and biogas, using Chromolaena odorata				\$15,000	\$15,000	\$14,320				\$7,000	\$7,000	\$4,350
Use and conservation of agricultural waste				\$8,000	\$8,000	\$7,980				\$10,000	\$10,000	
<b>Development Partners</b>	<b>\$5,121,000</b>		<b>\$9,309,366</b>	<b>\$7,426,000</b>		<b>\$6,333,507</b>	<b>\$6,315,000</b>		<b>\$5,696,573</b>	<b>\$2,629,000</b>		<b>\$2,554,389</b>
Avansa Agrikultura Project...Feed the Future (FTF) and the Global Climate Change (GCC) Initiatives through advancements in private sector led growth	\$1,164,000		\$3,754,088	\$3,969,000		\$3,108,847	\$2,332,000		\$2,821,052			\$281,543
Building shoreline resilience of Timor-Leste to protect local communities and their livelihoods (00097253)	\$2,300,000		\$2,090,394	\$2,366,000		\$1,381,749	\$1,804,000		\$1,554,363	\$225,000		\$484,854
CTR No. 416278 - Rai Matak (Green Lands) Programme: Carbon Farming for Timor-Leste							\$442,000					
Food and Nutrition security Impact, Resilience, Sustainability and Transformation (FIRST) Policy Assistance			\$284,150			\$334,301	\$82,000		\$325,976			
Implementation of the Arafura and Timor Seas Regional and National Strategic Action Programmes (ATSEA-2) (00110428) ... includes mangrove restoration						\$23,445	\$538,000		\$253,729	\$1,175,000		\$100,000
Pro-Resilience Timor Leste – Strengthening resilience in			\$941,112			\$726,379			\$635,693	\$1,000,000		\$802,971



	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
agricultural production in Atsabe												
Contribute to the improvement of national food security, stimulating agricultural diversification. The project will reinforce and improve agricultural practices and productivity; and stimulate and diversify production; and establish partnerships and interventions with public and international institutions.	\$176,000						\$69,000			\$316,000		
Food Security Initiative Programme: To support farmers, cooperatives, and Small and Mediumsized Enterprises (SMEs) working in food security and agricultural value chains										\$656,000		
HATUTAN Education and Nutrition Programme (Beneficiary is Ministry of Agriculture)						\$929,780	\$553,000			\$544,000		
Partnership for Sustainable Agroforestry Project (PSAF)	\$4,718,000		\$1,142,090	\$4,706,000		\$2,277,743	\$5,010,000			\$8,963,000		
Timor-Leste: Sustainable Agriculture Productivity Improvement Project SAPIP	\$4,000,000		\$1,101,627	\$4,493,000		\$1,671,251	\$1,150,000		\$1,993,136	\$7,232,000		\$1,734,419
TOMAK-Farming for Prosperity (Timor-Leste)	\$3,286,000			\$2,643,000			\$2,349,000			\$1,767,000		
<b>Infrastructure Fund</b>	\$2,489,000	\$2,809,000	\$2,209,000	\$1,643,000	\$1,181,000	\$772,000	\$1,102,000	\$1,375,000	\$1,126,000	\$3,743,000	\$2,343,000	\$869,000
Construction and supervision of irrigation Beikala												
Construction and supervision of irrigation of Carau-Ulun, Manufahi Phase II	\$462,000	\$462,000	\$462,000	\$462,000								
Construction and supervision of irrigation of Dardau	\$100,000	\$600,000		\$501,000	\$501,000	\$96,000	\$1,000,000	\$1,273,000	\$1,126,000	\$1,798,000	\$1,698,000	\$869,000

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Construction and supervision of irrigation of Galata	\$100,000						\$102,000	\$102,000		\$1,000,000	\$300,000	
Construction and supervision of irrigation of Laivai										\$250,000	\$150,000	
Construction and supervision of irrigation of Larisula	\$1,827,000	\$1,747,000	\$1,747,000	\$680,000	\$680,000	\$676,000						
Construction and supervision of the Irrigation of Maukola												
Detailed study of irrigation schemes (include review of Maukola irrigation)										\$695,000	\$195,000	
<b>Ministry of Public Works</b>							<b>\$314,000</b>		<b>\$313,842</b>			
<b>Development Partners</b>							\$314,000		\$313,842			
Atsabe Rural Development Project for Improvement of Agricultural Water Supply System in Ermera District							\$314,000		\$313,842			
<b>Unspecified Ministerial Affiliation</b>												<b>\$2,114,616</b>
<b>Development Partners</b>												\$2,114,616
Rising Income through Sustainability Export - Agriculture (RISE Project)												\$2,114,616
<b>Low</b>	<b>\$961,000</b>		<b>\$1,163,003</b>	<b>\$1,707,000</b>	<b>\$92,000</b>	<b>\$2,500,981</b>	<b>\$1,049,000</b>	<b>\$37,000</b>	<b>\$2,684,850</b>	<b>\$1,701,000</b>		<b>\$1,892,594</b>
<b>Ministry of Agriculture and Fisheries</b>	<b>\$545,000</b>		<b>\$1,163,003</b>	<b>\$1,411,000</b>	<b>\$92,000</b>	<b>\$2,500,981</b>	<b>\$750,000</b>	<b>\$37,000</b>	<b>\$2,684,850</b>	<b>\$1,597,000</b>		<b>\$1,892,594</b>
<b>Development Partners</b>	\$545,000		\$1,163,003	\$1,319,000		\$2,500,981	\$713,000		\$2,684,850	\$1,542,000		\$1,892,594
G9209 - Coffee and Agroforestry Livelihood Improvement Project CALIP										\$1,143,000		
The Project for Increasing Farmers Households' Income through Strengthening Domestic Rice Production in Timor-Leste	\$416,000		\$992,805	\$887,000		\$1,468,835	\$299,000		\$1,068,773	\$312,000		\$720,417
USAID's Avansa Monitoring and Evaluation			\$17,931	\$60,000		\$15,703	\$227,000		\$217,928			

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Supervising Entity for Sustainable Agriculture Productivity Improvement Project (SAPIP)	\$129,000		\$152,267	\$372,000		\$75,364	\$187,000		\$78,149	\$87,000		\$41,177
Aquaculture Development in Timor-Leste						\$941,078			\$1,320,000			\$1,071,000
Accelerating Aquaculture Development in Timor-Leste												\$60,000
<b>Infrastructure Fund</b>				\$92,000	\$92,000		\$37,000	\$37,000		\$55,000		
Conception, Construction and Supervision of the Fishing Port, Metinaro				\$92,000	\$92,000		\$37,000	\$37,000		\$55,000		
<b>Ministry of Commerce, Industry, and Environment</b>	<b>\$416,000</b>											
<b>Development Partners</b>	\$416,000											
The Project for Increasing Farmers Households' Income through Strengthening Domestic Rice Production in Timor-Leste	\$416,000											
<b>Secretariat of State for the Environment</b>				<b>\$296,000</b>			<b>\$299,000</b>			<b>\$104,000</b>		
<b>Development Partners</b>				\$296,000			\$299,000			\$104,000		
The Project for Increasing Farmers Households' Income through Strengthening Domestic Rice Production in Timor-Leste				\$296,000			\$299,000			\$104,000		
<b>Grand Total</b>	<b>\$22,295,000</b>	<b>\$4,099,000</b>	<b>\$16,265,406</b>	<b>\$23,564,016</b>	<b>\$1,738,016</b>	<b>\$14,910,695</b>	<b>\$17,966,000</b>	<b>\$1,467,000</b>	<b>\$11,861,401</b>	<b>\$29,397,500</b>	<b>\$3,435,328</b>	<b>\$9,496,658</b>

