



# National Adaptation Plans in focus: Lessons from Timor-Leste



**Timor-Leste** Timor-Leste is a small country (14,874 km<sup>2</sup>) in Southeast Asia, located northwest of Australia within eastern part of the Indonesian archipelago, occupying the eastern half of Timor Island. In addition, Timor-Leste includes the Oecusse exclave in the northwest of Timor Island, as well as the islands of Atauro and Jaco<sup>i</sup>. The country gained independence from Indonesia in August 1999 and was internationally recognized as an independent nation in May 2002. Timor-Leste has since experienced significant socio-economic progress.

As of 2018, almost 30.6 percent of the population (of around 1.27 million people) lives in urban areas<sup>ii</sup>. Oil accounts for over 90 percent of government revenues<sup>i</sup>. More than 80 percent of the population relies on agriculture as its main source of income<sup>iii</sup>. Poverty has decreased from 50 percent in 2007 to an estimated 41.8 percent in 2014<sup>ii</sup>. As of 2019, Timor-Leste ranks low (131 out of 189 countries and territories) in the United Nations Development Programme (UNDP) Human Development Reports<sup>iv</sup>. Despite this, the country has made substantial progress since independence, with GDP per capita increasing from US\$415.1 in 2000 to US\$1,294.2 in 2019<sup>v</sup>.

Timor-Leste’s tropical climate is characterized by a wet season (December to May) followed by a dry season (June to November). Rainfall amounts vary across the country, increasing significantly towards the mountainous interior. Mean annual temperatures range from 27°C at sea level to 15°C in the mountains. The West Pacific Monsoon, mountainous topography and the El Niño–Southern Oscillation strongly modulate the climate characteristics of Timor-Leste<sup>iii</sup>.

*“With erratic rainfall and then prolonged dry seasons, the crop cycle and harvest potential are becoming more unpredictable for farmers. Majority of the population in Timor-Leste are engaged in subsistence agriculture, so it essential that the National Adaptation Plan process is evidence-based and targeted”.*

**Augusto Pinto**, Director of National Directorate for Climate Change, Timor-Leste

## Climate change risks

Timor-Leste has experienced substantial changes in climatic conditions since the beginning of the 20<sup>th</sup> century. Observed changes include: temperature increase of 0.16°C per decade since 1950; an increase in sea surface temperatures by 0.15°C to 0.2°C per decade from 1950 to 2009; an increase in mean annual rainfall by 6.4 mm per decade from 1901 to 2009; and an increase in sea levels by 5.5 mm per year since 1993<sup>iii</sup>.

Climate stressors and associated climate risks are recognized in several important sectors of Timor-Leste’s economy, including water resources, agriculture, coastal ecosystems, and human health. For example,

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- increased temperatures and evaporation are negatively impacting the river systems in the country, as well as agricultural production;
- flooding can often decrease the quality of potable water sources, leading to outbreaks of waterborne diseases that compromise human health; and
- increased sea surface temperatures can induce temperature-related migration of fish to cooler waters thus affecting the fishing industry of Timor-Leste<sup>iii</sup>.



# Groundwork for supporting the NAP process



## Policy, planning and budgeting

The Government of Timor-Leste has initiated a robust response to climate change that is aligned with regional and national frameworks. In March 2020, with the support of UNDP, Timor-Leste held a national consultation workshop with sectoral stakeholders from ministries (Public Works, Agriculture and Fisheries, Health, Finance) and the National Directorate of Civil Protection and the Disaster Risk Reduction National Directorate. Timor-Leste has developed an initial National Adaptation Plan (NAP), which outlines: (1) national circumstances and political, economic and social background; (2) the importance of adaptation and a synthesis of the scientific evidence base to support adaptation efforts; (3) an overview of the results from a previously conducted vulnerability assessments; (4) preliminary sectoral adaptation programmes and (5) recommendations for next steps to expand the NAP process from 2020-2022. With several ministries involved, Timor-Leste identified the need to develop a resolution for the NAP, to ensure inclusion and uptake in all line ministries.

During the NAP validation workshop held on 23 June 2020, key stakeholders gathered to confirm the implementation strategy and institutional arrangements for the NAP process. To this end, a new short-term implementation plan and interim implementation arrangements were presented as requested by the Government.