**ANNEX 1 TABLE 11: TOURISM SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>Medium</b>	<b>\$2,936,000</b>		<b>\$1,548,171</b>	<b>\$3,403,000</b>		<b>\$3,672,380</b>	<b>\$1,030,000</b>		<b>\$3,576,056</b>	<b>\$2,487,500</b>	<b>\$6,500</b>	<b>\$2,413,854</b>
<b>Ministry of Agriculture and Fisheries</b>										<b>\$6,500</b>	<b>\$6,500</b>	

<b>CF-TL</b>							\$6,500	\$6,500	
Develop and maintenance of ecotourism potentials in protected areas							\$6,500		
<b>Ministry of Tourism</b>	<b>\$2,936,000</b>	<b>\$1,548,171</b>	<b>\$3,403,000</b>	<b>\$3,200,405</b>	<b>\$1,030,000</b>	<b>\$3,576,056</b>	<b>\$2,481,000</b>	<b>\$6,500</b>	<b>\$1,323,497</b>
<b>Development Partners</b>	<b>\$2,936,000</b>	<b>\$1,548,171</b>	<b>\$3,403,000</b>	<b>\$3,200,405</b>	<b>\$1,030,000</b>	<b>\$3,576,056</b>	<b>\$2,481,000</b>		<b>\$1,323,497</b>
USAID's Tourism for All Project	\$2,936,000	\$1,548,171	\$3,403,000	\$3,200,405	\$1,030,000	\$3,576,056	\$2,481,000		\$1,323,497
<b>Unspecified Ministerial Affiliation</b>				<b>\$471,975</b>					<b>\$1,090,357</b>
<b>Development Partners</b>				<b>\$471,975</b>					<b>\$1,090,357</b>
Timor-Leste Tourism Development Activity				\$471,975					\$1,090,357
<b>Grand Total</b>	<b>\$2,936,000</b>	<b>\$1,548,171</b>	<b>\$3,403,000</b>	<b>\$3,672,380</b>	<b>\$1,030,000</b>	<b>\$3,576,056</b>	<b>\$2,487,500</b>	<b>\$6,500</b>	<b>\$2,413,854</b>

**ANNEX 1 TABLE 12: PRIVATE SECTOR SPECIFIC BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>High</b>			\$123,346			\$118,487	\$414,000		\$485,342	\$591,000		\$121,757
<b>Secretary of State for the Environment</b>						\$118,487	\$414,000		\$485,342	\$591,000		\$121,757
<b>Development Partners</b>						\$118,487	\$414,000		\$485,342	\$591,000		\$121,757
CSO-LA/2019/410716 -Hamenus Lixu Plastik The action provides platforms for engagement of government, private sector and civil society actors to , promote social responsibility in plastic recycling and climate change mitigation.							\$263,000		\$284,550	\$284,000		\$66,574
Plastics Upcycling Alliance: The plastics upcycling alliance seeks to create a value chain for used plastic that will add to Timor-Leste's small manufacturing base, bring a measure of diversification to the oil-dependent economy, and move the country further along its journey to self-reliance						\$118,487	\$151,000		\$200,792	\$307,000		\$55,183
<b>Unspecified Ministerial Affiliation</b>			\$123,346									
<b>Development Partners</b>			\$123,346									
The Project for Building Recycling System on Agriculture "Transferring Waste into Treasure on the Basis of Haga City Model"			\$123,346									
<b>Medium</b>	<b>\$865,000</b>		<b>\$1,382,366</b>	<b>\$1,288,000</b>		<b>\$1,305,857</b>	<b>\$1,208,000</b>		<b>\$676,228</b>	<b>\$1,228,000</b>		
<b>Ministry of Transport and Communication</b>	<b>\$865,000</b>		<b>\$1,382,366</b>	<b>\$1,288,000</b>		<b>\$1,305,857</b>	<b>\$1,208,000</b>		<b>\$676,228</b>	<b>\$1,228,000</b>		
<b>Development Partners</b>	<b>\$865,000</b>		<b>\$1,382,366</b>	<b>\$1,288,000</b>		<b>\$1,305,857</b>	<b>\$1,208,000</b>		<b>\$676,228</b>	<b>\$1,228,000</b>		

Follow on Advisory and Training for the Maritime Related Industries of Timor-Leste (ATMI II)	\$865,000	\$1,382,366	\$1,288,000	\$1,305,857	\$1,208,000	\$676,228	\$1,228,000	
<b>Grand Total</b>	<b>\$865,000</b>	<b>\$1,505,713</b>	<b>\$1,288,000</b>	<b>\$1,424,344</b>	<b>\$1,622,000</b>	<b>\$1,161,570</b>	<b>\$1,819,000</b>	<b>\$121,757</b>

**ANNEX 1 TABLE 13: CROSS-SECTORAL BUDGETARY ALLOCATIONS AND ACTUAL EXPENDITURES BY CLIMATE RELEVANCE, MINISTRY AND SOURCE OF FUND**

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
<b>High</b>	<b>\$488,000</b>		<b>\$204,752</b>				<b>\$42,000</b>		<b>\$61,054</b>	<b>\$72,000</b>		<b>\$257,478</b>
<b>Ministry of Commerce, Industry, and Environment</b>	<b>\$488,000</b>		<b>\$204,752</b>									
<b>Development Partners</b>	<b>\$488,000</b>		<b>\$204,752</b>									
GCF Readiness Support for Timor-Leste	\$143,000		\$204,752									
Second National Communication-SNC (90907)	\$345,000											
<b>Ministry of Finance</b>							<b>\$14,000</b>			<b>\$24,000</b>		
<b>Development Partners</b>							<b>\$14,000</b>			<b>\$24,000</b>		
Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste							\$14,000			\$24,000		
<b>Ministry of Foreign Affairs and Cooperation</b>							<b>\$14,000</b>			<b>\$24,000</b>		
<b>Development Partners</b>							<b>\$14,000</b>			<b>\$24,000</b>		
Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste							\$14,000			\$24,000		
<b>Office of Prime Minister</b>							<b>\$14,000</b>		<b>\$61,054</b>	<b>\$24,000</b>		<b>\$257,478</b>
<b>Development Partners</b>							<b>\$14,000</b>		<b>\$61,054</b>	<b>\$24,000</b>		<b>\$257,478</b>
Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste							\$14,000		\$61,054	\$24,000		\$257,478
<b>Medium</b>			<b>\$218,063</b>			<b>\$415,437</b>	<b>\$1,075,000</b>		<b>\$808,650</b>	<b>\$100,000</b>		<b>\$20,540</b>
<b>Ministry of Finance</b>							<b>\$223,000</b>		<b>\$11,650</b>	<b>\$100,000</b>		<b>\$20,540</b>
<b>Development Partners</b>							\$223,000		\$11,650	\$100,000		\$20,540
TA:9704: Support for Achieving Government's							\$223,000		\$11,650	\$100,000		\$20,540

	2018			2019			2020			2021		
	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.	Original Budget	Final Budget	Actual Exp.
Strategic Development Plan 2030 and SDGs												
<b>Ministry of Public Works</b>			<b>\$218,063</b>			<b>\$415,437</b>	<b>\$852,000</b>		<b>\$797,000</b>			
<b>Development Partners</b>			\$218,063			\$415,437	\$852,000		\$797,000			
TA 9495-TIM: Policy and Planning Development for Public Investments, Subproject 1			\$218,063			\$415,437	\$852,000		\$797,000			
<b>Grand Total</b>	<b>\$488,000</b>		<b>\$422,815</b>			<b>\$415,437</b>	<b>\$1,117,000</b>		<b>\$869,704</b>	<b>\$172,000</b>		<b>\$278,018</b>

## **Annex 2: Actual Climate Expenditure by Climate Relevance and CPEIR Typology**

ANNEX 2 TABLE 1: EDUCATION SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

	Medium Relevance				Medium Total	High Relevance				High Total
	2018	2019	2020	2021		2018	2019	2020	2021	
<b>Scientific, Technical and Societal Capacity (ST)</b>				\$47,392	\$47,392	\$60,724	\$41,536	\$6,918	\$25,565	\$134,742
<b>ST2: Improve awareness of climate change</b>				\$47,392	\$47,392	\$60,724	\$41,536	\$6,918	\$25,565	\$134,742
<b>ST2.1 Climate change awareness building in curriculums of primary to higher education establishments</b>				\$47,392	\$47,392	\$60,724	\$41,536	\$6,918	\$25,565	\$134,742
Agroecology based school garden program						\$34,980	\$41,536	\$5,780	\$700	\$82,996
Coordination and development of national environmental education policy						\$25,744		\$1,138	\$24,865	\$51,746
Establish an attractive environment to promote learning through school environmental activities										
Introduce and implement education programs for citizenship and education for sustainable development				\$47,392	\$47,392					
<b>Climate Change Delivery (CCD)</b>		\$2,816,809			\$2,816,809				\$28,445	\$28,445
<b>CCD1: Natural resources</b>		\$2,816,809			\$2,816,809					
<b>CCD1.6 Rural development and food security</b>		\$2,816,809			\$2,816,809					
HATUTAN Education and Nutrition Program		\$2,816,809								
<b>CCD2: Resilient society</b>									\$28,445	\$28,445
<b>CCD2.2 Education and Social Protection</b>									\$28,445	\$28,445
Green School									\$28,445	\$28,445
<b>CCD2.7 Strengthening disaster risk reduction</b>										
Providing students emergency support against natural disasters										
<b>Grand Total</b>		\$2,816,809		\$47,392	\$2,864,201	\$60,724	\$41,536	\$6,918	\$54,010	\$163,187

ANNEX 2 TABLE 2: HEALTH SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

	Low Climate Relevance				Low Total	Medium Climate Relevance				Medium Total	High Climate Relevance				High Total
	2018	2019	2020	2021		2018	2019	2020	2021		2018	2019	2020	2021	
<b>Climate Change Delivery (CCD)</b>	477627	996094	1007310	696496	3177527	18487098	18459840	21390269	4384505	62721712	8982805	6391097	3991422	149267	19514591
<b>CCD1: Natural resources</b>						4258969	5282596	4062659	679383	14283606	533785	548764	306145	28129	1416823
<b>CCD1.5 Water quality and supply</b>											533785	548764	306145	28129	1416823
Increasing Community Resilience in Oecusse											533785	548764	306145	28129	1416823
<b>CCD1.6 Rural development and food security</b>						4258969	5282596	4062659	679383	14283606					
HATUTAN Education and Nutrition Program							929780			929780					
Provide nutritious foods and raise awareness through social behaviour change communication (SBCC) for children under 5, adolescent girls						540626	254376	504525	65307	1364834					



Corporate Pillar 4: More effective and efficient WHO to better supporting countries						386260	386260		
National HIV/AIDS Programme (NAP)/ Expanded Comprehensive Response to HIV/AIDS in Timor-Leste									
National Malaria Programme (NMP)									
National TB Programme (NTP) and Resilient and Sustainable Systems for Health (RSSH)/ Reducing the Burden of Tuberculosis in the Democratic Republic of Timor-Leste									
OCR (Outbreak and Crises Response)								331	331
PIP (Pandemic Influenza Preparedness Framework)								176653	326096
Provide technical assistance and evidence to government and partners for enhancing efficiency of national programmes and safety nets (activity category 9)			83958	188902	293798	66384	633042	124905	627654
Provide technical expertise for the development of an efficient and effective supply chain management system to government (activity category 9)	477627	340168	597940	308693	1724428				
Strategic Priority 1: 2020-21 TLS ACTIVITY WORKPLAN SP-1 Universal Health Coverage (UHC)						2932587	2932587		
Strategic Priority 2: 2020-21 TLS ACTIVITY WORKPLAN SP-2 Health Emergencies: People better protected from health emergencies: Strengthened national, regional and global capacities for better protecting people from epidemics and other health emergencies and ensuring that populations								336460	336460
Strategic Priority 3: 2020-21 TLS ACTIVITY WORKPLAN SP-3: Health impacts of climate change, environmental risks and other determinants of health addressed, including in small island developing States and other vulnerable settings								417357	417357
Strengthening Service Assistance for Primary Health Care through Community	655926	409370	387803	1453099					



Supporting Flood response and recovery

<b>Grand Total</b>	\$719,421	\$664,348	\$1,997,251	\$446,614	\$3,827,635	\$348,342	\$6,794,039	\$7,142,381
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\$123,597 \$123,597

ANNEX 2 TABLE 4: ENVIRONMENT SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