The country ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 2006, the Kyoto Protocol in 2008 and the Paris Agreement in 2016. To fulfil its obligations to these frameworks, the Government has taken forward several initiatives and produced the following important documents: National Adaptation Programme of Action (NAPA) in 2010, Initial National Communication (INC) to the UNFCCC in 2014 and Intended Nationally Determined Contribution (INDC) in 2016<sup>v</sup>.

Timor-Leste's 2014 INC represents a significant milestone for building the country's institutional and scientific capacities. It provided guidance for climate change programs and how to achieve climate-resilient development goals<sup>vi</sup>. With support from UNDP, the country submitted its Second National Communication (SNC) to the UNFCCC in November 2020<sup>vii</sup>, which continues the ongoing development of the National Inventory of greenhouse gases, undertakes integrated vulnerability assessments, implements adaptation measures for certain development and environment sectors, and drafts a National Mitigation Plan. The project focuses on improving the public's access to climate change information by developing the institutional capacity of the Climate Change Centre for Timor-Leste.

However, as a Least Developed Country (LDC), Timor-Leste is challenged to accomplish climate change adaptation and mitigation actions and projects without the provision of capacity building, finance, and technology transfer from international partners. External funding is crucial for enhancing the national research and development efforts, and in supporting human and institutional capacity building in the country<sup>viii</sup>.

## Preparing for adaptation planning

The Government of Timor-Leste has taken necessary steps to address the adverse effects of climate change and its wider environmental consequences for the six key sectors in the country: food security, water, health, disasters, biodiversity and infrastructure (as recognized by NAPA, 2010)<sup>viii</sup>.

UNDP supported Timor-Leste to fulfill its commitments and obligations under the UNFCCC by preparing its Second National Communication (SNC) in the period 2014 to 2019. Preparing for adaptation planning has been performed with the following project activities: ongoing development of the National Inventory of Greenhouse Gases for the period 2011 to 2017, comprehensive assessment of climate change vulnerability and adaptation measures for the country's key development and environment sectors, developing a draft National Mitigation Plan

(NMP), developing the country's Nationally Determined Contributions and building national capacity on future National Communications. Among the results of the SNC, a national level vulnerability analysis was performed, and national Greenhouse Gas Inventory and National Mitigation Plan were prepared. In addition, 30 officials from the Timor-Leste government were trained in sectoral analysis of GHG emissions and 15 officials were trained on the topic of vulnerability analysis for building local capacity for upcoming national communications<sup>vi</sup>.

## Implementation of adaptation actions

The government of Timor-Leste has implemented various climate change-related programs drawn from the strategies discussed above, using both national and international funds. These include (in a non-exhaustive list):

- [Managing Agro-Biodiversity for Sustainable Livelihoods in Timor-Leste, GIZ \(2012-2016\)](#): Protecting the agro-biodiversity and developing sustainable agricultural practices to preserve and promote agro-biodiversity;
- [Building Climate/Disaster Resilience along the Dili-Ainaro and Linked Road Corridors in Timor-Leste, GEF, JICA, World Bank \(2014-2018\)](#): World Bank and Government of Timor-Leste Improving Disaster Resilience along the Dili-Ainaro Road Corridor;
- [Strengthening Disaster Risk Management \(DRM\) Programme, UNDP \(2011-2018\)](#): To educate the key decision makers about the risks of climate change and weather disasters, reduce disaster risk, strengthen the National and District Operations Centers and to enable the vulnerable communities to participate in disaster risk reduction actions<sup>iii</sup>;
- [Safeguarding rural communities and their physical assets from climate induced disasters in Timor-Leste \(2019-2026\)](#): Addressing the underlying causes of vulnerability of social and physical rural infrastructure and addressing a limited capacity to generate and use information about climate risks.

## Formulating a National Adaptation Plan

Timor Leste submitted its first national adaptation plan to the UNFCCC in March 2021. The NAP serves as the umbrella plan of action for adaptation, embracing all other relevant national plans, sectoral strategies and plans at various subnational levels. It contains several essential programmes and projects that have been identified based on available assessments and past work through the GCF Country Programme and the NDC. This NAP represents the first stage in developing a comprehensive and coordinated long-term approach to reducing vulnerability and increasing resilience and adaptive capacity at all levels in Timor-Leste.