	High				High Total
	2018	2019	2020	2021	
<b>Policy and Governance</b>	<b>\$109,478</b>	<b>\$300,229</b>	<b>\$200,471</b>	<b>\$206,927</b>	<b>\$817,106</b>
<b>PG2: A comprehensive consistent national mitigation policy framework</b>	<b>\$47,233</b>	<b>\$6,177</b>		<b>\$137,183</b>	<b>\$190,593</b>
<b>PG2.3 Manage and monitor implementation of Mitigation policies</b>	<b>\$47,233</b>	<b>\$6,177</b>		<b>\$137,183</b>	<b>\$190,593</b>
Inspection in monitoring the implementation of PGA (Environmental Management Plan)	\$25,960	\$297		\$62,181	\$88,438
Pollution control and waste management and implementation of zero plastic policy	\$21,273	\$5,880		\$75,002	\$102,155
<b>PG4: Legal framework to implement climate change policy (all elements of climate change/green growth policies)</b>	<b>\$62,245</b>	<b>\$109,450</b>	<b>\$96,526</b>	<b>-\$1,400</b>	<b>\$266,822</b>
<b>PG4.3. Mitigation and Adaptation Instruments</b>	<b>\$62,245</b>	<b>\$109,450</b>	<b>\$96,526</b>	<b>-\$1,400</b>	<b>\$266,822</b>
Issuing of environmental licenses		\$98,650	\$2,706	-\$520	\$100,837
Verification of project locations as part of environmental permit issuance	\$62,245	\$10,800	\$93,820	-\$880	\$165,985
<b>PG5: International cooperation, integration and diversification and strengthening of climate change investment effectiveness</b>		<b>\$184,602</b>	<b>\$103,945</b>	<b>\$71,144</b>	<b>\$359,691</b>
<b>PG5.1 Strengthen cooperation and partnership with international community on climate change issues</b>		<b>\$184,602</b>	<b>\$103,945</b>	<b>\$71,144</b>	<b>\$359,691</b>
Attends regional and international meetings and participates in the Conference of the UNFCCC, Ozone, IRENA and CPLP					
Celebrate World Environment Day, and environment protection program					
Celebration of the International Day for Biological Diversity					
Increase national capacity to access green climate		\$153,503	\$59,623	\$20,100	\$233,227
Participation in events and conferences on the environment at the international level.					
Strengthening targeted national capacities to improve decision-making and mainstreaming global environmental obligations into national development priorities (00108967)		\$31,098	\$44,322	\$51,044	\$126,464
<b>Scientific, Technical and Societal Capacity (ST)</b>	<b>\$34,837</b>	<b>\$70,124</b>	<b>\$99,738</b>	<b>\$127,310</b>	<b>\$332,009</b>
<b>ST1: Develop science &amp; technology as a foundation for formulating policies, assessing impacts and identifying measure on climate change adaptation and mitigation</b>	<b>\$34,837</b>	<b>\$70,124</b>	<b>\$99,738</b>	<b>\$87,310</b>	<b>\$292,009</b>
<b>ST1.1 Information and database development</b>	<b>\$34,837</b>	<b>\$70,124</b>	<b>\$99,738</b>	<b>\$87,310</b>	<b>\$292,009</b>
Continue to implement the Integrated Vulnerability Assessment (IVA) program at the sucos level				\$32,000	\$32,000
Develop, manage and operate meteorological, climatology and seismology surveillance systems	\$34,837	\$70,124	\$99,738	\$53,810	\$258,509
Mitigation Data Collection					
Survey and definition of annual environmental status and environmental resource				\$1,500	\$1,500
<b>ST2: Improve awareness of climate change</b>				<b>\$40,000</b>	<b>\$40,000</b>
<b>ST2.2 Awareness of climate change in diverse education and training initiatives for post-school aged earners</b>				<b>\$40,000</b>	<b>\$40,000</b>
Dissemination of information on protection and conservation of biodiversity resources					

Provide the training of good environmental practices and intervention in the areas of greater risk of degradation

Tara Bandu (11 Tara Bandu seminars / awareness and culture sessions held)

\$40,000

\$40,000

<b>Climate Change Delivery (CCD)</b>	<b>\$109,861</b>	<b>\$2,402,352</b>	<b>\$2,972,298</b>	<b>\$764,509</b>	<b>\$6,249,019</b>
<b>CCD1: Natural resources</b>	<b>\$31,211</b>	<b>\$593,894</b>	<b>\$941,779</b>	<b>\$601,098</b>	<b>\$2,167,982</b>
<b>CCD1.7 Forest development</b>	<b>\$31,211</b>	<b>\$593,894</b>	<b>\$941,779</b>	<b>\$601,098</b>	<b>\$2,167,982</b>
Develop an agroforestry system		\$5,000			\$5,000
ENV/2020/416278 -Rai Matak (Green Lands) Program: Carbon Farming for Timor-Leste			\$922,294		\$922,294
Manage and protect forests	\$20,148		\$2,925	\$5,700	\$28,773
Operationalization of the Maubara permanent nurseries centres, permanent community nurseries of forests and mangroves (ai-parapa)	\$11,063	\$224,729	\$4,565	\$119,543	\$359,900
Promote investment in the forest sector, such as sandalwood (Santalum album). er and demarcate industrial plantations (sandalwood, teak, mahagoni, saria, bamboo, etc.)		\$192,925	\$4,360	\$84,826	\$282,111
Promote investment in the forest sector such as commercial plantation: saria (Toona sureni), teak (Tecto- na grandis) and mahagoni (Swietenia sp) and pau rosa (Pterocarpus indicus)		\$129,942	\$6,820	\$35,393	\$172,155
Promote investment in the forest sector, such as native plantations and bamboo		\$12,000	\$815		\$12,815
Promote the expansion of Community-Based Natural Resources Management programs, maintaining and strengthening communities participation in the development of the forest sector		\$9,300		\$4,992	\$14,292
Reforestration and rehabilitation of degraded areas.		\$19,998		\$4,285	\$24,283
ENV/2021/423328 - Technical Assistance to Support Carbon Farming, Location -Timor-Leste				\$346,360	\$346,360
<b>CCD1.9 Biodiversity &amp; conservation</b>					
Restoration of degraded lands, biodiversity					
<b>CCD2: Resilient society</b>	<b>\$78,650</b>	<b>\$1,808,458</b>	<b>\$2,030,518</b>	<b>\$163,411</b>	<b>\$4,081,037</b>
<b>CCD2.7 Strengthening disaster risk reduction</b>	<b>\$78,650</b>	<b>\$1,808,458</b>	<b>\$2,030,518</b>	<b>\$163,411</b>	<b>\$4,081,037</b>
Strengthening Critical Resilience Capacities to Climate Change and Natural Disasters in Timor-Leste		\$1,000,000	\$1,400,000		\$2,400,000
STRENGTHENING INSTITUTIONAL CAPACITY FOR DISASTER RISK REDUCTION AND MANAGEMENT IN TIMOR-LESTE (DR.0010)	\$73,641	\$704,173	\$581,666		\$1,359,479
Strengthening Government of Timor-Leste Capacity for Disaster Management-Logistical Support for ICS Training in Timor-Leste (Phase II) -CS.0822	\$5,009		\$8,698		\$13,708
CS.0822-Strengthening Government of Timor-Leste Capacity for Disaster Management-Logistical Support for ICS Training in Timor-Leste (Phase II)		\$104,285	\$40,154		\$144,439
Enhancing Rapid Disaster Response for Flooding in Timor-Leste-DP.2326				\$100,000	\$100,000
Tropical Cyclone Seroja post-disaster assessment and support to resilience building.				\$63,411	\$63,411
<b>Grand Total</b>	<b>\$254,176</b>	<b>\$2,772,704</b>	<b>\$3,272,507</b>	<b>\$1,098,746</b>	<b>\$7,398,133</b>

ANNEX 2 TABLE 5: ROADS AND BRIDGES SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

	Medium				Medium Total	High				High Total
	2018	2019	2020	2021		2018	2019	2020	2021	
<b>Scientific, Technical and Societal Capacity (ST)</b>										
<b>ST3: Develop community capacity for responding to climate change</b>										
<b>ST3.2 Capacity across whole community in climate change response</b>										
Planning, researching and designing and controlling of flood										
<b>Climate Change Delivery (CCD)</b>	<b>\$88,900,059</b>	<b>\$132,200,132</b>	<b>\$72,758,523</b>	<b>\$4,095,446</b>	<b>\$297,954,161</b>	<b>\$47,540,523</b>	<b>\$30,027,376</b>	<b>\$24,493,839</b>	<b>\$1,792,682</b>	<b>\$103,854,419</b>
<b>CCD2: Resilient society</b>	<b>\$88,900,059</b>	<b>\$132,200,132</b>	<b>\$72,758,523</b>	<b>\$4,095,446</b>	<b>\$297,954,161</b>	<b>\$47,540,523</b>	<b>\$30,027,376</b>	<b>\$24,493,839</b>	<b>\$1,792,682</b>	<b>\$103,854,419</b>
<b>CCD2.4 Transport</b>	<b>\$88,900,059</b>	<b>\$132,200,132</b>	<b>\$72,758,523</b>	<b>\$4,095,446</b>	<b>\$297,954,161</b>	<b>\$42,009,927</b>	<b>\$29,113,512</b>	<b>\$24,493,839</b>	<b>\$1,792,682</b>	<b>\$97,409,960</b>
34 Emergency Roads Project PACKAGE C (***) Annex 9						\$21,779,000	\$10,660,000	\$8,292,000		\$40,731,000
38 Emergency Project 2013 in 5 Municipalities PACKAGE B (***) Annex 8						\$506,000	\$984,000	\$244,000		\$1,734,000
60 Roads Project Implements Iha 12 Counties (***) Annex 10	\$10,969,000	\$12,345,000	\$3,828,000		\$27,142,000					
Asalainu Road Rehabilitation - With Be Mos Maintenance (Annex 13)	\$1,327,000	\$1,187,000	\$52,000		\$2,566,000					
Bridge rehabilitation	\$282,000	\$78,000			\$360,000					
Bus stop construction in (Bus stop) in Díli Construction and supervision for the development of Díli Liquisa roads and Tibar - Ermera (L-CF)	\$7,088,000				\$7,088,000					
Construction and supervision for the road development Díli-Mantuto-Baucau (L-CF)	\$2,214,000	\$4,102,000	\$2,291,000		\$8,607,000					
Construction and Supervision of Baucau Roads Lautem (L-CF)	\$311,000	\$1,410,000	\$1,276,000	\$349,000	\$3,346,000					
Construction and Supervision of Baucau Roads Viqueque (L-CF)		\$1,046,000	\$1,989,000		\$3,035,000					
Construction and Supervision of Roads Four Ways Tasi Tolu-Porto Tibar (L-CF)	\$1,768,000	\$1,063,000	\$1,362,000	\$381,000	\$4,574,000					
Construction and Supervision of Rotunda in Porto Tibar (Include indiminizasaun)										
Construction Be'emos Bridge iha Comoro type ulun										
Construction of Arch Bridge for Comoro I/II	\$106,000	\$2,060,000	\$432,000		\$2,598,000					
Construction of Baer Bridge										
Construction of Bidau-Santa Ana bridge	\$664,000	\$2,862,000		\$480,000	\$4,006,000					
Construction of new bridge at Kaboska River										
Aldeia Bemetan suku Betano in Same, Manufahi		\$95,000			\$95,000					
Construction Of New Steel Truss Bridge 50m In Vila Ma ria - Hatolia, Ermera District		\$850,000			\$850,000					
Construction of Taroman Bridge										
Construction Of Wai Wono Bridge In Baucau District	\$404,000	\$269,000			\$673,000					
Construction of New Steel Bridge Jct. 100m in Milotu Sahe River, Jct. Fatucmanaun, Soibada		\$121,000	\$1,213,000	\$659,000	\$1,993,000					

Dilor Bridge Protection						\$1,144,000	\$769,000	\$341,000		\$2,254,000
Emergency Construction of New Roads from Ainaro Villa to Sarai (Jakarta II)								\$1,139,000		\$1,139,000
Emergency Construction of Two Concrete Bridges in Jakarta III, Ainaro District						\$2,094,000				\$2,094,000
Emergency Flood Control Protection, Seical River, Baucau						\$1,298,000	\$401,000			\$1,699,000
Emergency road construction implemented in 2013 Enhancing Rural Access Agro-Forestry (ERA						\$164,000	\$300,000	\$63,000		\$527,000
Agro-Forestry): Improving access to agro-forestry areas						\$1,616,927	\$2,951,201	\$3,688,426	\$1,792,682	\$10,049,236
Estrada Soebada - Fatukamanaun	\$1,200,000	\$300,000	\$1,349,000	\$12,000	\$2,861,000					
Flood Emergency Projects of the day March 13, 2020 in Dili Annex 14								\$6,305,000		\$6,305,000
Flood Emergency Projects of the day March 13, 2020 in Dili Annex 15										
G0404-TIM: ROAD NETWORK UPGRADING SECTOR PROJECT(ADDITIONAL FINANCING): The outcome will be that the MPWTC provides a more reliable and safer road network	\$538,397	\$1,038,947	\$98,214		\$1,675,558					
Keep and manage the national vehicle registration system	\$10,020	\$404,550	\$313,382	\$133,098	\$861,051					
List of Preparation projects for the Feasibility Study and Detailed Design of MOP Infrastructure Projects Annex 17										
List of proposed projects for study technical and detailing in the implements a Project										
Manatuto-Natarbora Design, Supervision and Other Costs associated with the road development (L-CF)	\$4,232,000	\$3,068,000		\$69,000	\$7,369,000					
Mota Masin bridge construction in Suai	\$957,000	\$220,000			\$1,177,000					
National Road Rehabilitation (Potholes Repair)	\$84,000				\$84,000					
New Construction of Bridge T - Beam a t Ma sau Debu River - Becora (2X15 m), Municipality of Dili (Livro A3: Ponte Auhun Benamauk)	\$1,498,000	\$204,000			\$1,702,000					
Recovering the conditions of roads and bridges (emergency response)										
Rehabilitasaun Ponte Pakote 8 project iha 7 Municipalities (*****) Annex 12	\$1,217,000	\$1,789,000	\$801,000		\$3,807,000					
Rehabilitasaun Roads Maubise - Bubur Laran Dalan ba Turiskai (Pacote I)		\$387,000			\$387,000					
Rehabilitation and construction of urban roads Phase II	\$6,116,000	\$4,384,000	\$4,028,000		\$14,528,000					
Rehabilitation of Aituto-Same Roads	\$8,373,000	\$3,832,000			\$12,205,000					
Rehabilitation of Dili-Manleuana roads-Solerema-Aileu 15 km	\$4,520,000	\$4,363,000	\$2,443,000		\$11,326,000					
Rehabilitation of Edmumu-Irabere Roads										
Rehabilitation of Ermera-Hatulua Roads										
Rehabilitation of Jct. Balibo Cowa Postu UPF hasnaruk Road (Sta 10+000-19+250) Bridge Section Jct. Katimun Ren Aisukar		\$111,000			\$111,000					
Rehabilitation of laleno road project road section (Sta 0+000-6+210) maina 2 in Lautem		\$1,229,000	\$916,000		\$2,145,000					
Rehabilitation of Lospalos-Iloma Roads	\$368,000				\$368,000					