# Challenges and successes

## Support programmes

Substantial support exists for climate change adaptation projects in Timor-Leste. Among the donors, the most prominent are: the Global Environment Facility (GEF), United States Agency for International Development (USAID), Japan International Cooperation Agency (JICA), the World Bank, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, UNDP, the Canadian International Development Agency (CIDA), the US National Oceanic and Atmospheric Administration (NOAA), as well as Australian Department of Foreign Affairs and Trade (DFAT)<sup>iii</sup>.

## Challenges

Timor-Leste has established policies for climate change, yet the implementation remains a challenge because clear institutional mandates and resources, both human and financial, as well as technical

capacities, are lacking<sup>iii</sup>. An additional challenge is the lack of consistent climate data for Timor-Leste, which makes it challenging to accurately evaluate the climate risks in the country. This poses challenges for effective implementation of the NAPA. Finally, vertical and horizontal coordination among key stakeholders and institutions remains a challenge without clear guidelines and better mutual understanding<sup>iii</sup>.

## Successes

Timor Leste is increasingly scaling up its adaptation efforts, including by strengthening policy planning. This is also demonstrated by the government agreeing on a interim implementation arrangements to guide the NAP process until a formal mandate and permanent institutional arrangements can be established. The NAP is seen as an essential instrument to advance adaptation. In addition, financial assistance from international agencies and institutions, several successful adaptation projects have been delivered in the last decade.



## The process to formulate and implement NAPs

Timor-Leste has two government ministries responsible for managing and coordinating national environmental policies and their implementation: the Ministry of Agriculture and Fisheries and the Ministry of Economic Affairs<sup>iv</sup>. Under the Coordinating Minister of Economic Affairs, the State Secretary for the Environment is the coordinating body for climate actions and interactions with the UNFCCC in the country<sup>x</sup>. In addition, their work is supplemented with the expertise from the Department for Climate Change and Energy Efficiency. Despite having established institutional arrangements, implementation is a challenge as clear mandates and resources are lacking<sup>iii</sup>.

## Opportunities and next steps

The Government of Timor-Leste will implement its NAP in line with the implementation plan which includes near, medium (2022-2025) and long-term (2025-2030) actions. As such, resource mobilization, including through accessing the GCF NAP readiness funding will be one of Timor Leste's first next steps. Future projects and programs will have to ensure that the lessons learned from finished projects are incorporated into new project ideas and implementation. The government of Timor-Leste has also defined a number of future actions, which will result in increasing the use of renewable energy, improving energy security and reducing GHG emissions through elaborated programs as a way to help the global fight against the negative effects of climate change.

## Key documents

- [National Adaptation Programme of Action \(NAPA\) on Climate Change \(2010\)](#)
- [National Biodiversity Strategy and Action Plan 2011–2020 \(2011\)](#)
- [Timor-Leste Strategic Development Plan 2011–2030 \(2011\)](#)
- [Initial National Communication \(2014\)](#)
- [Nationally Determined Contribution \(INDC\) \(2016\)](#)
- [Second National Communication to the UNFCCC \(2020\)](#)
- [National Adaptation Plan \(2021\)](#)



**1.25°  
1.75°C**  
increase in air  
temperatures  
by 2050

**150–340 mm**  
rise in sea levels  
by 2050

**57%**  
decrease in  
rice production  
during the  
2016 El Niño

**1°C** minimum  
temperature increase  
during growing season  
will decrease yields for  
main staple crops  
(maize and rice) by up  
to 10%

**> 450,000**  
suffer annually  
from floods and  
landslides<sup>xiv</sup>

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## About the NAP-GSP

The joint UNDP-UN Environment National Adaptation Plan Global Support Programme (NAP-GSP) was launched in June 2013, financed by the Global Environment Facility (GEF) Least Developed Countries Fund (LDCF), and the Special Climate Change Fund (SCCF). The NAP-GSP, together with partners, are assisting developing countries to identify technical, institutional and financial needs to integrate climate change adaptation into medium and long-term national planning and financing. The NAP-GSP provides technical expertise and guidance on country NAP processes, and opportunities for knowledge exchange on NAPs.



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