Rehabilitation of Luro-Buihumau Roads									
Rehabilitation of Maubesse-Turiskai Roads		\$215,000				\$215,000			
Rehabilitation of Ossu - Viqueque Roads		\$186,000				\$186,000			
Rehabilitation of road Monumento- Laclubar, mercado huo-Lu Manatuto	\$441,000	\$1,150,000				\$1,591,000			
Rehabilitation of Urban Roads									
Rehabilitation of Urban Roads in Same	\$2,666,000					\$2,666,000			
Rehabilitation of Wiuka District Roads - Quelikai		\$1,127,000	\$360,000			\$1,487,000			
Road Climate Resilience Project							\$11,603,000	\$7,081,000	\$3,055,000
Road construction and supervision Aitutu - Hatubuliko - Letefoho Ermera - Gleno (L - CF)									\$21,739,000
Road Maintenance Routines (Annex 13)	\$2,311,000	\$816,000	\$214,000			\$3,341,000			
Road network Upgrading Sector Project, Upgrading and maintenance of Maubara - Karimbala and Atabae - Mota Ain Roads	\$249,000	\$1,107,000	\$526,000	\$233,000		\$2,115,000			
Road Rehabilitation - Flood Control							\$1,805,000	\$1,072,000	\$440,000
Road Rehabilitation A01 Jct Cairra Vela - Cacido - Baucau Airport	\$4,306,000	\$1,970,000				\$6,276,000			
Road Rehabilitation Package 135 project iha 11 Municipalities (****) Annex 11	\$13,714,000	\$69,620,000	\$44,237,000			\$127,571,000			
Road Rehabilitation s Atauro Villa - Beloi -Biqueli Roads for Development (R4D) Phase II - R4D Support Program. Australia's R4D Support Program (R4D-SP) work to strengthen the capacity of the National Directorate of Roads, Bridges and Flood Control (DRBFC) within the Ministry of Public Work, Transport and Comunication (MPWTC) to oversee rehabilitation and maintenance of rural roads using private sector contractors.	\$3,833,642	\$4,214,635	\$3,328,927	\$1,779,348		\$13,156,552			
Rural Road (R4D) Annex 13	\$5,830,000	\$2,384,000	\$1,701,000			\$9,915,000			
TA 9502-TIM: Promoting Sustainable Land Transport Infrastructure								\$722,849	\$280,245
Waicua Bridge Construction	\$820,000	\$592,000				\$1,412,000			
Timor Leste Road Climate Resilience Project - P125032								\$4,172,462	\$646,167
<b>CCD2.6 Disaster specific infrastructure</b>							\$300,000		\$300,000
Seawall Protection iha Mana tuto Vila							\$300,000		\$300,000
<b>CCD2.7 Strengthening disaster risk reduction</b>							\$5,230,596	\$913,863	\$6,144,459
Building Climate/Disaster Resilience Along the Dili-Ainaro and Linked Road Corridors in Timor-Leste - P144818 - TF018187							\$1,083,178		\$1,083,178
Building Climate/Disaster Resilience Along the Dili-Ainaro and Linked Road Corridors in Timor-Leste - P144818 - TF018188								\$479,488	\$479,488
Strengthening Community Resilience to Climate-induced disasters in the Dili to Ainaro Road Development Corridor, Timor-Leste							\$2,099,418	\$434,376	\$2,533,794
Strengthening Resilience Small Scale Rural Infrastructure -SSRI									
Tasitolu Emergency Project Municipality of Dili							\$2,048,000		\$2,048,000

<b>Grand Total</b>	\$88,900,059	\$132,200,132	\$72,758,523	\$4,095,446	\$297,954,161	\$47,540,523	\$30,027,376	\$24,493,839	\$1,792,682	\$103,854,419
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**ANNEX 2 TABLE 6: WATER AND SANITATION SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY**

	Medium				Medium Total
	2018	2019	2020	2021	
<b>Policy and Governance</b>			\$604,000		\$604,000
<b>PG3: Action Plan Impact Assessment at national, provincial, and sector level to translate policy and governance into activity and delivery</b>			\$604,000		\$604,000
PG3.1 Action and Sector Plans			\$604,000		\$604,000
Master plan, system design and studies related to Water and Sanitation (national level)			\$604,000		\$604,000
<b>Climate Change Delivery (CCD)</b>	\$2,694,794	\$2,193,103	\$2,707,547	\$767,000	\$8,362,444
<b>CCD1: Natural resources</b>	\$2,261,794	\$2,049,103	\$2,286,547	\$767,000	\$7,364,444
CCD1.5 Water quality and supply	\$2,261,794	\$2,049,103	\$2,286,547	\$767,000	\$7,364,444
Australia - Timor-Leste Partnership for Human Development - Sanitation (and Water) Sector	\$2,187,325	\$1,362,860	\$452,128		\$4,002,313
Construction and supervision of Water and Sanitation (national level)					
Design, construction and Supervision of Urban water supply and sanitation for 7 municipalities (Covalima, Aileu, Ainaro, Bobonaro, Ermera, Liquica and Manatuto)					
Dili Water Supply (PPP)	\$5,000	\$45,000	\$163,000	\$27,000	\$240,000
Emergency project ba Inundasaun 13 de Framework 2020 (Water and Sanitation)			\$240,000		\$240,000
Feasibility Study of Surface Water Resource Development for the Water Supply of Dili Metropolitan Area + Pre- Feasibility Study of a Ground Water Resources Development Project for the Water Supply of Dili Metropolitan Area + Detailed Design for water retention and transmissio + Construction and Supervision for water retention and transmissio + Prioritization of national water resources and Baragem development program monitoring of water resources and studies surface water + Prioritization of national water resources and Baragem development program ground water monitoring		\$114,000	\$162,000		\$276,000
G0258: District Capital Water Supply Project (Grant Project)	\$56,469	\$506,243	\$926,420	\$126,000	\$1,615,132
Infrastructure development of water supply and sanitation in Municipal Centers			\$343,000	\$614,000	\$957,000
Study, Design and Construction Line of Potable Water Distribution in Zones 2-9 in Dili and Suai	\$13,000	\$21,000			\$34,000
Water and Sanitation project in Baucau Municipality (L- CF)					
<b>CCD2: Resilient society</b>	\$433,000	\$144,000	\$421,000		\$998,000
CCD2.5 Waste management and treatment	\$433,000	\$144,000	\$421,000		\$998,000
Construction and supervision of Sewage in Dili	\$433,000	\$144,000	\$421,000		\$998,000
<b>Grand Total</b>	\$2,694,794	\$2,193,103	\$3,311,547	\$767,000	\$8,966,444

**ANNEX 2 TABLE 7: ELECTRICITY SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY**

	High				High Total
	2018	2019	2020	2021	
<b>Climate Change Delivery (CCD)</b>	\$1,000,000				\$1,000,000
<b>CCD3: Enterprise and production</b>	\$1,000,000				\$1,000,000
<b>CCD3.1 Energy generation</b>	\$1,000,000				\$1,000,000

Develop renewable energy production plants	\$512,000	\$512,000
Install and maintain photovoltaic system	\$488,000	\$488,000
<b>Grand Total</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>

ANNEX 2 TABLE 8: TELECOMMUNICATIONS SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

	Medium				Medium Total
	2018	2019	2020	2021	
<b>Climate Change Delivery (CCD)</b>	<b>\$2,133,000</b>	<b>\$4,045,000</b>	<b>\$1,000,000</b>		<b>\$7,178,000</b>
<b>CCD2: Resilient society</b>	<b>\$2,133,000</b>	<b>\$4,045,000</b>	<b>\$1,000,000</b>		<b>\$7,178,000</b>
<b>CCD2.4 Transport</b>	<b>\$263,000</b>	<b>\$62,000</b>			<b>\$325,000</b>
National Connectivity Project	\$263,000	\$62,000			\$325,000
<b>CCD2.7 Strengthening disaster risk reduction</b>	<b>\$1,870,000</b>	<b>\$3,983,000</b>	<b>\$1,000,000</b>		<b>\$6,853,000</b>
Extension of the Fiber-Optical Network PCN II	\$809,000	\$1,429,000	\$856,000		\$3,094,000
Satellite Internet Connectivity Upgrade from 20 Mbps to 60/80 Mbps	\$1,061,000	\$2,554,000	\$144,000		\$3,759,000
Study on Installation of Optical Fiber					
Supply and Installation of National Connectivity Project VII					
<b>Grand Total</b>	<b>\$2,133,000</b>	<b>\$4,045,000</b>	<b>\$1,000,000</b>		<b>\$7,178,000</b>

ANNEX 2 TABLE 9: RURAL (AND URBAN) DEVELOPMENT SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

	Medium				Medium Total	High				High Total
	2018	2019	2020	2021		2018	2019	2020	2021	
<b>Policy and Governance</b>										
<b>PG3: Action Plan Impact Assessment at national, provincial, and sector level to translate policy and governance into activity and delivery</b>										
<b>PG3.1 Action and Sector Plans</b>										
Municipal Spatial Planning										
Studies and design plan for National Urban Planning										
<b>Scientific, Technical and Societal Capacity (ST)</b>						<b>\$4,245,000</b>	<b>\$4,293,000</b>	<b>\$798,000</b>	<b>\$301,000</b>	<b>\$9,637,000</b>
<b>ST1: Develop science &amp; technology as a foundation for formulating policies, assessing impacts and identifying measure on climate change adaptation and mitigation</b>						<b>\$4,245,000</b>	<b>\$4,293,000</b>	<b>\$798,000</b>	<b>\$301,000</b>	<b>\$9,637,000</b>
<b>ST1.1 Information and database development</b>						<b>\$4,245,000</b>	<b>\$4,293,000</b>	<b>\$798,000</b>	<b>\$301,000</b>	<b>\$9,637,000</b>
LIDAR SURVEY AND SPATIAL MAPPING OF TIMOR-LESTE (Integrated Survey of Air Geophysicist)						\$4,245,000	\$4,293,000	\$798,000	\$301,000	\$9,637,000
<b>Climate Change Delivery (CCD)</b>		<b>\$15,000</b>			<b>\$15,000</b>	<b>\$1,054,886</b>	<b>\$22,363</b>	<b>\$2,891,484</b>	<b>\$754,582</b>	<b>\$4,723,315</b>
<b>CCD1: Natural resources</b>						<b>\$611,206</b>				<b>\$611,206</b>
<b>CCD1.6 Rural development and food security</b>						<b>\$611,206</b>				<b>\$611,206</b>

Global Climate Change Alliance (GCCA) Programme Timor-Leste 336310									\$611,206						\$611,206
<b>CCD2: Resilient society</b>	<b>\$15,000</b>				<b>\$15,000</b>				<b>\$410,644</b>		<b>\$2,835,178</b>	<b>\$754,582</b>		<b>\$4,000,404</b>	
<b>CCD2.3 Residential and city area resilience</b>															
Construction garden iha munisipiu (munisipiu Dili-garden iha MJ at CNE nia oin)															
<b>CCD2.4 Transport</b>															
Bicycle line (Joging track) husi Ponte Habibe ba Christ the King															
<b>CCD2.5 Waste management and treatment</b>	<b>\$15,000</b>				<b>\$15,000</b>										
Solid Waste Management Urbana do Municipality of Dili	\$15,000				\$15,000										
<b>CCD2.7 Strengthening disaster risk reduction</b>									<b>\$410,644</b>		<b>\$2,835,178</b>	<b>\$754,582</b>		<b>\$4,000,404</b>	
Safeguarding rural communities and their physical assets from climate induced disasters in Timor-Leste.107294											\$483,568	\$31,183		\$514,751	
Safeguarding rural communities and their physical assets from climate induced disasters in Timor-Leste.107295												\$723,399		\$723,399	
DISASTER RISK REDUCTION – BUILDING COMMUNITY RESILIENCE IN TIMOR-LESTE (DRRBCR) PHASE III									\$410,644					\$410,644	
ENV/2020/417385 - Maloa Urban Resilience Initiative											\$2,351,610			\$2,351,610	
<b>CCD3: Enterprise and production</b>									<b>\$33,036</b>	<b>\$22,363</b>	<b>\$56,306</b>			<b>\$111,705</b>	
<b>CCD3.1 Energy generation</b>									<b>\$33,036</b>	<b>\$22,363</b>	<b>\$56,306</b>			<b>\$111,705</b>	
Promoting Sustainable Bio-energy Production from Biomass (SBEPB) in Timor-Leste(00088130)									\$33,036	\$22,363	\$56,306			\$111,705	
<b>Grand Total</b>	<b>\$15,000</b>				<b>\$15,000</b>				<b>\$5,299,886</b>	<b>\$4,315,363</b>	<b>\$3,689,484</b>	<b>\$1,055,582</b>		<b>\$14,360,315</b>	

ANNEX 2 TABLE 10: AGRICULTURE SECTOR SPECIFIC ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY

	Low				Low Total	Medium				Medium Total	High				High Total
	2018	2019	2020	2021		2018	2019	2020	2021		2018	2019	2020	2021	
<b>Climate Change Delivery (CCD)</b>	<b>\$1,163,003</b>	<b>\$2,500,981</b>	<b>\$2,684,850</b>	<b>\$1,892,594</b>	<b>\$8,241,428</b>	<b>\$4,652,717</b>	<b>\$5,650,774</b>	<b>\$3,432,978</b>	<b>\$5,006,314</b>	<b>\$18,742,784</b>	<b>\$10,449,686</b>	<b>\$6,758,940</b>	<b>\$5,743,573</b>	<b>\$2,597,749</b>	<b>\$25,549,948</b>
<b>CCD1: Natural resources</b>	<b>\$1,163,003</b>	<b>\$2,500,981</b>	<b>\$2,684,850</b>	<b>\$1,892,594</b>	<b>\$8,241,428</b>	<b>\$4,652,717</b>	<b>\$5,650,774</b>	<b>\$3,432,978</b>	<b>\$5,006,314</b>	<b>\$18,742,784</b>	<b>\$10,449,686</b>	<b>\$6,698,614</b>	<b>\$5,704,820</b>	<b>\$2,570,037</b>	<b>\$25,423,157</b>
<b>CCD1.1 Coastal protection and coastal dykes</b>											<b>\$2,090,394</b>	<b>\$1,405,194</b>	<b>\$1,808,092</b>	<b>\$584,854</b>	<b>\$5,888,533</b>
Building shoreline resilience of Timor-Leste to protect local communities and their livelihoods (00097253)											\$2,090,394	\$1,381,749	\$1,554,363	\$484,854	\$5,511,359
Implementation of the Arafura and Timor Seas Regional and National Strategic Action Programs (ATSEA-2) (00110428) ... includes mangrove restoration												\$23,445	\$253,729	\$100,000	\$377,174
<b>CCD1.3 Irrigation</b>						<b>\$2,209,000</b>	<b>\$772,000</b>	<b>\$1,126,000</b>	<b>\$869,000</b>	<b>\$4,976,000</b>	<b>\$1,182,000</b>	<b>\$250,000</b>	<b>\$47,000</b>		<b>\$1,479,000</b>

Buluto Irrigation Construction (Laleia River Protection+Construction of Cyclone concrete retaining wall in Vemase river)											\$1,099,000	\$250,000	\$47,000		\$1,396,000
Construction and supervision of irrigation Beikala															
Construction and supervision of irrigation of Carau-Ulun, Manufahi Phase II					\$462,000					\$462,000					
Construction and supervision of irrigation of Dardau						\$96,000	\$1,126,000	\$869,000		\$2,091,000					
Construction and supervision of irrigation of Galata															
Construction and supervision of irrigation of Laivai															
Construction and supervision of irrigation of Larisula					\$1,747,000	\$676,000				\$2,423,000					
Construction and supervision of irrigation of Oebaba Phase II											\$83,000				\$83,000
Construction and supervision of the Irrigation of Maukola															
Detailed study of irrigation schemes (include review of Maukola irrigation)															
<b>CCD1.5 Water quality and supply</b>					\$200,000		\$313,842	\$288,279		\$802,121					
Atsabe Rural Development Project for Improvement of Agricultural Water Supply System in Ermera District								\$313,842	\$288,279	\$602,121					
Atsabe Rural Development Project for Improving of Livelihood in Ermera District: Technical training for improving agricultural production in Atsabe					\$200,000					\$200,000					
<b>CCD1.6 Rural development and food security</b>	\$1,163,003	\$1,559,902	\$1,364,850	\$761,594	\$4,849,350	\$2,243,717	\$4,878,774	\$1,993,136	\$3,849,036	\$12,964,663	\$5,542,857	\$4,322,661	\$3,782,721	\$1,123,524	\$14,771,763
Adaptation research to crops of rice, maize, sweet potatoes, cassava, peanuts, wheat											-\$41,680	\$153,134		\$39,010	\$150,464







<b>CCD3: Enterprise and production</b>	\$1,382,366	\$1,305,857	\$676,228	\$3,364,452	\$123,346	\$118,487	\$485,342	\$121,757	\$848,933
<b>CCD3.4 Industry &amp; trade</b>	\$1,382,366	\$1,305,857	\$676,228	\$3,364,452	\$123,346	\$118,487	\$485,342	\$121,757	\$848,933
CSO-LA/2019/410716 -Hamenus Lixu Plastik The action provides platforms for engagement of government, private sector and civil society actors to , promote social responsibility in plastic recycling and climate change mitigation.							\$284,550	\$66,574	\$351,124
Follow on Advisory and Training for the Maritime Related Industries of Timor-Leste (ATMI II)	\$1,382,366	\$1,305,857	\$676,228	\$3,364,452					
Plastics Upcycling Alliance: The plastics upcycling alliance seeks to create a value chain for used plastic that will add to Timor-Leste's small manufacturing base, bring a measure of diversification to the oil-dependent economy, and move the country further along its journey to self-reliance						\$118,487	\$200,792	\$55,183	\$374,462
The Project for Building Recycling System on Agriculture "Transferring Waste into Treasure on the Basis of Haga City Model"					\$123,346				\$123,346
<b>Grand Total</b>	<b>\$1,382,366</b>	<b>\$1,305,857</b>	<b>\$676,228</b>	<b>\$3,364,452</b>	<b>\$123,346</b>	<b>\$118,487</b>	<b>\$485,342</b>	<b>\$121,757</b>	<b>\$848,933</b>

**ANNEX 2 TABLE 13: CROSS-SECTORAL ACTUAL CLIMATE EXPENDITURE BY CLIMATE RELEVANCE AND CPEIR TYPOLOGY**

	Medium				Medium Total	High			High Total
	2018	2019	2020	2021		2018	2020	2021	
<b>Policy and Governance</b>	<b>\$218,063</b>	<b>\$415,437</b>	<b>\$808,650</b>	<b>\$20,540</b>	<b>\$1,462,690</b>	<b>\$204,752</b>	<b>\$61,054</b>	<b>\$257,478</b>	<b>\$523,284</b>
<b>PG3: Action Plan Impact Assessment at national, provincial, and sector level to translate policy and governance into activity and delivery</b>	<b>\$218,063</b>	<b>\$415,437</b>	<b>\$808,650</b>	<b>\$20,540</b>	<b>\$1,462,690</b>		<b>\$61,054</b>	<b>\$257,478</b>	<b>\$318,532</b>
PG3.1 Action and Sector Plans	\$218,063	\$415,437	\$808,650	\$20,540	\$1,462,690		\$61,054	\$257,478	\$318,532
Integrated National Financing Framework (INFF) and Financial Diversification in Timor- Leste							\$61,054	\$257,478	\$318,532
Integrated National Financing Framework (INFF) and Financial Diversification in Timor-Leste							\$61,054	\$257,478	\$318,532
TA 9495-TIM: Policy and Planning Development for Public Investments, Subproject 1	\$218,063	\$415,437	\$797,000		\$1,430,500				
TA:9704: Support for Achieving Government's Strategic Development Plan 2030 and SDGs			\$11,650	\$20,540	\$32,190				
PG3.3 Climate change Capacity building									
Second National Communication-SNC (90907)									
<b>PG5: International cooperation, integration and diversification and strengthening of climate change investment effectiveness</b>						<b>\$204,752</b>			<b>\$204,752</b>
PG5.2 Effective management and coordination of foreign and domestic investment						\$204,752			\$204,752
GCF Readiness Support for Timor-Leste						\$204,752			\$204,752
<b>Grand Total</b>	<b>\$218,063</b>	<b>\$415,437</b>	<b>\$808,650</b>	<b>\$20,540</b>	<b>\$1,462,690</b>	<b>\$204,752</b>	<b>\$61,054</b>	<b>\$257,478</b>	<b>\$523,284</b>

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